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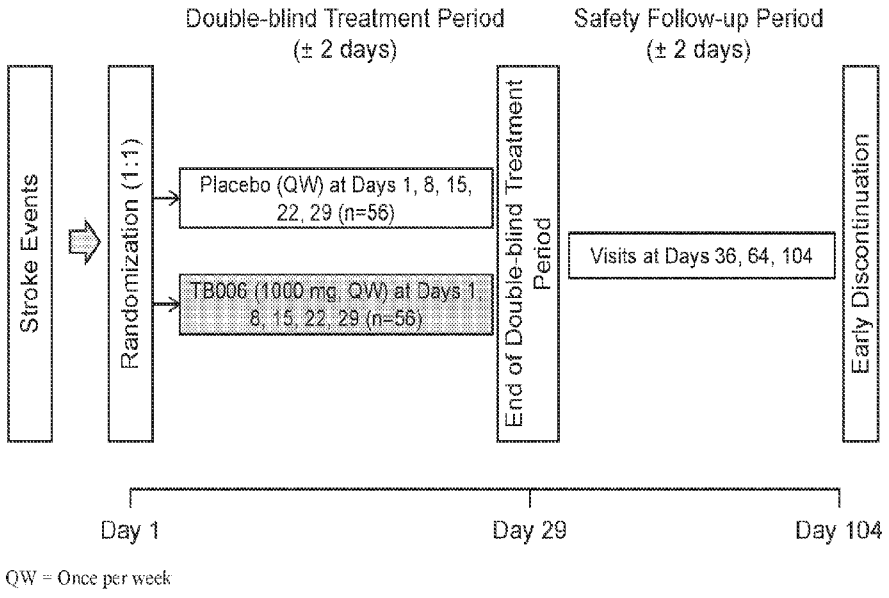


FIG. 36

(57) Abstract: Disclosed herein are methods and compositions for inhibiting, preventing, ameliorating, reducing, or treating cardiovascular diseases, for example, stroke, traumatic brain injury, cerebral amyloid angiopathy, atherosclerosis, myocardial infarction, and/or diseases associated with fibrin activity or dysfunction. These methods and compositions involve antibodies that can bind to Galectin-3 and inhibit, prevent, ameliorate, reduce, or treat the cardiovascular diseases in a patient by reducing inflammation and/or inhibiting oligomerization of proteins associated with pathology such as amyloid beta or fibrin.

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METHODS OF TREATING OR INHIBITING CARDIOVASCULAR DISEASES

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application claims the benefit of priority of U.S. Provisional Patent Application No. 63/263,773, filed November 09, 2021, which is hereby expressly incorporated by reference in its entirety, including any appendices filed therewith.

REFERENCE TO SEQUENCE LISTING

[0002] The present application is being filed along with a Sequence Listing in electronic format. The Sequence Listing is provided as a file entitled IMMUT032WOSeqListing.XML, which was created and last modified on October 26, 2022, which is 1,424,975 bytes in size. The information in the electronic Sequence Listing is hereby incorporated by reference in its entirety.

FIELD

[0003] Aspects of the present disclosure relate generally to methods and compositions for inhibiting, preventing, ameliorating, reducing, or treating cardiovascular diseases. These methods and compositions involve the use of antibodies that bind to Galectin-3 (Gal3).

BACKGROUND

[0004] Galectin-3 (Gal3, GAL3) is a lectin, or a carbohydrate-binding protein, with specificity towards beta-galactosides. In human cells, Gal3 is expressed and can be found in the nucleus, cytoplasm, cell surface, and in the extracellular space. Gal3 recognizes and interacts with beta-galactose conjugates on various proteins.

SUMMARY

[0005] Galectin-3 (Gal3) has been implicated to have immunomodulatory activity. An example of this is the interaction between Gal3 and T-cell immunoglobulin and mucin-domain containing-3 (TIM-3), which causes suppression of immune responses such as T cell activation and may enable cancer cells to evade immune clearance. This phenomenon and methods to inhibit the same are exemplified in WO 2019/023247 and WO 2020/160156, each

of which is hereby expressly incorporated by reference in its entirety.Disclosed herein are methods for inhibiting, reducing, preventing, and/or treating stroke in a subject in need thereof. In some embodiments, the methods comprise administering an anti-Gal3 antibody or binding fragment thereof to the subject, thereby inhibiting, reducing, preventing, and/or treating the stroke. In some embodiments, the stroke is an ischemic stroke, thrombotic stroke, embolic stroke, transient ischemic attack, hemorrhagic stroke, intracerebral hemorrhage, or subarachnoid hemorrhage.

[0006] Also disclosed herein are methods for inhibiting, reducing, preventing, and/or treating traumatic brain injury (TBI) in a subject in need thereof. In some embodiments, the methods comprise administering an anti-Gal3 antibody or binding fragment thereof to the subject, thereby inhibiting, reducing, preventing, and/or treating the TBI. In some embodiments, the TBI is associated with a concussion, edema, diffuse axonal injury, spinal cord injury, coma, neuroinflammation, microhemorrhage, astrocytosis, activated microglia, and/or hematoma.

[0007] Also disclosed herein are methods for inhibiting, reducing, preventing, and/or treating a disorder associated with fibrin activity or dysfunction in a subject in need thereof. In some embodiments, the methods comprise administering an anti-Gal3 antibody or binding fragment thereof to the subject, thereby inhibiting, reducing, preventing, and/or treating the disorder associated with fibrin activity or dysfunction. In some embodiments, the disorder associated with fibrin activity or dysfunction comprises atherosclerosis, thrombosis, thromboembolism, carotid artery disease, coronary artery disease, peripheral artery disease, myocardial infarction, heart failure, heart attack, hypertension, chronic kidney disease, coagulopathy, or thrombocytopathy.

[0008] Also disclosed herein are methods for inhibiting, reducing, preventing, and/or treating a disorder associated with inflammation and elevation of proinflammatory cytokines in a subject in need thereof. The methods comprise administering an anti-Gal3 antibody or binding fragment thereof to the subject, thereby treating the disorder associated with inflammation. In some embodiments, the administration reduces proinflammatory cytokines, such as circulating cytokines, in the subject.

[0009] Also disclosed herein are methods comprising administering 5 unit doses of an anti-Gal3 antibody or binding fragment thereof, where each unit dose comprises 1000 mg or about 1000 mg of the anti-Gal3 antibody or binding fragment thereof, where the unit doses are administered every 7 days or about 7 days, and where each unit dose is administered over the course of 1 hour or about 1 hour.

[0010] Also disclosed herein are single-use sealed injectable glass vials comprising 8 mL of 20 mg/mL of an anti-Gal3 antibody or binding fragment thereof.

[0011] Also disclosed herein are IV infusion bags comprising 1000 mg or about 1000 mg of an anti-Gal3 antibody or binding fragment thereof dissolved in 250 mL or about 250 mL of saline.

[0012] In some embodiments, the anti-Gal3 antibody or binding fragment is any one or more of the anti-Gal3 antibodies or binding fragments thereof, or any portion or component of any one or more of the anti-Gal3 antibodies or binding fragments thereof disclosed herein, including but not limited to 1, 2, 3, 4, 5, or 6 CDRs, heavy chain variable regions, light chain variable regions, heavy chains, or light chains.

BRIEF DESCRIPTION OF THE DRAWINGS

[0013] In addition to the features described above, additional features and variations will be readily apparent from the following descriptions of the drawings and exemplary embodiments. It is to be understood that these drawings depict typical embodiments and are not intended to be limiting in scope.

[0014] **FIG. 1** depicts exemplary protein sequences of Gal3.

[0015] **FIG. 2** depicts exemplary peptide sequences of Gal3 used to generate and analyze antibodies.

[0016] **FIG. 3A** depicts exemplary variable heavy chain complementarity-determining region (CDR) 1 for anti-Gal3 antibodies disclosed herein. In some embodiments, any of the compositions or methods provided herein can include one or more of the variable heavy chain CDR1 provided herein.

[0017] **FIG. 3B** depicts exemplary variable heavy chain CDR2 for anti-Gal3 antibodies disclosed herein. In some embodiments, any of the compositions or methods provided herein can include one or more of the variable heavy chain CDR2 provided herein.

[0018] **FIG. 3C** depicts exemplary variable heavy chain CDR3 for anti-Gal3 antibodies disclosed herein. In some embodiments, any of the compositions or methods provided herein can include one or more of the variable heavy chain CDR3 provided herein.

[0019] **FIG. 4A** depicts exemplary variable light chain CDR1 for anti-Gal3 antibodies disclosed herein. In some embodiments, any of the compositions or methods provided herein can include one or more of the variable light chain CDR1 provided herein.

[0020] **FIG. 4B** depicts exemplary variable light chain CDR2 for anti-Gal3 antibodies disclosed herein. In some embodiments, any of the compositions or methods provided herein can include one or more of the variable light chain CDR2 provided herein.

[0021] **FIG. 4C** depicts exemplary variable light chain CDR3 for anti-Gal3 antibodies disclosed herein. In some embodiments, any of the compositions or methods provided herein can include one or more of the variable light chain CDR3 provided herein.

[0022] **FIG. 5** depicts exemplary heavy chain variable region (VH) sequences for anti-Gal3 antibodies disclosed herein. In some embodiments, any of the compositions or methods provided herein can include one or more of the VH sequences provided herein.

[0023] **FIG. 6** depicts exemplary light chain variable region (VL) sequences for anti-Gal3 antibodies disclosed herein. In some embodiments, any of the compositions or methods provided herein can include one or more of the VL sequences provided herein.

[0024] **FIG. 7** depicts exemplary combinations of heavy and light chain CDRs (CDR1, CDR2, and CDR3) of exemplary anti-Gal3 antibodies disclosed herein. In some embodiments, any of the compositions or methods provided herein can include one or more of the heavy and light chain CDR combinations provided herein.

[0025] **FIG. 8** depicts exemplary combinations of heavy and light chain variable regions of exemplary anti-Gal3 antibodies disclosed herein. In some embodiments, any of the compositions or methods provided herein can include one or more of the heavy and light chain variable region combinations provided herein.

[0026] **FIG. 9** depicts exemplary heavy chain (HC) sequences and light chain (LC) sequences, and possible pairings for exemplary anti-Gal3 antibodies disclosed herein. In some embodiments, any of the compositions or methods provided herein can include one or more of the HC or LC, or pairs of HC and LC sequences provided herein.

[0027] **FIG. 10** depicts peptides that were found to bind to exemplary anti-Gal3 antibodies disclosed herein (according to the peptide nomenclature depicted in **FIG. 2** as discussed herein) and binning of these exemplary antibodies.

[0028] **FIG. 11A** depicts K_D (M) values of Gal3 binding for exemplary anti-Gal3 antibodies disclosed herein.

[0029] **FIG. 11B** depicts antibodies affinities (K_D) of anti-Gal3 humanized antibodies TB001 (IMT001) and TB006 (IMT006) for human, cynomolgus, rat, and mouse Gal3.

[0030] **FIG. 12** depicts antibody names used throughout the present disclosure refer to the same antibody (with exemplary peptide and nucleic acid sequences provided elsewhere

in the disclosure and appropriately attributed to at least one of the depicted names) and may be used interchangeably. The names shown in a column correspond to the same antibody.

[0031] **FIG. 13** depicts an alignment of hinge and constant heavy chain domain 2 (C_H2) domain amino acid sequences of wild-type human immunoglobulin G1 (IgG1), IgG2 and IgG4 as well as their sigma variants. The alignment above uses EU numbering. Residues identical to wild-type IgG1 are indicated as dots; gaps are indicated with hyphens. Sequence is given explicitly if it differs from wild-type IgG1 or from the parental subtype for σ variants. Open boxes beneath the alignment correspond to International Immunogenetics Information System (IMGT) strand definitions. Boxes beneath the alignment correspond to the strand and helix secondary structure assignment for wild-type IgG1. Residues 267-273 form the BC loop and 322-332 form the FG loop. Also provided are exemplary constant regions for human IgG4 heavy (S228P mutant) and light (kappa) chains (**SEQ ID NOs: 931-932**) and murine IgG2A (LALAPG and LALA mutants) (**SEQ ID NOs: 933-934**). In some embodiments, any one or more of the VH/VL and/or CDRs provided in the other figures or otherwise disclosed herein can be paired with any one or more of the exemplary constant regions provided herein.

[0032] **FIG. 14** depicts nucleic acid sequences that encode for exemplary heavy chain variable regions of anti-Gal3 antibodies disclosed herein. In some embodiments, any of the compositions or methods provided herein can include one or more of the heavy chain variable regions encoded by the nucleic acids provided herein.

[0033] **FIG. 15** depicts nucleic acid sequences that encode for exemplary light chain variable regions of anti-Gal3 antibodies disclosed herein. In some embodiments, any of the compositions or methods provided herein can include one or more of the light chain variable regions encoded by the nucleic acids provided herein.

[0034] **FIG. 16** depicts nucleic acid sequences that encode for exemplary heavy chains of anti-Gal3 antibodies disclosed herein. In some embodiments, any of the compositions or methods provided herein can include one or more of the heavy chains encoded by the nucleic acids provided herein.

[0035] **FIG. 17** depicts nucleic acid sequences that encode for exemplary light chains of anti-Gal3 antibodies disclosed herein. In some embodiments, any of the compositions or methods provided herein can include one or more of the light chains encoded by the nucleic acids provided herein.

[0036] **FIG. 18A-B** depicts an exemplary alignment for the heavy chain CDRs (**FIG. 18A**) and light chain CDRs (**FIG. 18B**) for the exemplary anti-Gal3 antibodies disclosed herein.

[0037] **FIG. 19A-D** each depict a table with a subset of anti-Gal3 antibodies disclosed herein. In some embodiments, sequences, including heavy chain variable region CDRs, light chain variable region CDRs, heavy chain variable regions, light chain variable regions, heavy chains, and light chains, or combinations thereof, can be selected from any one or more of the anti-Gal3 antibodies provided as subsets in each table.

[0038] **FIG. 20A-D** each depict a table with a subset of anti-Gal3 antibodies disclosed herein. In some embodiments, sequences, including heavy chain variable region CDRs, light chain variable region CDRs, heavy chain variable regions, light chain variable regions, heavy chains, and light chains, or combinations thereof, can be selected from any one or more of the anti-Gal3 antibodies provided as subsets in each table.

[0039] **FIG. 21A-B** depict quantification of locomotor activity in an intracerebral hemorrhage (ICH) stroke mouse model showing significantly shorter latency to fall (**FIG. 21A**) and less distance travelled (**FIG. 21B**) as compared to age matched healthy control mice.

[0040] **FIG. 22** depicts an exemplary dose regimen after inducing stroke (ICH). Mice were dosed with 8 doses of mTB001 or MOPC21 for 4 weeks (2 doses per week).

[0041] **FIG. 23A-D** depict quantification of locomotor activity in an ICH mouse model before and after treatment with mTB001 or MOPC21 and compared to control wild-type. Treated mice were assessed after 4 (**FIG. 23A**), 6 (**FIG. 23B**), and 8 doses. After 8 doses of treatment, stroke-induced mice treated with mTB001 showed significant improvement in terms of latency to fall (**FIG. 23C**) and distance travelled (**FIG. 23D**), with locomotor ability similar to age matched healthy control mice.

[0042] **FIG. 24A-C** depict reduction in microhemorrhage in ICH model mice treated with mTB001 as quantified by Prussian Blue staining. Representative Prussian Blue-stained brain slices of mTB001-treated mice showed significantly reduced microhemorrhage compared to MOPC21-treated mice (**FIG. 24A**). Healthy control mice showed no microhemorrhage (**FIG. 24B**). **FIG. 24C** is the quantification of Prussian Blue-positive surface area of the representative brain slices of **FIG. 24A-B**.

[0043] **FIG. 25A-B** depict a reduction of activated microglia in ICH model mice treated with mTB001. **FIG. 25A** shows brain slices of mTB001 or MOPC21 isotype control treated ICH mice and wild type control mice stained with the microglia marker Iba1. **FIG. 25B** is the quantification of Iba1 positive staining of the representative brain slices of **FIG. 24A**.

[0044] **FIG. 26A-B** depict a reduction of activated astrocytes in ICH model mice treated with mTB001. **FIG. 26A** shows brain slices of mTB001 or MOPC21 isotype control treated ICH mice and wild type control mice stained with the astrocyte marker GFAP. **FIG.**

26B is the quantification of GFAP positive staining of the representative brain slices of **FIG. 26A**.

[0045] **FIG. 27A-F** depict a mouse model of TBI treated with exemplary anti-Gal3 antibody mTB001 exhibiting reduced levels of activated microglia and astrocytes, and levels of myeloid immune cells in the affected brain. The brains of TBI model and wild type mice were probed with antibodies against the activated microglia marker Iba1 (**FIG. 27A**), the activated astrocyte marker GFAP (**FIG. 27C**), and the myeloid cell marker CD68 (**FIG. 27E**). **FIG. 27B** shows quantification of **FIG. 27A** showing that mTB001 significantly reduces activated microglia compared to isotype control. **FIG. 27D** shows quantification of **FIG. 27C** showing that mTB001 significantly reduces activated astrocytes compared to isotype control. **FIG. 27F** shows quantification of **FIG. 27E** showing that mTB001 significantly reduces levels of myeloid cells, such as macrophages and microglia, compared to isotype control.

[0046] **FIG. 28A-D** depict a mouse model of TBI treated with exemplary anti-Gal3 antibody mTB001 exhibiting reduced levels of hyperphosphorylated tau and microhemorrhage in the affected brain. The brains of TBI model and wild type mice were probed with antibody AT8, which binds to phosphorylated tau (**FIG. 28A**), or stained with Prussian Blue (**FIG. 28C**). **FIG. 28B** shows quantification of **FIG. 28A** showing that mTB001 significantly reduces levels of hyperphosphorylated tau compared to isotype control. **FIG. 28D** shows quantification of **FIG. 28C** showing that mTB001 significantly reduces microhemorrhage compared to isotype control.

[0047] **FIG. 28E** depicts a mouse model of TBI treated with exemplary antibody mTB001 exhibiting reduced levels of neurofilament-light (NF-L) in plasma after 48 hours of treatment.

[0048] **FIG. 29** depicts exemplary anti-Gal3 antibodies assessed for activity against fibrin oligomerization of Example 3.

[0049] **FIG. 30A-B** depict a time course of Gal3-mediated fibrin oligomerization over a course of 0-5 hours. **FIG. 30A** shows a dot blot of fibrin incubated with or without Gal3 (100 μg/mL each) for 0-5 hours and probed with oligomer specific conformational antibody A11. **FIG. 30B** shows quantification of **FIG. 30A**.

[0050] **FIG. 31A-B** depict a time course of Gal3-mediated fibrin oligomerization over a course of 0-24 hours. **FIG. 31A** shows a dot blot of fibrin incubated with or without Gal3 (100 μg/mL each) for 0-24 hours and probed with oligomer specific conformational antibody A11. **FIG. 31B** shows quantification of **FIG. 31A**.

[0051] **FIG. 32** depicts the ability for exemplary anti-Gal3 antibodies TB001 and TB006 to degrade fibrin oligomers. 100 μg/mL each of fibrin and Gal3 were incubated for 24 hours prior to the addition of Gal3 antibodies at a concentration of 0, 3, 10, or 100 μg/mL and incubated for 3 hours. Dot blot of samples were probed with A11 antibody. Degradation of fibrin oligomers were observed at all tested concentrations of antibody.

[0052] **FIG. 33A-C** depict the ability for additional exemplary anti-Gal3 antibodies to degrade fibrin oligomers. **FIG. 33A** shows a time course of fibrin aggregation in a dot blot with samples of 100 μg/mL each of fibrin and Gal3 incubated for 0, 2, 4, 6, or 24 hours and probed with A11 antibody. **FIG. 33B** shows a dot blot showing degradation of fibrin oligomers by exemplary anti-Gal3 antibodies as listed according to assigned numbers shown in **FIG. 29**. 100 μg/mL each of fibrin and Gal3 were incubated for 24 hours prior to the addition of 100 μg/mL of the listed anti-Gal3 antibody clones. Antibody incubation was done for 24 hours, and samples were probed on a dot blot with A11 antibody. Dot blot was done in duplicate for each condition. **FIG. 33C** shows quantification of **FIG. 33A-B** (24 hour time point for fibrin or fibrin/Gal3 only; and 24 hour fibrin/Gal3 incubation + 24 hour antibody incubation [one of the two duplicates of **FIG. 33B** was quantified]).

[0053] **FIG. 34** depicts Gal3 induction of cytokine release by activated neutrophils (using an HL60 neutrophil-like cell line model) and inhibition of this effect by anti-Gal3 antibodies. Expression of TNF-α, IL-6, and IL-8 was measured by ELISA.

[0054] **FIG. 35A-C** depict Gal3 induction of cytokine release by activated monocytes (using a THP-1 monocyte-like cell line model) and inhibition of this effect by anti-Gal3 antibodies. After 6 or 24 hours of cell incubation, expression of TNF-α (**FIG. 35A**), IL-6 (**FIG. 35B**), and IL-8 (**FIG. 35C**) was measured by ELISA. No expression of IL-6 was observed at the 6 hour time point.

[0055] **FIG. 36** depicts an exemplary administration and follow up schema for the acute ischemic stroke (AIS) treatment using TB006 as described in Example 12.

DETAILED DESCRIPTION OF THE DISCLOSURE

[0056] Galectin-3 (Gal3, GAL3) plays a role in cell proliferation, adhesion, differentiation, angiogenesis, and apoptosis. This activity is, at least in part, due to immunomodulatory properties and binding affinity towards other immune regulatory proteins, signaling proteins, and other cell surface markers.

[0057] Gal3 functions by distinct N-terminal and C-terminal domains. The N-terminal domain (isoform 1: amino acids 1-111, isoform 3: amino acids 1-125) comprise a

tandem repeat domain (TRD, isoform 1: amino acids 36-109, isoform 3: amino acids 50-123) and is largely responsible for oligomerization of Gal3. The C-terminal domain (isoform 1: amino acids 112-250, isoform 3: amino acids 126-264) comprise a carbohydrate-recognition-binding domain (CRD), which binds to β-galactosides.

[0058] An exemplary sequence for isoform 1 of human Gal3 (NCBI Reference No. NP_002297.2) is shown in **SEQ ID NO: 1**. An exemplary sequence for isoform 3 of human Gal3 (NCBI Reference No. NP_001344607.1) is shown in **SEQ ID NO: 2**.

[0059] Disclosed herein are methods for inhibiting, reducing, preventing, and/or treating stroke in a subject in need thereof. The methods comprise administering an anti-Gal3 antibody or binding fragment thereof to the subject, thereby inhibiting, reducing, preventing, and/or treating the stroke. In some embodiments, the stroke is an ischemic stroke, thrombotic stroke, embolic stroke, transient ischemic attack, hemorrhagic stroke, intracerebral hemorrhage, or subarachnoid hemorrhage.

[0060] Also disclosed herein are methods for inhibiting, reducing, preventing, and/or treating traumatic brain injury (TBI) in a subject in need thereof. The methods comprise administering an anti-Gal3 antibody or binding fragment thereof to the subject, thereby inhibiting, reducing, preventing, and/or treating the TBI. In some embodiments, the TBI is associated with a concussion, edema, diffuse axonal injury, spinal cord injury, coma, neuroinflammation, microhemorrhage, astrocytosis, activated microglia, and/or hematoma.

[0061] Also disclosed herein are methods for inhibiting, reducing, preventing, and/or treating a disorder associated with fibrin activity or dysfunction in a subject in need thereof. The methods comprise administering an anti-Gal3 antibody or binding fragment thereof to the subject, thereby inhibiting, reducing, preventing, and/or treating the disorder associated with fibrin activity or dysfunction. In some embodiments, the disorder associated with fibrin activity or dysfunction comprises atherosclerosis, thrombosis, thromboembolism, carotid artery disease, coronary artery disease, peripheral artery disease, myocardial infarction, heart failure, heart attack, hypertension, chronic kidney disease, coagulopathy, or thrombocytopathy.

[0062] Any and all of the methods provide herein are also contemplated for use in the preparation of a medicament for the treatment of the noted disorder and/or as the corresponding composition for use in the treatment of the noted disorder.

[0063] In some embodiments, the anti-Gal3 antibody or binding fragment is any one or more of the anti-Gal3 antibodies or binding fragments thereof, or any portion or component of any one or more of the anti-Gal3 antibodies or binding fragments thereof disclosed herein,

including but not limited to 1, 2, 3, 4, 5, or 6 CDRs, heavy chain variable regions, light chain variable regions, heavy chains, or light chains.

[0064] In some embodiments, the anti-Gal3 antibody or binding fragment thereof is or comprises any one or more of the sequences illustrated in **FIG. 3A-C, 4A-C, 5, 6, 7, 8, or 9**, includes any 1, 2, 3, 4, 5, or 6 of the CDRs in **SEQ ID NOs: 27-538, 801-865**, and/or includes one or both of the VH/VL in **SEQ ID NOs: 297-447, 803-865, 926-929**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof includes 1, 2, 3, 4, 5, or 6 of the V_H-CDR1, V_H-CDR2, V_H-CDR3, V_L-CDR1, V_L-CDR2, and/or V_L-CDR3 of **SEQ ID NOs: 27, 71, 112, 170, 221, 248**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof includes 1, 2, 3, 4, 5, or 6 of the V_H-CDR1, V_H-CDR2, V_H-CDR3, V_L-CDR1, V_L-CDR2, and/or V_L-CDR3 of **SEQ ID NOs: 31, 72, 113, 171, 222, 249**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof includes 1, 2, 3, 4, 5, or 6 of the V_H-CDR1, V_H-CDR2, V_H-CDR3, V_L-CDR1, V_L-CDR2, and/or V_L-CDR3 of **SEQ ID NOs: 30, 86, 130, 189, 230, 263**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof includes 1, 2, 3, 4, 5, or 6 of the V_H-CDR1, V_H-CDR2, V_H-CDR3, V_L-CDR1, V_L-CDR2, and/or V_L-CDR3 of **SEQ ID NOs: 34, 74, 116, 174, 225, 252**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof includes 1, 2, 3, 4, 5, or 6 of the V_H-CDR1, V_H-CDR2, V_H-CDR3, V_L-CDR1, V_L-CDR2, and/or V_L-CDR3 of **SEQ ID NOs: 32, 84, 119, 186, 228, 255**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof includes 1, 2, 3, 4, 5, or 6 of the V_H-CDR1, V_H-CDR2, V_H-CDR3, V_L-CDR1, V_L-CDR2, and/or V_L-CDR3 of **SEQ ID NOs: 37, 77, 118, 178, 229, 256**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof includes 1, 2, 3, 4, 5, or 6 of the V_H-CDR1, V_H-CDR2, V_H-CDR3, V_L-CDR1, V_L-CDR2, and/or V_L-CDR3 of **SEQ ID NOs: 34, 74, 126, 187, 225, 252**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof includes 1, 2, 3, 4, 5, or 6 of the V_H-CDR1, V_H-CDR2, V_H-CDR3, V_L-CDR1, V_L-CDR2, and/or V_L-CDR3 of **SEQ ID NOs: 66, 108, 164, 215, 225, 291**.

Definitions

[0065] In the following detailed description, reference is made to the accompanying drawings, which form a part hereof. In the drawings, similar symbols typically identify similar components, unless context dictates otherwise. The illustrative embodiments described in the detailed description, drawings, and claims are not meant to be limiting. Other embodiments may be utilized, and other changes may be made, without departing from the spirit or scope of the subject matter presented herein. It will be readily understood that the aspects of the present

disclosure, as generally described herein, and illustrated in the Figures, can be arranged, substituted, combined, separated, and designed in a wide variety of different configurations, all of which are explicitly contemplated herein.

[0066] Unless defined otherwise, all technical and scientific terms used herein have the same meaning as is commonly understood by one of skill in the art to which the claimed subject matter belongs. It is to be understood that the foregoing general description and the following detailed description are exemplary and explanatory only and are not restrictive of any subject matter claimed.

[0067] The section headings used herein are for organizational purposes only and are not to be construed as limiting the subject matter described.

[0068] In this application, the use of the singular includes the plural unless specifically stated otherwise. It must be noted that, as used in the specification and the appended claims, the singular forms "a," "an" and "the" include plural referents unless the context clearly dictates otherwise. In this application, the use of "or" means "and/or" unless stated otherwise. Furthermore, use of the term "including" as well as other forms, such as "include", "includes," and "included," is not limiting.

[0069] By "about" is meant a quantity, level, value, number, frequency, percentage, dimension, size, amount, weight or length that varies by as much as 30, 25, 20, 15, 10, 9, 8, 7, 6, 5, 4, 3, 2 or 1% to a reference quantity, level, value, number, frequency, percentage, dimension, size, amount, weight or length.

[0070] Throughout this specification, unless the context requires otherwise, the words "comprise," "comprises," and "comprising" will be understood to imply the inclusion of a stated step or element or group of steps or elements but not the exclusion of any other step or element or group of steps or elements. By "consisting of" is meant including, and limited to, whatever follows the phrase "consisting of." Thus, the phrase "consisting of" indicates that the listed elements are required or mandatory, and that no other elements may be present. By "consisting essentially of" is meant including any elements listed after the phrase and limited to other elements that do not interfere with or contribute to the activity or action specified in the disclosure for the listed elements. Thus, the phrase "consisting essentially of" indicates that the listed elements are required or mandatory, but that other elements are optional and may or may not be present depending upon whether or not they materially affect the activity or action of the listed elements.

[0071] As used herein, the terms "individual(s)", "subject(s)" and "patient(s)" mean any mammal. In some embodiments, the mammal is a human. In some embodiments, the

mammal is a non-human. None of the terms require or are limited to situations characterized by the supervision (e.g. constant or intermittent) of a health care worker (e.g. a doctor, a registered nurse, a nurse practitioner, a physician's assistant, an orderly or a hospice worker).

[0072] The terms "polypeptide", "peptide", and "protein" are used interchangeably herein to refer to polymers of amino acids of any length. The polymer may be linear, cyclic, or branched, it may comprise modified amino acids, and it may be interrupted by non-amino acids. The terms also encompass amino acid polymers that have been modified, for example, via sulfation, glycosylation, lipidation, acetylation, phosphorylation, iodination, methylation, oxidation, proteolytic processing, phosphorylation, prenylation, racemization, selenoylation, transfer-RNA mediated addition of amino acids to proteins such as arginylation, ubiquitination, or any other manipulation, such as conjugation with a labeling component.

[0073] As used herein the term "amino acid" refers to either natural and/or unnatural or synthetic amino acids, including glycine and both the D or L optical isomers, and amino acid analogs and peptidomimetics.

[0074] A polypeptide or amino acid sequence "derived from" a designated protein refers to the origin of the polypeptide. Preferably, the polypeptide has an amino acid sequence that is essentially identical to that of a polypeptide encoded in the sequence, or a portion thereof wherein the portion consists of at least 10-20 amino acids, or at least 20-30 amino acids, or at least 30-50 amino acids, or which is immunologically identifiable with a polypeptide encoded in the sequence. This terminology also includes a polypeptide expressed from a designated nucleic acid sequence.

[0075] As used herein, the term "antibody" denotes the meaning ascribed to it by one of skill in the art, and further it is intended to include any polypeptide chain-containing molecular structure with a specific shape that fits to and recognizes an epitope, where one or more non-covalent binding interactions stabilize the complex between the molecular structure and the epitope. Antibodies may be polyclonal antibodies, although monoclonal antibodies may be preferred because they may be reproduced by cell culture or recombinantly and can be modified to reduce their antigenicity.

[0076] In addition to entire immunoglobulins (or their recombinant counterparts), immunoglobulin fragments or "binding fragments" comprising the epitope binding site (e.g., Fab', $F(ab')_2$, single-chain variable fragment (scFv), diabody, minibody, nanobody, single-domain antibody (sdAb), or other fragments) are useful as antibody moieties in the present invention. Such antibody fragments may be generated from whole immunoglobulins by ricin, pepsin, papain, or other protease cleavage. Minimal immunoglobulins may be designed

utilizing recombinant immunoglobulin techniques. For instance "Fv" immunoglobulins for use in the present invention may be produced by linking a variable light chain region to a variable heavy chain region via a peptide linker (e.g., poly-glycine or another sequence which does not form an alpha helix or beta sheet motif). Nanobodies or single-domain antibodies can also be derived from alternative organisms, such as dromedaries, camels, llamas, alpacas, or sharks. In some embodiments, antibodies can be conjugates, e.g. pegylated antibodies, drug, radioisotope, or toxin conjugates. Monoclonal antibodies directed against a specific epitope, or combination of epitopes, will allow for the targeting and/or depletion of cellular populations expressing the marker. Various techniques can be utilized using monoclonal antibodies to screen for cellular populations expressing the marker(s), and include magnetic separation using antibody-coated magnetic beads, "panning" with antibody attached to a solid matrix (i.e., plate), and flow cytometry (e.g. U.S. Pat. No. 5,985,660, hereby expressly incorporated by reference in its entirety).

[0077] As known in the art, the term "Fc region" is used to define a C-terminal region of an immunoglobulin heavy chain. The "Fc region" may be a native sequence Fc region or a variant Fc region. Although the boundaries of the Fc region of an immunoglobulin heavy chain might vary, the human IgG heavy chain Fc region is usually defined to stretch from an amino acid residue at position Cys226, or from Pro230, to the carboxyl-terminus thereof. The numbering of the residues in the Fc region is that of the EU index as in Kabat. Kabat et al., Sequences of Proteins of Immunological Interest, 5th Ed. Public Health Service, National Institutes of Health, Bethesda, Md., 1991. The Fc region of an immunoglobulin generally comprises two constant domains, CH2 and CH3. As is known in the art, an Fc region can be present in dimer or monomeric form.

[0078] As known in the art, a "constant region" of an antibody refers to the constant region of the antibody light chain or the constant region of the antibody heavy chain, either alone or in combination.

[0079] A "variable region" of an antibody refers to the variable region of the antibody light chain or the variable region of the antibody heavy chain, either alone or in combination. As known in the art, the variable regions of the heavy and light chains each consist of four framework regions (FRs) connected by three complementarity determining regions (CDRs) also known as hypervariable regions, and contribute to the formation of the antigen binding site of antibodies. If variants of a subject variable region are desired, particularly with substitution in amino acid residues outside of a CDR region (i.e., in the framework region), appropriate amino acid substitution, preferably, conservative amino acid substitution, can be

identified by comparing the subject variable region to the variable regions of other antibodies which contain CDR1 and CDR2 sequences in the same canonical class as the subject variable region (Chothia and Lesk, J Mol Biol 196(4): 901-917, 1987).

[0080] In some embodiments, definitive delineation of a CDR and identification of residues comprising the binding site of an antibody is accomplished by solving the structure of the antibody and/or solving the structure of the antibody-ligand complex. In certain embodiments, that can be accomplished by any of a variety of techniques known to those skilled in the art, such as X-ray crystallography. In certain embodiments, various methods of analysis can be employed to identify or approximate the CDR regions. In certain embodiments, various methods of analysis can be employed to identify or approximate the CDR regions. Examples of such methods include, but are not limited to, the Kabat definition, the Chothia definition, the IMGT approach (Lefranc et al., 2003, Dev Comp Immunol. 27:55-77), computational programs such as Paratome (Kunik et al., 2012, Nucl Acids Res. W521-4), the AbM definition, and the conformational definition.

[0081] The Kabat definition is a standard for numbering the residues in an antibody and is typically used to identify CDR regions. See, e.g., Johnson & Wu, 2000, Nucleic Acids Res., 28: 214-8. The Chothia definition is similar to the Kabat definition, but the Chothia definition takes into account positions of certain structural loop regions. See, e.g., Chothia et al., 1986, J. Mol. Biol., 196: 901-17; Chothia et al., 1989, Nature, 342: 877-83. The AbM definition uses an integrated suite of computer programs produced by Oxford Molecular Group that model antibody structure. See, e.g., Martin et al., 1989, Proc Natl Acad Sci (USA), 86:9268-9272; "AbM.TM., A Computer Program for Modeling Variable Regions of Antibodies," Oxford, UK; Oxford Molecular, Ltd. The AbM definition models the tertiary structure of an antibody from primary sequence using a combination of knowledge databases and ab initio methods, such as those described by Samudrala et al., 1999, "Ab Initio Protein Structure Prediction Using a Combined Hierarchical Approach," in PROTEINS, Structure, Function and Genetics Suppl., 3:194-198. The contact definition is based on an analysis of the available complex crystal structures. See, e.g., MacCallum et al., 1996, J. Mol. Biol., 5:732-45. In another approach, referred to herein as the "conformational definition" of CDRs, the positions of the CDRs may be identified as the residues that make enthalpic contributions to antigen binding. See, e.g., Makabe et al., 2008, Journal of Biological Chemistry, 283:1156-1166. Still other CDR boundary definitions may not strictly follow one of the above approaches, but will nonetheless overlap with at least a portion of the Kabat CDRs, although they may be shortened or lengthened in light of prediction or experimental findings that

particular residues or groups of residues do not significantly impact antigen binding. As used herein, a CDR may refer to CDRs defined by any approach known in the art, including combinations of approaches. The methods used herein may utilize CDRs defined according to any of these approaches. For any given embodiment containing more than one CDR, the CDRs may be defined in accordance with any of Kabat, Chothia, extended, IMGT, Paratome, AbM, and/or conformational definitions, or a combination of any of the foregoing.

[0082] As disclosed herein, sequences having a % identity to any of the sequences disclosed herein are envisioned and may be used. The terms "% identity" refer to the percentage of units (i.e. amino acids or nucleotides) that are the same between two or more sequences relative to the length of the sequence. When the two or more sequences being compared are the same length, the % identity will be respective that length. When two or more sequences being compared are different lengths, deletions and/or insertions may be introduced to obtain the best alignment. In some embodiments, these sequences may include peptide sequences, nucleic acid sequences, CDR sequences, variable region sequences, or heavy or light chain sequences. In some embodiments, any sequence having at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, 99%, or 100% sequence identity to any of the sequences disclosed herein may be used. In some embodiments, any sequence having at least 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, or 50 substitutions, deletions, or additions relative to any of the sequences disclosed herein may be used. The changes in sequences may apply to, for example, single amino acids, single nucleic acid bases, or nucleic acid codons; however, differences in longer stretches of sequences are also envisioned. As applied to antibody sequences, these differences in sequences may apply to antigen-binding regions (e.g., CDRs) or regions that do not bind to antigens or are only secondary to antigen binding (e.g., framework regions).

[0083] As disclosed herein, sequences having a % homology to any of the sequences disclosed herein are envisioned and may be used. The term "% homology" refers to the degree of conservation between two sequences when considering their three-dimensional structure. For example, homology between two protein sequences may be dependent on structural motifs, such as beta strands, alpha helices, and other folds, as well as their distribution throughout the sequence. Homology may be determined through structural determination, either empirically or *in silico*. In some embodiments, any sequence having at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, 99%, or 100% sequence homology to any of the sequences disclosed herein may be used.

In some embodiments, any sequence having at least 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, or 50 substitutions, deletions, or additions relative to any of the sequences disclosed herein, which may or may not affect the overall % homology, may be used.

[0084] As applied herein, sequences having a certain % similarity to any of the sequence disclosed herein are envisioned and may be used. In some embodiments, these sequences may include peptide sequences, nucleic acid sequences, CDR sequences, variable region sequences, or heavy or light chain sequences. As understood in the art with respect to peptide sequences, "similarity" refers to the comparison of amino acids based on their properties, including but not limited to size, polarity, charge, pK, aromaticity, hydrogen bonding properties, or presence of functional groups (e.g. hydroxyl, thiol, amine, carboxyl, and the like). The term "% similarity" refers to the percentage of units (i.e. amino acids) that are the same between two or more sequences relative to the length of the sequence. When the two or more sequences being compared are the same length, the % similarity will be respective that length. When two or more sequences being compared are different lengths, deletions and/or insertions may be introduced to obtain the best alignment. The similarity of two amino acids may dictate whether a certain substitution is conservative or non-conservative. Methods of determining the conservativeness of an amino acid substitution are generally known in the art and may involve substitution matrices. Commonly used substitution matrices include BLOSUM45, BLOSUM62, BLOSUM80, PAM100, PAM120, PAM160, PAM200, PAM250, but other substitution matrices or approaches may be used as considered appropriate by the skilled person. A certain substitution matrix may be preferential over the others when considering aspects such as stringency, conservation and/or divergence of related sequences (e.g. within the same species or broader), and length of the sequences in question. As used herein, a peptide sequence having a certain % similarity to another sequence will have up to that % of amino acids that are either identical or an acceptable substitution as governed by the method of similarity determination used. In some embodiments, a sequence having at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, 99%, or 100% sequence similarity to any of the sequences disclosed herein may be used. In some embodiments, any sequence having at least 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, or 50 similar substitutions relative to any of the sequences disclosed herein may be used. As applied to antibody sequences, these similar

substitutions may apply to antigen-binding regions (i.e. CDRs) or regions that do not bind to antigens or are only secondary to antigen binding (i.e. framework regions).

[0085] The term “consensus sequence” as used herein with regard to sequences refers to the generalized sequence representing all of the different combinations of permissible amino acids at each location of a group of sequences. A consensus sequence may provide insight into the conserved regions of related sequences where the unit (e.g. amino acid or nucleotide) is the same in most or all of the sequences, and regions that exhibit divergence between sequences. In the case of antibodies, the consensus sequence of a CDR may indicate amino acids that are important or dispensable for antigen binding. It is envisioned that consensus sequences may be prepared with any of the sequences provided herein, and the resultant various sequences derived from the consensus sequence can be validated to have similar effects as the template sequences.

[0086] The term "compete," as used herein with regard to an antibody, means that a first antibody, or an antigen-binding portion thereof, binds to an epitope in a manner sufficiently similar to the binding of a second antibody, or an antigen-binding portion thereof, such that the result of binding of the first antibody with its cognate epitope is detectably decreased in the presence of the second antibody compared to the binding of the first antibody in the absence of the second antibody. The alternative, where the binding of the second antibody to its epitope is also detectably decreased in the presence of the first antibody, can, but need not be the case. That is, a first antibody can inhibit the binding of a second antibody to its epitope without that second antibody inhibiting the binding of the first antibody to its respective epitope. However, where each antibody detectably inhibits the binding of the other antibody with its cognate epitope or ligand, whether to the same, greater, or lesser extent, the antibodies are said to "cross-compete" with each other for binding of their respective epitope(s). Both competing and cross-competing antibodies are encompassed by the present invention. Regardless of the mechanism by which such competition or cross-competition occurs (e.g., steric hindrance, conformational change, or binding to a common epitope, or portion thereof), the skilled artisan would appreciate, based upon the teachings provided herein, that such competing and/or cross-competing antibodies are encompassed and can be useful for the methods disclosed herein.

[0087] An antibody that "preferentially binds" or "specifically binds" (used interchangeably herein) to an epitope is a term well understood in the art, and methods to determine such specific or preferential binding are also well known in the art. A molecule is said to exhibit "specific binding" or "preferential binding" if it reacts or associates more

frequently, and/or more rapidly, and/or with greater duration and/or with greater affinity with a particular cell or substance than it does with alternative cells or substances. An antibody "specifically binds" or "preferentially binds" to a target if it binds with greater affinity, and/or avidity, and/or more readily, and/or with greater duration than it binds to other substances. For example, an antibody that specifically or preferentially binds to a target epitope is an antibody that binds this epitope with greater affinity, and/or avidity, and/or more readily, and/or with greater duration than it binds to other target epitopes or non-target epitopes. It is also understood by reading this definition that, for example, an antibody (or moiety or epitope) that specifically or preferentially binds to a first target may or may not specifically or preferentially bind to a second target. As such, "specific binding" or "preferential binding" does not necessarily require (although it can include) exclusive binding. Generally, but not necessarily, reference to binding means preferential binding.

[0088] The term “block” or “disrupt” as used herein with regard to an antibody refers to the ability of an antibody to interfere with a biological process, including but not limited to activity of an enzyme, binding of two or more biological molecules (e.g. two or more proteins, peptides, nucleic acids, lipids, and the like), or advancement of a signaling cascade. Generally, interference with a biological process will involve the antibody binding to its target or an epitope thereof, thereby interfering with the normal function of said target, such as occluding an active site of the target, occluding another region of the target important for its function, or altering the localization and/or transport of the target. The blocking or disruption activity of an antibody may be quantified in terms of the reduction of the biological process in question relative to a control condition where the biological process is not disrupted. In other cases, the blocking or disruption activity of an antibody may be quantified in terms of a modulation in another biological process known to be associated with the target biological process, whether it be directly related or inversely related. In some embodiments, the blocking or disruption activity may cause a change of at least 5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, or 100%, or any percentage within a range defined by any two of the aforementioned values, relative to a control condition. In some embodiments provided herein, an interaction between Gal3 and fibrin is a biological process that can be disrupted by an anti-Gal3 antibody. It is envisioned that the interaction between Gal3 and fibrin may or may not be a direct interaction between Gal3 and fibrin, and the anti-Gal3 antibody may interfere with some other aspect of the activity of Gal3 and/or fibrin.

[0089] As used herein, the term “antigen binding molecule” refers to a molecule that comprises an antigen binding portion that binds to an antigen and, optionally, a scaffold or

framework portion that allows the antigen binding portion to adopt a conformation that promotes binding of the antigen binding portion or provides some additional properties to the antigen binding molecule. In some embodiments, the antigen is Gal3. In some embodiments, the antigen binding portion comprises at least one CDR from an antibody that binds to the antigen. In some embodiments, the antigen binding portion comprises all three CDRs from a heavy chain of an antibody that binds to the antigen or from a light chain of an antibody that binds to the antigen. In some embodiments, the antigen binding portion comprises all six CDRs from an antibody that binds to the antigen (three from the heavy chain and three from the light chain). In some embodiments, the antigen binding portion is an antibody fragment.

[0090] Nonlimiting examples of antigen binding molecules include antibodies, antibody fragments (e.g., an antigen binding fragment of an antibody), antibody derivatives, and antibody analogs. Further specific examples include, but are not limited to, a single-chain variable fragment (scFv), a nanobody (e.g. VH domain of camelid heavy chain antibodies; VHH fragment, see Cortez-Retamozo et al., Cancer Research, Vol. 64:2853-57, 2004), a Fab fragment, a Fab' fragment, a F(ab')2 fragment, a Fv fragment, a Fd fragment, and a complementarity determining region (CDR) fragment. These molecules can be derived from any mammalian source, such as human, mouse, rat, rabbit, pig, dog, cat, horse, donkey, guinea pig, goat, or camelid. Antibody fragments may compete for binding of a target antigen with an intact antibody and the fragments may be produced by the modification of intact antibodies (e.g. enzymatic or chemical cleavage) or synthesized de novo using recombinant DNA technologies or peptide synthesis. The antigen binding molecule can comprise, for example, an alternative protein scaffold or artificial scaffold with grafted CDRs or CDR derivatives. Such scaffolds include, but are not limited to, antibody-derived scaffolds comprising mutations introduced to, for example, stabilize the three-dimensional structure of the antigen binding molecule as well as wholly synthetic scaffolds comprising, for example, a biocompatible polymer. See, for example, Korndorfer et al., 2003, Proteins: Structure, Function, and Bioinformatics, Volume 53, Issue 1:121-129 (2003); Roque et al., Biotechnol. Prog. 20:639-654 (2004). In addition, peptide antibody mimetics ("PAMs") can be used, as well as scaffolds based on antibody mimetics utilizing fibronectin components as a scaffold.

[0091] An antigen binding molecule can also include a protein comprising one or more antibody fragments incorporated into a single polypeptide chain or into multiple polypeptide chains. For instance, antigen binding molecule can include, but are not limited to, a diabody (see, e.g., EP 404,097; WO 93/11161; and Hollinger et al., Proc. Natl. Acad. Sci. USA, Vol. 90:6444-6448, 1993); an intrabody; a domain antibody (single VL or VH domain

or two or more VH domains joined by a peptide linker; see Ward et al., Nature, Vol. 341:544-546, 1989); a maxibody (2 scFvs fused to Fc region, see Fredericks et al., Protein Engineering, Design & Selection, Vol. 17:95-106, 2004 and Powers et al., Journal of Immunological Methods, Vol. 251:123-135, 2001); a triabody; a tetrabody; a minibody (scFv fused to CH3 domain; see Olafsen et al., Protein Eng Des Sel. , Vol.17:315-23, 2004); a peptibody (one or more peptides attached to an Fc region, see WO 00/24782); a linear antibody (a pair of tandem Fd segments, VH-CH1-VH-CH1) which, together with complementary light chain polypeptides, form a pair of antigen binding regions, see Zapata et al., Protein Eng., Vol. 8:1057-1062, 1995); a small modular immunopharmaceutical (see U.S. Patent Publication No. 20030133939); and immunoglobulin fusion proteins (e.g. IgG-scFv, IgG-Fab, 2scFv-IgG, 4scFv-IgG, VH-IgG, IgG-VH, and Fab-scFv-Fc).

[0092] In certain embodiments, an antigen binding molecule can have, for example, the structure of an immunoglobulin. An "immunoglobulin" is a tetrameric molecule, with each tetramer comprising two identical pairs of polypeptide chains, each pair having one "light" (about 25 kDa) and one "heavy" chain (about 50-70 kDa). The amino-terminal portion of each chain includes a variable region of about 100 to 110 or more amino acids primarily responsible for antigen recognition. The carboxy-terminal portion of each chain defines a constant region primarily responsible for effector function.

[0093] Unless otherwise specified, the complementarity defining regions disclosed herein follow the IMGT definition. In some embodiments, any of the CDRs disclosed herein can instead be interpreted by Kabat, Chothia, or other definitions accepted by those of skill in the art.

[0094] The term "humanized" as applies to a non-human (e.g. rodent or primate) antibodies are hybrid immunoglobulins, immunoglobulin chains or fragments thereof which contain minimal sequence derived from non-human immunoglobulin.

[0095] As used herein, the term "cytokine" refers to small proteins, polypeptides, or peptides that are involved in inflammatory signaling or proteins released by one cell population that act on another cell as intercellular mediators or have an autocrine effect on the cells producing the proteins. Cytokines include but are not limited to chemokines, interferons, interleukins, lymphokines, monokines, tumor necrosis factors, CCL1, CCl2, CCL3, CCL4, CCL5, CCL6, CCL7, CCL8, CCL9, CCL11, CCL12, CCL13, CCL14, CCL15, CCL16, CCL17, CCL18, CCL19, CCL20, CCL21, CCL22, CCL23, CCL24, CCL25, CCL26, CCL27, CCL28, CXCL1, CXCL2, CXCL3, CXCL4, CXCL5, CXCL6, CXCL7, CXCL8, CXCL9, CXCL10, CXCL11, CXCL12, CXCL13, CXCL14, CXCL15, CXCL16, CXCL17, CX3CL1,

XCL1, XCL2, INFα, INFβ, INFγ, IL-1, IL-1α, IL-1β, IL-1Ra, IL-2, IL-3, IL-4, IL-5, IL-6, IL-7, IL-8, IL-9, IL-10, IL-11, IL-12, IL-13, IL-14, IL-15, IL-16, IL-17, IL-17A-F, IL-18, IL-19, IL-20, IL-21, IL-22, IL-23, IL-24, IL-25, IL-26, IL-27, IL-28, IL-29, IL-30, IL-31, IL-32, IL-33, IL-34, IL-35, IL-36, IL-36Ra, IL-36α, IL-36β, IL-36γ, IL-37, IL-38, adesleukin, GM-CSF, TNFα, TNFβ, TNFγ, TGF-I-3 TNFSF4, TNFSF5, TNFSF6, TNFSF7, TNFSF8, TNFSF9, TNFSF10, TNFSF11, TNFSF12, TNFSF13, TNFSF13B, TNFSF14, TNFSF15, TNFSF18, or TNFSF19, leukemia inhibitor factor (LIF), ciliary neurotrophic factor (CNTF), CNTF-like cytokine (CLC), cardiotrophin (CT), Kit ligand (KL), or any combination thereof.

[0096] As used herein, the terms "treating" or "treatment", and related terms such as "inhibiting", "reducing", and "preventing", (and as well understood in the art) means an approach for obtaining beneficial or desired results in a subject's condition, including clinical results. Beneficial or desired clinical results can include, but are not limited to, alleviation or amelioration of one or more symptoms or conditions, diminishment of the extent of a disease, stabilizing (i.e., not worsening) the state of disease, prevention of a disease's transmission or spread, delaying or slowing of disease progression, amelioration or palliation of the disease state, diminishment of the reoccurrence of disease, and remission, whether partial or total and whether detectable or undetectable. As provided herein, "preventing" may include one or more of "inhibiting" or "reducing". "Treating" and "treatment" as used herein may include a therapeutic treatment (e.g., in response to a current disease state) and/or a prophylactic treatment (e.g. to prevent the occurrence or severity of an anticipated disease state). Treatment methods comprise administering to a subject a therapeutically effective amount of an active agent. The administering step may consist of a single administration or may comprise a series of administrations. The compositions are administered to the subject in an amount and for a duration sufficient to treat the subject. The length of the treatment period depends on a variety of factors, such as the severity of the condition, the age and genetic profile of the subject, the concentration of active agent, the activity of the compositions used in the treatment, or a combination thereof. It will also be appreciated that the effective dosage of an agent used for the treatment or prophylaxis may increase or decrease over the course of a particular treatment or prophylaxis regime. Changes in dosage may result and become apparent by standard diagnostic assays known in the art. In some instances, chronic administration may be required.

[0097] The terms "effective amount" or "effective dose" as used herein have their plain and ordinary meaning as understood in light of the specification, and refer to that amount of a recited composition or compound that results in an observable designated effect. Actual dosage levels of active ingredients in an active composition of the presently disclosed subject

matter can be varied so as to administer an amount of the active composition or compound that is effective to achieve the designated response for a particular subject and/or application. The selected dosage level can vary based upon a variety of factors including, but not limited to, the activity of the composition, formulation, route of administration, combination with other drugs or treatments, severity of the condition being treated, and the physical condition and prior medical history of the subject being treated. In some embodiments, a minimal dose is administered, and dose is escalated in the absence of dose-limiting toxicity to a minimally effective amount. Determination and adjustment of an effective dose, as well as evaluation of when and how to make such adjustments, are contemplated herein.

[0098] In some non-limiting embodiments, an effective amount or effective dose of a composition or compound may relate to the amount or dose that provides a significant, measurable, or sufficient therapeutic effect towards the treatment of any one or more of the diseases provided herein, such as cardiovascular diseases, for example, stroke, traumatic brain injury, cerebral amyloid angiopathy, atherosclerosis, myocardial infarction, and/or diseases associated with fibrin activity or dysfunction, or cancers. In some embodiments, the effective amount or effective dose of a composition or compound may treat, ameliorate, or prevent the progression of symptoms of any one or more of the diseases provided herein.

[0099] The term “administering” includes oral administration, topical contact, administration as a suppository, intravenous, intraperitoneal, intramuscular, intralesional, intrathecal, intranasal, or subcutaneous administration, or the implantation of a slow-release device, e.g., a mini-osmotic pump, to a subject. Administration is by any route, including parenteral and transmucosal (e.g., buccal, sublingual, palatal, gingival, nasal, vaginal, rectal, or transdermal). Parenteral administration includes, e.g., intravenous, intramuscular, intra-arteriole, intradermal, subcutaneous, intraperitoneal, intraventricular, and intracranial. Other modes of delivery include, but are not limited to, the use of liposomal formulations, intravenous infusion, transdermal patches, etc. By “co-administer” it is meant that a first compound described herein is administered at the same time, just prior to, or just after the administration of a second compound described herein.

[0100] As used herein, the term "therapeutic target" refers to a gene or gene product that, upon modulation of its activity (e.g., by modulation of expression, biological activity, and the like), can provide for modulation of the disease phenotype. As used throughout, "modulation" is meant to refer to an increase or a decrease in the indicated phenomenon (e.g., modulation of a biological activity refers to an increase in a biological activity or a decrease in a biological activity).

[0101] As used herein, "pharmaceutically acceptable" has its plain and ordinary meaning as understood in light of the specification and refers to carriers, excipients, and/or stabilizers that are nontoxic to the cell or mammal being exposed thereto at the dosages and concentrations employed or that have an acceptable level of toxicity. A "pharmaceutically acceptable" "diluent," "excipient," and/or "carrier" as used herein have their plain and ordinary meaning as understood in light of the specification and are intended to include any and all solvents, dispersion media, coatings, antibacterial and antifungal agents, isotonic and absorption delaying agents, and the like, compatible with administration to humans, cats, dogs, or other vertebrate hosts. Typically, a pharmaceutically acceptable diluent, excipient, and/or carrier is a diluent, excipient, and/or carrier approved by a regulatory agency of a Federal, a state government, or other regulatory agency, or listed in the U.S. Pharmacopeia or other generally recognized pharmacopeia for use in animals, including humans as well as non-human mammals, such as cats and dogs. The term diluent, excipient, and/or carrier can refer to a diluent, adjuvant, excipient, or vehicle with which the pharmaceutical formulation is administered. Such pharmaceutical diluent, excipient, and/or carriers can be sterile liquids, such as water and oils, including those of petroleum, animal, vegetable or synthetic origin. Water, saline solutions and aqueous dextrose and glycerol solutions can be employed as liquid diluents, excipients, and/or carriers, particularly for injectable solutions. Suitable pharmaceutical diluents and/or excipients include sugars, starch, glucose, fructose, lactose, sucrose, maltose, gelatin, malt, rice, flour, chalk, silica gel, sodium stearate, glycerol monostearate, talc, salts, sodium chloride, dried skim milk, glycerol, propylene, glycol, water, ethanol and the like. A non-limiting example of a physiologically acceptable carrier is an aqueous pH buffered solution. The physiologically acceptable carrier may also comprise one or more of the following: antioxidants, such as ascorbic acid, low molecular weight (less than about 10 residues) polypeptides, proteins, such as serum albumin, gelatin, immunoglobulins, hydrophilic polymers such as polyvinylpyrrolidone, amino acids, carbohydrates such as glucose, mannose, or dextrins, chelating agents such as EDTA, sugar alcohols such as glycerol, erythritol, threitol, arabitol, xylitol, ribitol, mannitol, sorbitol, galactitol, fucitol, iditol, inositol, isomalt, maltitol, or lactitol, salt-forming counterions such as sodium, and nonionic surfactants such as TWEEN®, polyethylene glycol (PEG), and PLURONICS®. The formulation, if desired, can also contain minor amounts of wetting, bulking, emulsifying agents, or pH buffering agents. These formulations can take the form of solutions, suspensions, emulsion, sustained release formulations and the like. The formulation should suit the mode of administration.

[0102] The term "pharmaceutically acceptable salts" has its plain and ordinary meaning as understood in light of the specification and includes relatively non-toxic, inorganic and organic acid, or base addition salts of compositions or excipients, including without limitation, analgesic agents, therapeutic agents, other materials, and the like. Examples of pharmaceutically acceptable salts include those derived from mineral acids, such as hydrochloric acid and sulfuric acid, and those derived from organic acids, such as ethanesulfonic acid, benzenesulfonic acid, p-toluenesulfonic acid, and the like. Examples of suitable inorganic bases for the formation of salts include the hydroxides, carbonates, and bicarbonates of ammonia, sodium, lithium, potassium, calcium, magnesium, aluminum, zinc, and the like. Salts may also be formed with suitable organic bases, including those that are non-toxic and strong enough to form such salts. For example, the class of such organic bases may include but are not limited to mono-, di-, and trialkylamines, including methylamine, dimethylamine, and triethylamine; mono-, di-, or trihydroxyalkylamines including mono-, di-, and triethanolamine; amino acids, including glycine, arginine and lysine; guanidine; N-methylglucosamine; N-methylglucamine; L-glutamine; N-methylpiperazine; morpholine; ethylenediamine; N-benzylphenethylamine; trihydroxymethyl aminoethane.

[0103] As used herein, a "carrier" refers to a compound, particle, solid, semi-solid, liquid, or diluent that facilitates the passage, delivery and/or incorporation of a compound to cells, tissues and/or bodily organs. For example, without limitation, a lipid nanoparticle (LNP) is a type of carrier that can encapsulate an oligonucleotide to thereby protect the oligonucleotide from degradation during passage through the bloodstream and/or to facilitate delivery to a desired organ, such as to the lungs.

[0104] As used herein, a "diluent" refers to an ingredient in a pharmaceutical composition that lacks pharmacological activity but may be pharmaceutically necessary or desirable. For example, a diluent may be used to increase the bulk of a potent drug whose mass is too small for manufacture and/or administration. It may also be a liquid for the dissolution of a drug to be administered by injection, ingestion or inhalation. A common form of diluent in the art is a buffered aqueous solution such as, without limitation, phosphate buffered saline that mimics the composition of human blood.

[0105] The term "excipient" has its ordinary meaning as understood in light of the specification, and refers to inert substances, compounds, or materials added to a pharmaceutical composition to provide, without limitation, bulk, consistency, stability, binding ability, lubrication, disintegrating ability etc., to the composition. Excipients with desirable properties include but are not limited to preservatives, adjuvants, stabilizers, solvents, buffers, diluents,

solubilizing agents, detergents, surfactants, chelating agents, antioxidants, alcohols, ketones, aldehydes, ethylenediaminetetraacetic acid (EDTA), citric acid, salts, sodium chloride, sodium bicarbonate, sodium phosphate, sodium borate, sodium citrate, potassium chloride, potassium phosphate, magnesium sulfate sugars, dextrose, dextran, fructose, mannose, lactose, galactose, sucrose, sorbitol, cellulose, methyl cellulose, hydroxypropyl methyl cellulose (hypromellose), glycerin, polyvinyl alcohol, povidone, propylene glycol, serum, amino acids, polyethylene glycol, polysorbate 20, polysorbate 80, sodium deoxycholate, sodium taurodeoxycholate, magnesium stearate, octylphenol ethoxylate, benzethonium chloride, thimerosal, gelatin, esters, ethers, 2-phenoxyethanol, urea, or vitamins, or any combination thereof. The amount of the excipient may be found in a pharmaceutical composition at a percentage of 0%, 0.1%, 0.2%, 0.3%, 0.4%, 0.5%, 0.6%, 0.7%, 0.8%, 0.9%, 1%, 2%, 3%, 4%, 5%, 6%, 7%, 8%, 9%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, 95%, 100% w/w or any percentage by weight in a range defined by any two of the aforementioned numbers.

[0106] Additional excipients with desirable properties include but are not limited to preservatives, adjuvants, stabilizers, solvents, buffers, diluents, solubilizing agents, detergents, surfactants, chelating agents, antioxidants, alcohols, ketones, aldehydes, ethylenediaminetetraacetic acid (EDTA), tris(hydroxymethyl)aminomethane (Tris), citric acid, ascorbic acid, acetic acid, salts, phosphates, citrates, acetates, succinates, chlorides, bicarbonates, borates, sulfates, sodium chloride, sodium bicarbonate, sodium phosphate, sodium borate, sodium citrate, potassium chloride, potassium phosphate, magnesium sulfate sugars, dextrose, dextran 40, fructose, mannose, lactose, trehalose, galactose, sucrose, sorbitol, mannitol, cellulose, serum, amino acids, alanine, arginine, asparagine, aspartic acid, cysteine, glutamine, glutamic acid, glycine, histidine, isoleucine, leucine, lysine, methionine, phenylalanine, proline, serine, threonine, tryptophan, tyrosine, valine, polysorbate 20, polysorbate 40, polysorbate, 60, polysorbate 80, poloxamer, poloxamer 188, sodium deoxycholate, sodium taurodeoxycholate, magnesium stearate, octylphenol ethoxylate, benzethonium chloride, thimerosal, gelatin, esters, ethers, 2-phenoxyethanol, urea, or vitamins, or any combination thereof. Some excipients may be in residual amounts or contaminants from the process of manufacturing, including but not limited to serum, albumin, ovalbumin, antibiotics, inactivating agents, formaldehyde, glutaraldehyde, β-propiolactone, gelatin, cell debris, nucleic acids, peptides, amino acids, or growth medium components or any combination thereof. The amount of the excipient may be found in the formulation at a percentage that is at least 0%, 0.1%, 0.2%, 0.3%, 0.4%, 0.5%, 0.6%, 0.7%, 0.8%, 0.9%, 1%, 2%, 3%, 4%, 5%, 6%,

7%, 8%, 9%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, 95%, 100% w/w or any percentage by weight in a range defined by any two of the aforementioned numbers.

[0107] The term "purity" of any given substance, compound, or material as used herein refers to the actual abundance of the substance, compound, or material relative to the expected abundance. For example, the substance, compound, or material may be at least 80, 85, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, or 100% pure, including all decimals in between. Purity may be affected by unwanted impurities, including but not limited to side products, isomers, enantiomers, degradation products, solvent, carrier, vehicle, or contaminants, or any combination thereof. Purity can be measured technologies including but not limited to chromatography, liquid chromatography, gas chromatography, spectroscopy, UV-visible spectrometry, infrared spectrometry, mass spectrometry, nuclear magnetic resonance, gravimetry, or titration, or any combination thereof.

[0108] As used herein, the term "standard of care", "best practice" and "standard therapy" refers to the treatment that is accepted by medical practitioners to be an appropriate, proper, effective, and/or widely used treatment for a certain disease. The standard of care of a certain disease depends on many different factors, including the biological effect of treatment, region or location within the body, patient status (e.g. age, weight, gender, hereditary risks, other disabilities, secondary conditions), toxicity, metabolism, bioaccumulation, therapeutic index, dosage, and other factors known in the art. Determining a standard of care for a disease is also dependent on establishing safety and efficacy in clinical trials as standardized by regulatory bodies such as the US Food and Drug Administration, International Council for Harmonisation, Health Canada, European Medicines Agency, Therapeutics Goods Administration, Central Drugs Standard Control Organization, National Medical Products Administration, Pharmaceuticals and Medical Devices Agency, Ministry of Food and Drug Safety, and the World Health Organization. The standard of care for a disease may include but is not limited to surgery, radiation, chemotherapy, targeted therapy, or immunotherapy.

[0109] As used herein, the term "inhibit" refers to the reduction or decrease in an expected activity, such as a cellular activity. The reduction or decrease may be by at least 5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, or 100%, or any percentage that is within a range defined by any two of the aforementioned values, where a reduction or decrease of 100% indicates a complete inhibition and any lower percentage indicates a partial inhibition. The reduction or decrease of the expected activity may be observed in a direct or indirect way.

[0110] As used herein, the term "stroke" refers to a medical disorder involving disruption of normal blood flow supplying the brain. There are generally two categories of

stroke: ischemic stroke (including thrombotic stroke, embolic stroke, or transient ischemic attack) where blood supply is cut off from the brain, such as from blockage due to a blood clot, blood vessel compression, or atherosclerotic plaques; and hemorrhagic stroke (including intracerebral hemorrhage or subarachnoid hemorrhage) where disruption of blood vessels leads to bleeding in the brain, which may be caused by a ruptured aneurism or physical trauma. Symptoms of stroke involve neurological issues such as paralysis, loss of feeling, loss of vision, dizziness, difficulty speaking, or issues with cognitive ability. Patients with a stroke or at risk of developing a stroke may be selected by assessing causative factors, such as high blood pressure, smoking, obesity, high blood cholesterol, diabetes, kidney disease, or heart dysfunction. As disclosed herein, the compositions disclosed herein may be used for the treatment or prophylaxis for strokes or symptoms thereof, including those provided herein or otherwise known in the art.

[0111] As used herein, the term "traumatic brain injury (TBI)" refers to a medical condition involving damage to the brain caused by an external force, such as blunt trauma, falls, collisions, sudden changes in acceleration, or explosions. The external force exerted on the brain can result in damage to brain tissue and resulting loss of function of the affected region. Symptoms, which may differ in severity based on the severity of the TBI, may include dizziness, headache, vomiting, lethargy, increased intracranial pressure, edema, unconsciousness, and issues with cognitive ability. Patients with traumatic brain injury may be assessed by medical examination following the external insult. Individuals who are at risk of developing traumatic brain injury may be assessed based on their lifestyle, such as occupation, hobbies, age, or tendencies in behavior. As disclosed herein, the compositions disclosed herein may be used for the treatment or prophylaxis for TBI or symptoms thereof, including those provided herein or otherwise known in the art.

[0112] As used herein, the term "fibrin" refers to the protein that is involved in blood clotting, and is also known as "Factor Ia". Upon blood vessel disruption, circulating fibrinogen is proteolytically processed by thrombin to form fibrin, which polymerizes and forms an insoluble network that, among other functions, captures platelets in order to block the blood vessel injury, preventing additional blood from escaping as well as preventing external substances, such as pathogens, from entering. The activity of fibrin and other components of the coagulation cascade may lead to harmful blood clots and thrombosis. As disclosed herein, the compositions disclosed herein may be used for the treatment or prophylaxis for disorders associated with fibrin activity or dysfunction, or symptoms thereof, including those provided herein or otherwise known in the art.

[0113] The term "% w/w" or "% wt/wt" means a percentage expressed in terms of the weight of the ingredient or agent over the total weight of the composition multiplied by 100.

[0114] It is understood that an antibody with an antibody name described herein can be referred using a shortened version of the antibody name, as long as there are no conflicts with another antibody described herein. For example, F846C.1B2 can also be referred to as 846C.1B2, or 846.1B2. This can also refer to fragments of the antibody (e.g., with the same 1, 3, or 6 CDRs).

Exemplary Methods of Treatment and/or Use

[0115] Any of the anti-Gal3 antibodies or binding fragments thereof, or antigen binding molecules, and formulations thereof, provided herein may be used in methods as provided herein.

[0116] Disclosed herein in some embodiments are methods for inhibiting, reducing, preventing, and/or treating stroke in a subject in need thereof. The methods comprise administering an anti-Gal3 antibody or binding fragment thereof to the subject, thereby inhibiting, reducing, preventing, and/or treating the stroke. In some embodiments, any of the methods disclosed herein involving an anti-Gal3 antibody or binding fragment can be performed with an antigen binding molecule that binds to Gal3.

[0117] In some embodiments, a method for inhibiting, reducing, preventing, and/or treating traumatic brain injury (TBI) in a subject in need thereof is disclosed. In some embodiments, the method comprises administering an anti-Gal3 antibody or binding fragment thereof to the subject, thereby inhibiting, reducing, preventing, and/or treating the TBI.

[0118] In some embodiments, a method for inhibiting, reducing, preventing, and/or treating a disorder associated with fibrin activity or dysfunction in a subject in need thereof is disclosed. In some embodiments, the method comprises administering an anti-Gal3 antibody or binding fragment thereof to the subject, thereby inhibiting, reducing, preventing, and/or treating the disorder associated with fibrin activity or dysfunction.

[0119] In some embodiments, a method for administering an anti-Gal3 antibody is disclosed. In some embodiments, the method comprises administering 5 unit doses of an anti-Gal3 antibody or binding fragment thereof, wherein each unit dose comprise 1000 mg or about 1000 mg of the anti-Gal3 antibody or binding fragment thereof, wherein the unit doses are administered every 7 days or about 7 days, and wherein each unit dose is administered over the course of 1 hour or about 1hour.

[0120] In some embodiments, a single-use sealed injectable glass vial is disclosed. In some embodiments, the single-use sealed injectable glass vial comprises 8 mL of 20 mg/mL of an anti-Gal antibody or binding fragment thereof.

[0121] In some embodiments, an IV infusion bag is disclosed. In some embodiments, the IV infusion bag comprises 1000 mg or about 1000 mg of an anti-Gal3 antibody or binding fragment thereof dissolved in 250 mL or about 250 mL of saline.

[0122] In some embodiments, the methods further comprise selecting the subject as having the stroke or at risk of contracting the stroke prior to the administering step. In some embodiments, selecting the subject as having the stroke or at risk of contracting the stroke comprises assessing the subject according to the National Institutes of Health Stroke Scale (NIHSS), modified Rankin Scale (mRS), Fugl-Meyer Assessment (FMA), Montreal Cognitive Assessment (MoCA), neuroimaging (such as CT or MRI), and/or detecting stroke biomarkers (including but not limited to S100 calcium binding protein B (S100B), glial fibrillary acidic protein (GFAP), neuron-specific enolase (NSE), and/or matrix metalloproteinase-9 (MMP9)). In some embodiments, the methods further comprise detecting an amelioration of symptoms associated with the stroke after the administering step. In some embodiments, the stroke is an ischemic stroke, thrombotic stroke, embolic stroke, transient ischemic attack, hemorrhagic stroke, intracerebral hemorrhage, or subarachnoid hemorrhage. In some embodiments, the stroke is intracerebral hemorrhage (ICH). In some embodiments, the ICH is associated with deposition of amyloid aggregates and/or cerebral amyloid angiopathy (CAA).

[0123] In some embodiments, the method for inhibiting, reducing, preventing, and/or treating stroke in a subject comprises detecting decreased loss of locomotor dysfunction, decreased incidence of microhemorrhage, decreased levels of activated microglia, decreased levels of activated astrocytes, decreased circulating proinflammatory immune cells, decreased circulating proinflammatory cytokines, or any combination thereof, in the subject.

[0124] In some embodiments, the reduction in locomotor dysfunction is assessed by the Fugl-Meyer Assessment (FMA), Motor Assessment Scale (MAS), and/or the Chedoke-McMaster Stroke Assessment (CMSA).

[0125] In some embodiments, the reduction in locomotor dysfunction in the subject is by at least 50%. In some embodiments, the reduction in locomotor dysfunction in the subject, is by at least 5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, or 95%, or any percentage within a range defined by any two of the aforementioned reductions. For example, in some embodiments, the reduction in locomotor dysfunction in the subject, is by at least 5%-95%, 5%-90%, 5%-75% 5%-50%, 5%-25%, 5%-10%, 5%-7%, 7%-95%, 7%-90%, 7%-75%, 7%-

50%, 7%-25%, 7%-10%, 10%-95%, 10%-90%, 10%-75%, 10%-50%, 10%-25%, 25%-95%, 25%-90%, 25%-75%, 25%-50%, 50%-95%, 50%-90%, 50%-75%, 75%-95%, 75%-90%, and 90%-95%.

[0126] In some embodiments, the reduction in microhemorrhage is assessed by neuroimaging, MRI, and/or Prussian blue staining.

[0127] In some embodiments, the reduction in microhemorrhage in the subject, is by at least 50%. In some embodiments, the reduction in microhemorrhage in the subject, is by at least 5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, or 95%, or any percentage within a range defined by any two of the aforementioned reductions. For example, in some embodiments, reduction in microhemorrhage is by at least 5%-95%, 5%-90%, 5%-75% 5%-50%, 5%-25%, 5%-10%, 5%-7%, 7%-95%, 7%-90%, 7%-75%, 7%-50%, 7%-25%, 7%-10%, 10%-95%, 10%-90%, 10%-75%, 10%-50%, 10%-25%, 25%-95%, 25%-90%, 25%-75%, 25%-50%, 50%-95%, 50%-90%, 50%-75%, 75%-95%, 75%-90%, and 90%-95%.

[0128] In some embodiments, the reduction in levels of activated microglia is assessed by detection of microglia activation markers, optionally ionized calcium-binding adaptor molecule 1 (Iba1), monocyte chemoattractant protein-1 (MCP-1), chitinase-3-like protein 1 (YKL-40), and/or soluble CD14 (sCD14), optionally from the cerebrospinal fluid of the subject.

[0129] In some embodiments, the reduction in levels of activated microglia in the subject is by at least 20%. In some embodiments, the reduction in levels of activated microglia, reduction in levels of activated astrocytes, reduction in levels of circulating proinflammatory cytokines, or any combination thereof, in the subject, is by at least 5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, or 95%, or any percentage within a range defined by any two of the aforementioned reductions. For example, in some embodiments, the reduction in levels of activated microglia in the subject, is by at least 5%-95%, 5%-90%, 5%-75% 5%-50%, 5%-25%, 5%-10%, 5%-7%, 7%-95%, 7%-90%, 7%-75%, 7%-50%, 7%-25%, 7%-10%, 10%-95%, 10%-90%, 10%-75%, 10%-50%, 10%-25%, 25%-95%, 25%-90%, 25%-75%, 25%-50%, 50%-95%, 50%-90%, 50%-75%, 75%-95%, 75%-90%, and 90%-95%.

[0130] In some embodiments, the reduction in levels of activated astrocytes is assessed by detection of astrocyte activation markers, optionally GFAP and/or S100B, optionally from the cerebrospinal fluid of the subject.

[0131] In some embodiments, the reduction in levels of activated astrocytes in the subject is by at least 30%. In some embodiments, the reduction in levels of activated astrocytes in the subject, is by at least 5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, or 95%,

or any percentage within a range defined by any two of the aforementioned reductions. For example, in some embodiments, the reduction in levels of activated astrocytes in the subject, is by at least 5%-95%, 5%-90%, 5%-75% 5%-50%, 5%-25%, 5%-10%, 5%-7%, 7%-95%, 7%-90%, 7%-75%, 7%-50%, 7%-25%, 7%-10%, 10%-95%, 10%-90%, 10%-75%, 10%-50%, 10%-25%, 25%-95%, 25%-90%, 25%-75%, 25%-50%, 50%-95%, 50%-90%, 50%-75%, 75%-95%, 75%-90%, and 90%-95%.

[0132] In some embodiments, the reduction in levels of circulating proinflammatory cytokines in the subject, is by at least 5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, or 95%, or any percentage within a range defined by any two of the aforementioned reductions. For example, in some embodiments, the reduction in levels of circulating proinflammatory cytokines in the subject, is by at least 5%-95%, 5%-90%, 5%-75% 5%-50%, 5%-25%, 5%-10%, 5%-7%, 7%-95%, 7%-90%, 7%-75%, 7%-50%, 7%-25%, 7%-10%, 10%-95%, 10%-90%, 10%-75%, 10%-50%, 10%-25%, 25%-95%, 25%-90%, 25%-75%, 25%-50%, 50%-95%, 50%-90%, 50%-75%, 75%-95%, 75%-90%, and 90%-95%.

[0133] In some embodiments, the reduction in levels circulating proinflammatory immune cells in the subject, is by at least 5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, or 95%, or any percentage within a range defined by any two of the aforementioned reductions. For example, in some embodiments, the reduction in locomotor dysfunction, reduction in microhemorrhage, reduction in circulating proinflammatory immune cells in the subject is by at least 5%-95%, 5%-90%, 5%-75% 5%-50%, 5%-25%, 5%-10%, 5%-7%, 7%-95%, 7%-90%, 7%-75%, 7%-50%, 7%-25%, 7%-10%, 10%-95%, 10%-90%, 10%-75%, 10%-50%, 10%-25%, 25%-95%, 25%-90%, 25%-75%, 25%-50%, 50%-95%, 50%-90%, 50%-75%, 75%-95%, 75%-90%, and 90%-95%.

[0134] In some embodiments, a method for inhibiting, reducing, preventing, and/or treating traumatic brain injury (TBI) in a subject in need thereof is disclosed. In some embodiments, the TBI is associated with a concussion, edema, diffuse axonal injury, spinal cord injury, coma, neuroinflammation, microhemorrhage, astrocytosis, activated microglia, and/or hematoma.

[0135] In some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof prevents elevation of levels of activated microglia, prevents elevation of levels of activated astrocytes, prevents elevation of levels of macrophages, prevents elevation of levels of hyperphosphorylated Tau, prevents incidence of microhemorrhage, prevents neuroinflammation, prevents elevation of levels of circulating proinflammatory cytokines, or any combination thereof, in the subject.

[0136] In some embodiments, wherein administration of the anti-Gal3 antibody or binding fragment thereof improves the level of consciousness, memory loss, and/or the Glasgow Coma Scale of the patient; and/or reduces levels of activated microglia, reduces levels of activated astrocytes, reduces levels of macrophages, reduces levels of hyperphosphorylated Tau, reduces microhemorrhage, reduces neuroinflammation, reduces levels of circulating proinflammatory cytokines or any combination thereof, in the subject.

[0137] In some embodiments, administration of the anit-Gal3 antibody results in a reduction in levels of activated microglia, reduction in levels of activated astrocytes, reduction in levels of macrophages, reduction in levels of hyperphosphorylated Tau, reduction in microhemorrhage, reduction in neuroinflammation, reduction in levels of circulating proinflammatory cytokines, or any combination thereof, in the subject.

[0138] In some embodiments, the reduction in levels of activated microglia in the subject is by at least 70%. In some embodiments, the reduction in levels of activated microglia in the subject is by at least 5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, or 95%, or any percentage within a range defined by any two of the aforementioned reductions. For example, in some embodiments, the reduction in levels of activated microglia in the subject, is by at least 5%-95%, 5%-90%, 5%-75% 5%-50%, 5%-25%, 5%-10%, 5%-7%, 7%-95%, 7%-90%, 7%-75%, 7%-50%, 7%-25%, 7%-10%, 10%-95%, 10%-90%, 10%-75%, 10%-50%, 10%-25%, 25%-95%, 25%-90%, 25%-75%, 25%-50%, 50%-95%, 50%-90%, 50%-75%, 75%-95%, 75%-90%, and 90%-95%.

[0139] In some embodiments, the reduction in levels of activated astrocytes is assessed by detection of astrocyte activation markers, optionally GFAP, optionally from the cerebrospinal fluid of the subject.

[0140] In some embodiments, the reduction in levels of activated astrocytes in the subject is by at least 90%. In some embodiments, the reduction in levels of activated astrocytes in the subject is by at least 5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, or 95%, or any percentage within a range defined by any two of the aforementioned reductions. For example, in some embodiments, the reduction in levels of activated astrocytes in the subject, is by at least 5%-95%, 5%-90%, 5%-75% 5%-50%, 5%-25%, 5%-10%, 5%-7%, 7%-95%, 7%-90%, 7%-75%, 7%-50%, 7%-25%, 7%-10%, 10%-95%, 10%-90%, 10%-75%, 10%-50%, 10%-25%, 25%-95%, 25%-90%, 25%-75%, 25%-50%, 50%-95%, 50%-90%, 50%-75%, 75%-95%, 75%-90%, and 90%-95%.

[0141] In some embodiments, the reduction in levels of macrophages is assessed by detection of macrophage activation markers, optionally CD68, optionally from the cerebrospinal fluid of the subject.

[0142] In some embodiments, the reduction in levels of macrophages in the subject is by at least 70%. In some embodiments, the reduction in levels of macrophages in the subject is by at least 5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, or 95%, or any percentage within a range defined by any two of the aforementioned reductions. For example, in some embodiments, the reduction in levels of macrophages in the subject, is by at least 5%-95%, 5%-90%, 5%-75% 5%-50%, 5%-25%, 5%-10%, 5%-7%, 7%-95%, 7%-90%, 7%-75%, 7%-50%, 7%-25%, 7%-10%, 10%-95%, 10%-90%, 10%-75%, 10%-50%, 10%-25%, 25%-95%, 25%-90%, 25%-75%, 25%-50%, 50%-95%, 50%-90%, 50%-75%, 75%-95%, 75%-90%, and 90%-95%.

[0143] In some embodiments, the reduction in levels of hyperphosphorylated Tau in the subject is by at least 80%. In some embodiments, the reduction in levels of hyperphosphorylated Tau in the subject is by at least 5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, or 95%, or any percentage within a range defined by any two of the aforementioned reductions. For example, in some embodiments, the reduction in levels of hyperphosphorylated Tau in the subject, is by at least 5%-95%, 5%-90%, 5%-75% 5%-50%, 5%-25%, 5%-10%, 5%-7%, 7%-95%, 7%-90%, 7%-75%, 7%-50%, 7%-25%, 7%-10%, 10%-95%, 10%-90%, 10%-75%, 10%-50%, 10%-25%, 25%-95%, 25%-90%, 25%-75%, 25%-50%, 50%-95%, 50%-90%, 50%-75%, 75%-95%, 75%-90%, and 90%-95%.

[0144] In some embodiments, the reduction in levels of microhemorrhage is assessed by neuroimaging, MRI, and/or Prussian blue staining.

[0145] In some embodiments, the reduction in microhemorrhage in the subject is by at least 80%. In some embodiments, the reduction in microhemorrhage in the subject is by at least 5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, or 95%, or any percentage within a range defined by any two of the aforementioned reductions. For example, in some embodiments, the reduction in microhemorrhage in the subject, is by at least 5%-95%, 5%-90%, 5%-75% 5%-50%, 5%-25%, 5%-10%, 5%-7%, 7%-95%, 7%-90%, 7%-75%, 7%-50%, 7%-25%, 7%-10%, 10%-95%, 10%-90%, 10%-75%, 10%-50%, 10%-25%, 25%-95%, 25%-90%, 25%-75%, 25%-50%, 50%-95%, 50%-90%, 50%-75%, 75%-95%, 75%-90%, and 90%-95%.

[0146] In some embodiments, the reduction in neuroinflammation in the subject is by at least 70%. In some embodiments, the reduction in neuroinflammation in the subject is by at

least 5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, or 95%, or any percentage within a range defined by any two of the aforementioned reductions. For example, in some embodiments, the reduction in neuroinflammation in the subject, is by at least 5%-95%, 5%-90%, 5%-75% 5%-50%, 5%-25%, 5%-10%, 5%-7%, 7%-95%, 7%-90%, 7%-75%, 7%-50%, 7%-25%, 7%-10%, 10%-95%, 10%-90%, 10%-75%, 10%-50%, 10%-25%, 25%-95%, 25%-90%, 25%-75%, 25%-50%, 50%-95%, 50%-90%, 50%-75%, 75%-95%, 75%-90%, and 90%-95%.

[0147] In some embodiments, a method for inhibiting, reducing, preventing, and/or treating a disorder associated with fibrin activity or dysfunction in a subject in need thereof is disclosed. In some embodiments, amelioration of one or more symptoms associated with the disorder associated with fibrin activity or dysfunction is detected after the administering step. In some embodiments, the one or more symptoms comprise neuroinflammation and/or fibrin oligomerization. In some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject reduces neuroinflammation and/or fibrin oligomerization in the subject.

[0148] In some embodiments, the reduction in fibrin oligomerization in the subject is by at least 5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, or 95%, or any percentage within a range defined by any two of the aforementioned reductions. For example, in some embodiments, the reduction in fibrin oligomerization in the subject, is by at least 5%-95%, 5%-90%, 5%-75% 5%-50%, 5%-25%, 5%-10%, 5%-7%, 7%-95%, 7%-90%, 7%-75%, 7%-50%, 7%-25%, 7%-10%, 10%-95%, 10%-90%, 10%-75%, 10%-50%, 10%-25%, 25%-95%, 25%-90%, 25%-75%, 25%-50%, 50%-95%, 50%-90%, 50%-75%, 75%-95%, 75%-90%, and 90%-95%.

[0149] Exemplary standardized approaches for assessing severity of neurological issues such as stroke and TBI are described herein. It should be understood that these and other approaches have been recognized in the art for their utility in quantifying neurological capabilities in patients. Other approaches used in the common knowledge are also envisioned as alternatives to those provided herein.

[0150] National Institutes of Health Stroke Scale (NIHSS): The NIHSS provides an objective quantification of the impairment caused by a stroke. The NIHSS was designed to be a standardized and repeatable assessment of stroke patients utilized by large multi-center clinical trials. It has good interrater and test-retest reliability. The NIHSS has also been used to predict 3-month outcomes (e.g. hospital stay, mortality) of patients following a stroke.

[0151] The NIHSS is composed of 11 items, each of which rates a specific parameter of ability or function. Each item is rated from 0 to 4. A score of 0 indicates normal function, with higher scores indicating greater degree of impairment. The individual item scores are added to calculate the NIHSS total score. The maximum possible score is 42 (death), with the minimum score being a 0 (no impairment). The items scored are level of consciousness, horizontal eye movement, visual field, facial palsy, motor arm, motor leg, limb ataxia, sensory, language, speech, and extinction and inattention.

[0152] In some embodiments, evaluation by the NIHSS can be assessed 7, 35, and/or 75 days after the step of administering the anti-Gal3 antibody or binding fragment thereof.

[0153] Modified Rankin Scale: The mRS is another scale commonly used in stroke clinical trials for measuring the degree of disability or dependence in the daily activities of patients who have suffered a stroke. It consists of well-defined and easily understood grades that describe the range of global disability. The mRS exhibits a strong relationship with clinical measurements of stroke severity in addition to other disability and outcomes endpoints.

[0154] Scoring of the mRS involves a semi-structured interview between the patient and a trained facilitator. The scores range from "0" (no symptoms) to "6" (dead). It also has good interrater and test-retest reliability.

[0155] Fugl-Meyer Assessment: The FMA scale is an assessment of the sensorimotor impairment in patients who have had a stroke. It is widely used in clinical trials of stroke for the clinical assessment of motor function. The FMA score is found to have excellent consistency, responsivity and good accuracy.

[0156] Each item on the FMA is scored on a 3-point scale: 0 = cannot perform, 1 = task performed partially, 2 = task performed fully. The maximum possible score on the FMA scale is 226, which corresponds to full recovery. The 5 domains on the FMA are: motor function, sensory function, balance, range of motion, and joint pain.

[0157] Montreal Cognitive Assessment: The MoCA is a brief screening instrument designed to assess mild cognitive impairment in a variety of patient conditions. Scores on the MoCA range from 0 to 30, with lower scores indicating greater impairment. It takes approximately 10 minutes to administer the MoCA. The MoCA assesses eight cognitive domains: visuospatial ability, executive function, short-term memory recall, attention, concentration, working memory, language, and orientation to time and space. The MoCA is a particularly useful assessment for patients with impairment due to vascular conditions primarily because of the assessment of executive functions and the presence of more

demanding visual construction tasks. The MoCA is one of the more commonly used cognitive assessments used in the research stroke setting.

[0158] A validation study indicated the sensitivity and specificity of the MoCA in detecting mild cognitive impairment were 90% and 97%, respectively, which was superior to that of the Mini Mental Status Examination.

[0159] The exemplary assessments described herein, as well as other standardized assessments known in the art, can be used to determine an improvement and/or amelioration of stroke or symptoms associated with the stroke in a subject. In some embodiments, detecting an amelioration of symptoms associated with the stroke after the administering step comprises detecting an improvement by the subject according to the NIHSS, mRS, FMA, or MoCA, which may be at endpoints determined by a practitioner. In some embodiments, a) the improvement by the subject according to the NIHSS comprises at least a 4 point decrease on the NIHSS; b) the improvement by the subject according to the mRS comprises at least a 1 point decrease on the mRS; c) the improvement by the subject according to the FMA comprises at least a 1 point increase on the FMA; and/or d) the improvement by the subject according to the MoCA comprises at least a 1 point increase on the MoCA, after the administering step. In some embodiments, the improvement by the subject is assessed 7, 35, and/or 75 days after the administering step.

[0160] In some embodiments, any of the endpoints depicted in **Table 1** can be achieved or is the goal of any one of the appropriate methods provided herein. In some embodiments, the methods are performed to achieve any 1, 2, 3, or 4 of the objectives and/or are determined by any 1, 2, 3, or 4 of the endpoints depicted in **Table 1.**

[0161] In some embodiments, any one of the appropriate methods provided herein are performed to comprise assessing the subject by the NIHSS at Baseline (day 1 at the initial administration) and further assessed at Days 15, 36, 64, and 104 following the initial intervention. In some embodiments, any one of the appropriate methods provided herein comprise assessing the subject by the NIHSS at Baseline (day 1 at the initial administration) and further assessed at about Days 10-20, 31-41, 59-69, and 99-109 following the initial intervention. In some embodiments, the subject's NIHSS is assessed at about month 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, or 12, following the initial administration, or at a timepoint that in a range that is defined by any two of the preceding values. For example, in some embodiments, the subject's NIHSS is assessed at between about month 1 and 12, 1 and 8, 1 and 6, 1 and 4, 1 and 3, 3 and 12, 3 and 8, 3 and 6, 3 and 4, 4 and 12, 4 and 8, 4 and 6, 6 and 12, 6 and 8, or 8 and 12, following the initial intervention. In some embodiments, any one of the appropriate

methods provided herein are performed to comprise assessing the subject by the NIHSS at Baseline (day 1 at the initial administration) and further assessed at one or more time points following the initial intervention. For example, the Subject's NIHSS may be assessed at Baseline (day 1 at the initial administration) and further assessed at 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, or more timepoints following the initial intervention, or assessed at a number of timepoints that is defined by any two of the preceding values. For example, in some embodiments, the Subject's NIHSS is assessed at between about 1 and 10, 1 and 7, 1 and 5, 1 and 4, 1 and 3, 3 and 10, 3 and 7, 3 and 5, 5 and 10, or 5 and 7 timepoints following the initial intervention. In some embodiments, the Subject's NIHSS is assessed more than 1 year following the initial intervention.

[0162] In some embodiments, the Subject's NIHSS is decreased from Baseline (day 1 at the initial administration by day 36 following the initial intervention. In some embodiments, the Subject's NIHSS is decreased from Baseline (day 1 at the initial administration by about day 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, or 41, following the initial intervention, or at a time point that is in a range that is defined by any two of the preceding values. For example, in some embodiments, the Subject's NIHSS is decreased from Baseline (day 1 at the initial administration by about days 31-41, 31 to 38, 31 to 36, 31 to 33, 33 to 41, 33 to 38, 33 to 36, 34 to 41, 34 to 37, or 37 to 41. In some embodiments, the subject's decreased NIHSS is sustained from day 36 through day 64 following the initial intervention. In some embodiments, the subject's decreased NIHSS is sustained from day 36 through day 104 following the initial intervention. In some embodiments, the subject's decreased NIHSS is sustained from about day 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, or 41 through about day 99, 100, 101, 102, 103, 104, 105, 105, 107, 108, or 109 following the initial intervention. In some embodiments, the subject's decreased NIHSS is sustained from about month 1 to about month 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, or 12, following the initial intervention, or for a period that is defined by any two of the preceding values. In some embodiments, the Subject's NIHSS decreases within one month of the initial intervention. In some embodiments, the Subject's decreased NIHSS is sustained for greater than about 3, 4, 5, 6, 7, 8, 9 10, 11, or 12 months following the initial intervention. In some embodiments, the Subject's decreased NIHSS is sustained for greater than 12 months. For example, in some embodiments, the Subject's decreased NIHSS is sustained for greater than about 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, or 20, years, or by a range that is defined by any two of the preceding values. For example, in some embodiments, the Subject's decreased NIHSS is sustained for greater

than about 1-20, 1-15, 1-10, 1-7, 1-5, 1-3, 3-20, 3-15, 3-10, 3-7, 3-5, 5-20, 5-15, 5-10, 5-7, 7-20, 7-15, 7-10, 10-20, 10-15, or 15-20 years.

[0163] In some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject decreases the subject's NIHSS by 1, 2, 3, and/or 4 points. In some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject decreases the subject's NIHSS by about 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, or 12, points, or by a range that is defined by any two of the preceding values. For example, in some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject decreases the subject's NIHSS by between about 1 and 12, 1 and 10, 1 and 8, 1 and 6, 1 and 4, 2 and 12, 2 and 10, 2 and 8, 2 and 6, 2 and 4, 4 and 12, 4 and 10, 4 and 8, 8 and 12, or 8 and 10 points. In some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject decreases the subject's NIHSS by about 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 20, 25, 30, 40, 50, 60, 70, 75, 80, 90, 100, 200, 250, 300, 400, 500, 600, 700, 750, 800, 900, or 1000%, or by a range that is defined by any two of the preceding values. For example, in some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject decreases the subject's NIHSS by between about 1 and 1000, 1 and 750, 1 and 500, 1 and 250, 1 and 100, 1 and 75, 1 and 50, 1 and 25, 1 and 10, 1 and 5, 5 and 1000, 5 and 750, 5 and 500, 5 and 250, 5 and 100, 5 and 75, 5 and 50, 5 and 10, 10 and 1000, 10 and 750, 10 and 500, 10 and 250, 10 and 100, 10 and 75, 10 and 50, 10 and 25, 25 and 1000, 25 and 750, 25 and 500, 25 and 250, 25 and 100, 25 and 75, 25 and 50, 50 and 1000, 50 and 750, 50 and 500, 50 and 250, 50 and 100, 100 and 1000, 100 and 750, 100 and 500, 100 and 250, 250 and 1000, 250 and 750, 250 and 500, 500 and 1000, 500 and 750, or 750 and 1000%.

[0164] In some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject decreases the subject's level of consciousness score on the NIHSS by about 1, 2, 3, 4, 5, 6, or 7, points, or by a range that is defined by any two of the preceding values. For example, in some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject decreases the subject's level of consciousness score on the NIHSS by between about 1 and 7, 1 and 5, 1 and 3, 3 and 7, or 5 and 7 points.

[0165] In some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject decreases the subject's horizontal extraocular movements score on the NIHSS by about 1 or 2 points.

[0166] In some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject decreases the subject's visual fields score on the NIHSS by about 1, 2, or 3 points.

[0167] In some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject decreases the subject's facial palsy score on the NIHSS by about 1, 2, or 3 points.

[0168] In some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject decreases the subject's left arm motor drift score on the NIHSS by about 1, 2, 3, or 4 points.

[0169] In some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject decreases the subject's right arm motor drift score on the NIHSS by about 1, 2, 3, or 4 points.

[0170] In some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject decreases the subject's left leg motor drift score on the NIHSS by about 1, 2, 3, or 4 points.

[0171] In some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject decreases the subject's right leg motor drift score on the NIHSS by about 1, 2, 3, or 4 points.

[0172] In some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject decreases the subject's limb ataxia score on the NIHSS by about 1 or 2 points.

[0173] In some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject decreases the subject's language/aphasia score on the NIHSS by about 1, 2, or 3 points.

[0174] In some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject decreases the subject's dysarthria score on the NIHSS by about 1 or 2 points.

[0175] In some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject decreases the subject's extinction/inattention score on the NIHSS by about 1 or 2 points.

[0176] In some embodiments, any one of the appropriate methods provided herein are performed to comprise assessing the subject by the modified Rankin Scale (mRS) at Baseline (day 1 at the initial administration) and further assessed at Days 15, 36, 64, and 104 following the initial intervention. In some embodiments, any one of the appropriate methods provided herein are performed to comprise assessing the subject by the mRS at Baseline (day 1 at the initial administration) and further assessed at about Days 10-20, 31-41, 59-69, and 99-109 following the initial intervention. In some embodiments, the subject's mRS is assessed at

about month 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, or 12, following the initial administration, or at a timepoint that in a range that is defined by any two of the preceding values. For example, in some embodiments, the subject's mRS is assessed at between about month 1 and 12, 1 and 8, 1 and 6, 1 and 4, 1 and 3, 3 and 12, 3 and 8, 3 and 6, 3 and 4, 4 and 12, 4 and 8, 4 and 6, 6 and 12, 6 and 8, or 8 and 12, following the initial intervention. In some embodiments, any one of the appropriate methods provided herein are performed to comprise assessing the subject by the mRS at Baseline (day 1 at the initial administration) and further assessed at one or more time points following the initial intervention. For example, the Subject's mRS may be assessed at Baseline (day 1 at the initial administration) and further assessed at 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, or more timepoints following the initial intervention, or assessed at a number of timepoints that is defined by any two of the preceding values. For example, in some embodiments, the Subject's mRS is assessed at between about 1 and 10, 1 and 7, 1 and 5, 1 and 4, 1 and 3, 3 and 10, 3 and 7, 3 and 5, 5 and 10, or 5 and 7 timepoints following the initial intervention. In some embodiments, the Subject's mRS is assessed more than 1 year following the initial intervention.

[0177] In some embodiments, the Subject's mRS is decreased from Baseline (day 1 at the initial administration by day 36 following the initial intervention. In some embodiments, the Subject's mRS is decreased from Baseline (day 1 at the initial administration by about day 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, or 41, following the initial intervention, or at a time point that is in a range that is defined by any two of the preceding values. For example, in some embodiments, the Subject's mRS is decreased from Baseline (day 1 at the initial administration by about days 31-41, 31 to 38, 31 to 36, 31 to 33, 33 to 41, 33 to 38, 33 to 36, 34 to 41, 34 to 37, or 37 to 41. In some embodiments, the subject's decreased mRS is sustained from day 36 through day 64 following the initial intervention. In some embodiments, the subject's decreased mRS is sustained from day 36 through day 104 following the initial intervention. In some embodiments, the subject's decreased mRS is sustained from about day 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, or 41 through about day 99, 100, 101, 102, 103, 104, 105, 105, 107, 108, or 109 following the initial intervention. In some embodiments, the subject's decreased mRS is sustained from about month 1 to about month 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, or 12, following the initial intervention, or for a period that is defined by any two of the preceding values. In some embodiments, the Subject's mRS decreases within one month of the initial intervention. In some embodiments, the Subject's decreased mRS is sustained for greater than about 3, 4, 5, 6, 7, 8, 9 10, 11, or 12 months following the initial intervention.

[0178] In some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject decreases the subject's mRS by 1 point. In some embodiments,

administration of the anti-Gal3 antibody or binding fragment thereof to the subject decreases the subject's mRS by about 1, 2, 3, 4, 5, or 6 points, or by a range that is defined by any two of the preceding values. In some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject decreases the subject's mRS by about 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 20, 25, 30, 40, 50, 60, 70, 75, 80, 90, 100, 200, 250, 300, 400, 500, 600, 700, 750, 800, 900, or 1000%, or by a range that is defined by any two of the preceding values. For example, in some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject decreases the subject's mRS by between about 1 and 1000, 1 and 750, 1 and 500, 1 and 250, 1 and 100, 1 and 75, 1 and 50, 1 and 25, 1 and 10, 1 and 5, 5 and 1000, 5 and 750, 5 and 500, 5 and 250, 5 and 100, 5 and 75, 5 and 50, 5 and 10, 10 and 1000, 10 and 750, 10 and 500, 10 and 250, 10 and 100, 10 and 75, 10 and 50, 10 and 25, 25 and 1000, 25 and 750, 25 and 500, 25 and 250, 25 and 100, 25 and 75, 25 and 50, 50 and 1000, 50 and 750, 50 and 500, 50 and 250, 50 and 100, 100 and 1000, 100 and 750, 100 and 500, 100 and 250, 250 and 1000, 250 and 750, 250 and 500, 500 and 1000, 500 and 750, or 750 and 1000%.

[0179] In some embodiments, any one of the appropriate methods provided herein are performed to comprise assessing the subject by the Fugl-Meyer Assessment (FMA) at Baseline (day 1 at the initial administration) and further assessed at Days 15, 36, 64, and 104 following the initial intervention. In some embodiments, any one of the appropriate methods provided herein are performed to comprise assessing the subject by the FMA at Baseline (day 1 at the initial administration) and further assessed at about Days 10-20, 31-41, 59-69, and 99-109 following the initial intervention. In some embodiments, the subject's mRS is assessed at about month 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, or 12, following the initial administration, or at a timepoint that in a range that is defined by any two of the preceding values. For example, in some embodiments, the subject's FMA is assessed at between about month 1 and 12, 1 and 8, 1 and 6, 1 and 4, 1 and 3, 3 and 12, 3 and 8, 3 and 6, 3 and 4, 4 and 12, 4 and 8, 4 and 6, 6 and 12, 6 and 8, or 8 and 12, following the initial intervention. In some embodiments, any one of the appropriate methods provided herein are performed to comprise assessing the subject by the mRS at Baseline (day 1 at the initial administration) and further assessed at one or more time points following the initial intervention. For example, the Subject's FMA may be assessed at Baseline (day 1 at the initial administration) and further assessed at 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, or more timepoints following the initial intervention, or assessed at a number of timepoints that is defined by any two of the preceding values. For example, in some embodiments, the Subject's FMA is assessed at between about 1 and 10, 1 and 7, 1 and 5, 1 and 4, 1 and 3, 3 and 10, 3 and 7, 3 and 5, 5 and 10, or 5 and 7 timepoints following the initial intervention. In some

embodiments, the Subject's FMA is assessed more than 1 year following the initial intervention.

[0180] In some embodiments, the Subject's FMA is increased from Baseline (day 1 at the initial administration by day 36 following the initial intervention. In some embodiments, the Subject's FMA is increased from Baseline (day 1 at the initial administration by about day 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, or 41, following the initial intervention, or at a time point that is in a range that is defined by any two of the preceding values. For example, in some embodiments, the Subject's FMA is increased from Baseline (day 1 at the initial administration by about days 31-41, 31 to 38, 31 to 36, 31 to 33, 33 to 41, 33 to 38, 33 to 36, 34 to 41, 34 to 37, or 37 to 41. In some embodiments, the subject's increased FMA is sustained from day 36 through day 64 following the initial intervention. In some embodiments, the subject's decreased FMA is sustained from day 36 through day 104 following the initial intervention. In some embodiments, the subject's increased FMA is sustained from about day 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, or 41 through about day 99, 100, 101, 102, 103, 104, 105, 105, 107, 108, or 109 following the initial intervention. In some embodiments, the subject's increased FMA is sustained from about month 1 to about month 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, or 12, following the initial intervention, or for a period that is defined by any two of the preceding values. In some embodiments, the Subject's FMA increases within one month of the initial intervention. In some embodiments, the Subject's increased FMA is sustained for greater than about 3, 4, 5, 6, 7, 8, 9 10, 11, or 12 months following the initial intervention.

[0181] In some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject increases the subject's FMA by about 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120, 130, 140, 150, 160, 170, 180, 190, 200, 210, 220, 225, or 226 points, or by a range that is defined any two of the preceding values. For example, in some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject increases the subject's FMA by between about 1 and 226, 1 and 200, 1 and 150, 1 and 100, 1 and 75, 1 and 50, 1 and 25, 1 and 10, 1 and 5, 5 and 226, 5 and 200, 5 and 150, 5 and 100, 5 and 75, 5 and 50, 5 and 25, 5 and 10, 10 and 226, 10 and 200, 10 and 150, 10 and 100, 10 and 75, 10 and 50, 10 and 25, 25 and 226, 25 and 200, 25 and 150, 25 and 100, 25 and 75, 25 and 50, 50 and 226, 50 and 200, 50 and 150, 50 and 100, 50 and 75, 75 and 226, 75 and 200, 75 and 150, 75 and 100, 100 and 226, 100 and 200, 100 and 150, 150 and 226, 150 and 200, or 200 and 226, points. In some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject decreases the subject's FMA by about 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 20, 25, 30, 40, 50, 60, 70, 75, 80,

90, 100, 200, 250, 300, 400, 500, 600, 700, 750, 800, 900, or 1000%, or by a range that is defined by any two of the preceding values. For example, in some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject increases the subject's FMA by between about 1 and 1000, 1 and 750, 1 and 500, 1 and 250, 1 and 100, 1 and 75, 1 and 50, 1 and 25, 1 and 10, 1 and 5, 5 and 1000, 5 and 750, 5 and 500, 5 and 250, 5 and 100, 5 and 75, 5 and 50, 5 and 10, 10 and 1000, 10 and 750, 10 and 500, 10 and 250, 10 and 100, 10 and 75, 10 and 50, 10 and 25, 25 and 1000, 25 and 750, 25 and 500, 25 and 250, 25 and 100, 25 and 75, 25 and 50, 50 and 1000, 50 and 750, 50 and 500, 50 and 250, 50 and 100, 100 and 1000, 100 and 750, 100 and 500, 100 and 250, 250 and 1000, 250 and 750, 250 and 500, 500 and 1000, 500 and 750, or 750 and 1000%.

[0182] In some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject increases the subject's motor score on the FMA by about 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 20, 25, 30, 40, 50, 60, 70, 80, 90, or 100, points, or by a range that is defined any two of the preceding values. For example, in some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject increases the subject's motor score on the FMA by between about 1 and 100, 1 and 75, 1 and 50, 1 and 25, 1 and 10, 1 and 5, 5 and 100, 5 and 75, 5 and 50, 5 and 25, 5 and 10, 10 and 100, 10 and 75, 10 and 50, 10 and 25, 25 and 100, 25 and 75, 25 and 50, 50 and 100, 50 and 75, or 75 and 100, points.

[0183] In some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject increases the subject's upper extremity motor score on the FMA by about 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 20, 25, 30, 40, 50, 60, 65, or 66, points, or by a range that is defined any two of the preceding values. For example, in some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject increases the subject's upper extremity motor score on the FMA by between about 1 and 66, 1 and 50, 1 and 25, 1 and 10, 1 and 5, 5 and 66, 5 and 50, 5 and 25, 5 and 10, 10 and 66, 10 and 50, 10 and 25, 25 and 66, 25 and 50, or 50 and 66, points.

[0184] In some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject increases the subject's lower extremity motor score on the FMA by about 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 20, 25, 30, or 34, points, or by a range that is defined any two of the preceding values. For example, in some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject increases the subject's lower extremity motor score on the FMA by between about 1 and 34, 1 and 25, 1 and 10, 1 and 5, 5 and 34, 5 and 25, 5 and 10, 10 and 34, 10 and 25, or 25 and 34, points.

[0185] In some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject increases s the subject's sensation score on the FMA by about 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 20, or 24, points, or by a range that is defined any two of the preceding values. For example, in some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject increases the subject's sensation score on the FMA by between about 1 and 24, 1 and 10, 1 and 5, 5 and 24, 5 and 10, or 10 and 24, points.

[0186] In some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject increases the subject's light touch sensation score on the FMA by about 1, 2, 3, 4, 5, 6, 7, or 8, points, or by a range that is defined any two of the preceding values. For example, in some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject increases the subject's light touch sensation score on the FMA by between about 1 and 8, 1 and 6, 1 and 4, 4 and 8, or 6 and 8, points.

[0187] In some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject increases the subject's position sensation score on the FMA by about 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, or 16, points, or by a range that is defined any two of the preceding values. For example, in some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject d increases the subject's position sensation score on the FMA by between about 1 and 16, 1 and 10, 1 and 5, 5 and 16, 5 and 10, or 10 and 16, points.

[0188] In some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject increases the subject's balance score on the FMA by about 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, or 14, points, or by a range that is defined any two of the preceding values. For example, in some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject increases the subject's balance score on the FMA by between about 1 and 14, 1 and 10, 1 and 5, 5 and 14, 5 and 10, or 10 and 14, points.

[0189] In some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject increases the subject's sitting balance score on the FMA by about 1, 2, 3, 4, 5, or 6, points, or by a range that is defined any two of the preceding values. For example, in some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject increases the subject's balance score on the FMA by between about 1 and 6, 1 and 3, or 3 and 6, points.

[0190] In some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject increases the subject's standing balance score on the FMA by

about 1, 2, 3, 4, 5, 6, 7, or 8, points, or by a range that is defined any two of the preceding values. For example, in some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject increases the subject's balance score on the FMA by between about 1 and 8, 1 and 6, 1 and 4, 4 and 8, 4 and 6, or 6 and 8, points.

[0191] In some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject increases the subject's joint range of motion score on the FMA by about 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 20, 25, 30, 40, or 44, points, or by a range that is defined any two of the preceding values. For example, in some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject increases the subject's joint range of motion score on the FMA by between about 1 and 44, 1 and 30, 1 and 25, 1 and 10, 1 and 5, 5 and 44, 5 and 30, 5 and 25, 5 and 10, 10 and 44, 10 and 30, 10 and 25, 25 and 44, 25 and 30, or 30 and 44, points.

[0192] In some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject increases the subject's joint pain score on the FMA by about 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 20, 25, 30, 40, or 44, points, or by a range that is defined any two of the preceding values. For example, in some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject increases the subject's joint pain score on the FMA by between about 1 and 44, 1 and 30, 1 and 25, 1 and 10, 1 and 5, 5 and 44, 5 and 30, 5 and 25, 5 and 10, 10 and 44, 10 and 30, 10 and 25, 25 and 44, 25 and 30, or 30 and 44, points.

[0193] In some embodiments, any one of the appropriate methods provided herein are performed to comprise assessing the subject by the Montreal Cognitive Assessment (MoCA) at Baseline (day 1 at the initial administration) and further assessed at Days 15, 36, 64, and 104 following the initial intervention. In some embodiments, any one of the appropriate methods provided herein are performed to comprise assessing the subject by the MoCA at Baseline (day 1 at the initial administration) and further assessed at about Days 10-20, 31-41, 59-69, and 99-109 following the initial intervention. In some embodiments, the subject's MoCA is assessed at about month 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, or 12, following the initial administration, or at a timepoint that in a range that is defined by any two of the preceding values. For example, in some embodiments, the subject's MoCA is assessed at between about month 1 and 12, 1 and 8, 1 and 6, 1 and 4, 1 and 3, 3 and 12, 3 and 8, 3 and 6, 3 and 4, 4 and 12, 4 and 8, 4 and 6, 6 and 12, 6 and 8, or 8 and 12, following the initial intervention. In some embodiments, any one of the appropriate methods provided herein are performed to comprise assessing the subject by the MoCA at Baseline (day 1 at the initial administration) and further

assessed at one or more time points following the initial intervention. For example, the Subject's MoCA may be assessed at Baseline (day 1 at the initial administration) and further assessed at 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, or more timepoints following the initial intervention, or assessed at a number of timepoints that is defined by any two of the preceding values. For example, in some embodiments, the Subject's MoCA is assessed at between about 1 and 10, 1 and 7, 1 and 5, 1 and 4, 1 and 3, 3 and 10, 3 and 7, 3 and 5, 5 and 10, or 5 and 7 timepoints following the initial intervention. In some embodiments, the Subject's MoCA is assessed more than 1 year following the initial intervention.

[0194] In some embodiments, the Subject's MoCA is increased from Baseline (day 1 at the initial administration by day 36 following the initial intervention. In some embodiments, the Subject's MoCA is increased from Baseline (day 1 at the initial administration by about day 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, or 41, following the initial intervention, or at a time point that is in a range that is defined by any two of the preceding values. For example, in some embodiments, the Subject's MoCA is increased from Baseline (day 1 at the initial administration by about days 31-41, 31 to 38, 31 to 36, 31 to 33, 33 to 41, 33 to 38, 33 to 36, 34 to 41, 34 to 37, or 37 to 41. In some embodiments, the subject's increased MoCA is sustained from day 36 through day 64 following the initial intervention. In some embodiments, the subject's increased MoCA is sustained from day 36 through day 104 following the initial intervention. In some embodiments, the subject's increased MoCA is sustained from about day 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, or 41 through about day 99, 100, 101, 102, 103, 104, 105, 105, 107, 108, or 109 following the initial intervention. In some embodiments, the subject's increased MoCA is sustained from about month 1 to about month 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, or 12, following the initial intervention, or for a period that is defined by any two of the preceding values. In some embodiments, the Subject's MoCA increases within one month of the initial intervention. In some embodiments, the Subject's increased MoCA is sustained for greater than about 3, 4, 5, 6, 7, 8, 9 10, 11, or 12 months following the initial intervention.

[0195] In some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject increases the subject's MoCA by about 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, or 30, points, or by a range that is defined by any two of the preceding values. For example, in some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject increases the subject's MoCA by between about 1 and 30, 1 and 20, 1 and 15, 1 and 10, 1 and 5, 5 and 30, 5 and 20, 5 and 15, 5 and 10, 10 and 30, 10 and 15, 15 and 30, 15 and 20, or 20 and 30

points. In some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject increases the subject's MoCA by about 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 20, 25, 30, 40, 50, 60, 70, 75, 80, 90, 100, 200, 250, 300, 400, 500, 600, 700, 750, 800, 900, or 1000%, or by a range that is defined by any two of the preceding values. For example, in some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject increases the subject's MoCA by between about 1 and 1000, 1 and 750, 1 and 500, 1 and 250, 1 and 100, 1 and 75, 1 and 50, 1 and 25, 1 and 10, 1 and 5, 5 and 1000, 5 and 750, 5 and 500, 5 and 250, 5 and 100, 5 and 75, 5 and 50, 5 and 10, 10 and 1000, 10 and 750, 10 and 500, 10 and 250, 10 and 100, 10 and 75, 10 and 50, 10 and 25, 25 and 1000, 25 and 750, 25 and 500, 25 and 250, 25 and 100, 25 and 75, 25 and 50, 50 and 1000, 50 and 750, 50 and 500, 50 and 250, 50 and 100, 100 and 1000, 100 and 750, 100 and 500, 100 and 250, 250 and 1000, 250 and 750, 250 and 500, 500 and 1000, 500 and 750, or 750 and 1000%.

[0196] In some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject prevents the stroke (which also may involve reducing the severity of a stroke that occurs). In some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof prevents loss of locomotor dysfunction, prevents incidence of microhemorrhage, prevents elevation of levels of activated microglia, prevents elevation of levels of activated astrocytes, prevents elevation of circulating proinflammatory immune cells, prevents elevation of circulating proinflammatory cytokines, or any combination thereof, in the subject.

[0197] In some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject reduces the chances of the stroke or reduces the chances of a severe stroke by at least 5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, 95%, 96%, 97%, 98%, 99%, or any percentage within a range defined by any two of the aforementioned reductions. In some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject reduces the chances of the stroke or reduces the chances of a severe stroke by at least 50%, 60%, 70%, 80%, 90%, 95%, 96%, 97%, 98%, 99% or higher or any percentage within a range defined by any two of the aforementioned reductions.

[0198] In some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject treats the stroke. In some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof reduces locomotor dysfunction, reduces microhemorrhage, reduces levels of activated microglia, reduces levels of activated astrocytes, reduces levels of circulating proinflammatory immune cells, reduces levels of circulating proinflammatory cytokines, or any combination thereof, in the subject.

[0199] In some embodiments, the reduction in locomotor dysfunction, reduction in microhemorrhage, reduction in levels of activated microglia, reduction in levels of activated astrocytes, reduction in levels of circulating proinflammatory cytokines, or any combination thereof, in the subject, is by at least 5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, 95%, 96%, 97%, 98%, 99% or higher or any percentage within a range defined by any two of the aforementioned reductions. In some embodiments, the reduction in locomotor dysfunction in the subject is by at least 50%. In some embodiments, the reduction in locomotor dysfunction is assessed by the Fugl-Meyer Assessment (FMA), Motor Assessment Scale (MAS), and/or the Chedoke-McMaster Stroke Assessment (CMSA). In some embodiments, the reduction in microhemorrhage in the subject is by at least 50%. In some embodiments, the reduction in microhemorrhage is assessed by neuroimaging, MRI, and/or Prussian blue staining. In some embodiments, the reduction in levels of activated microglia in the subject is by at least 20%. In some embodiments, the reduction in levels of activated microglia is assessed by detection of microglia activation markers. In some embodiments, the microglia activation markers include but are not limited to ionized calcium-binding adaptor molecule 1 (Iba1), monocyte chemoattractant protein-1 (MCP-1), chitinase-3-like protein 1 (YKL-40), and/or soluble CD14 (sCD14). In some embodiments, the microglia activation markers are detected in the cerebrospinal fluid of the subject. In some embodiments, the reduction in levels of activated astrocytes in the subject is by at least 30%. In some embodiments, the reduction in levels of activated astrocytes is assessed by detection of astrocyte activation markers. In some embodiments, the astrocyte activation markers include but are not limited to GFAP. In some embodiments, the astrocyte activation markers are detected in the cerebrospinal fluid of the subject. In some embodiments, the proinflammatory immune cells comprise NK cells, monocytes, and/or lymphocytes. In some embodiments, the proinflammatory cytokines include but are not limited to IL-6 and/or IL1β.

[0200] In some embodiments, the anti-Gal3 antibody or binding fragment thereof is administered with one or more additional therapeutic compositions, such as those for the treatment of stroke. In some embodiments, the stroke is ischemic stroke, thrombotic stroke, embolic stroke, or transient ischemic attack, and the one or more additional therapeutic compositions comprise thrombolytics, tissue plasminogen activator (tPA), alteplase, reteplase, tenecteplase, desmoteplase, anticoagulants, ACE inhibitors, antihypertensives, nicardipine, or any combination thereof. In some embodiments, the stroke is hemorrhagic stroke, intracerebral hemorrhage, or subarachnoid hemorrhage, and the one or more additional therapeutic compositions comprise antihypertensives, or nicardipine, or any combination thereof. The

administration of the anti-Gal3 antibody or binding fragment thereof may also be accompanied with surgery.

[0201] In addition to the methods for selecting the subject as having the stroke or at risk of contracting the stroke, and/or detecting an amelioration of symptoms associated with the stroke, alternative approaches can also be used. These approaches may include the Action Research Arm Test, Barthel Index, Berg Balance Scale, Box and Block Test, Chedoke McMaster Stroke Assessment Scale, Chedoke Arm and Hand Activity Inventory, Clinical Outcome Variables Scale, Functional Ambulation Categories, Functional Independence Measure, Frenchay Activities Index, Motor Assessment Scale, Motricity Test, Nine-hole Peg Test, Rankin Handicap Scale, Rivermead Mobility Scale, Rivermead Motor Assessment, Six Minute Walk Test, Timed Up and Go, and/or Wolf Motor Function Test. Other approaches may involve analysis of inflammatory components from blood or cerebrospinal fluid samples from the patient. These inflammatory components may include immune cells, such as leukocytes, NK cells, monocytes, lymphocytes, and the like, or pro-inflammatory cytokines. The use of any one or more of these approaches to assess the incidence or risk of stroke may be dependent on the discretion of a trained medical professional.

[0202] In some embodiments, the anti-Gal3 antibody or binding fragment thereof is or comprises any one or more of the sequences illustrated in **FIG. 3A-C, 4A-C, 5, 6, 7, 8, or 9**, includes any 1, 2, 3, 4, 5, or 6 of the CDRs in **SEQ ID NOs: 27-538, 801-865**, and/or includes one or both of the VH/VL in **SEQ ID NOs: 297-447, 803-865, 926-929**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof includes 1, 2, 3, 4, 5, or 6 of the V_H-CDR1, V_H-CDR2, V_H-CDR3, V_L-CDR1, V_L-CDR2, and/or V_L-CDR3 of **SEQ ID NOs: 27, 71, 112, 170, 221, 248**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof includes 1, 2, 3, 4, 5, or 6 of the V_H-CDR1, V_H-CDR2, V_H-CDR3, V_L-CDR1, V_L-CDR2, and/or V_L-CDR3 of **SEQ ID NOs: 31, 72, 113, 171, 222, 249**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof includes 1, 2, 3, 4, 5, or 6 of the V_H-CDR1, V_H-CDR2, V_H-CDR3, V_L-CDR1, V_L-CDR2, and/or V_L-CDR3 of **SEQ ID NOs: 30, 86, 130, 189, 230, 263**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof includes 1, 2, 3, 4, 5, or 6 of the V_H-CDR1, V_H-CDR2, V_H-CDR3, V_L-CDR1, V_L-CDR2, and/or V_L-CDR3 of **SEQ ID NOs: 34, 74, 116, 174, 225, 252**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof includes 1, 2, 3, 4, 5, or 6 of the V_H-CDR1, V_H-CDR2, V_H-CDR3, V_L-CDR1, V_L-CDR2, and/or V_L-CDR3 of **SEQ ID NOs: 32, 84, 119, 186, 228, 255**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof includes 1, 2, 3, 4, 5, or 6 of the V_H-CDR1, V_H-CDR2, V_H-CDR3, V_L-CDR1, V_L-CDR2, and/or V_L-CDR3 of **SEQ ID NOs:**

37, 77, 118, 178, 229, 256. In some embodiments, the anti-Gal3 antibody or binding fragment thereof includes 1, 2, 3, 4, 5, or 6 of the V_H-CDR1, V_H-CDR2, V_H-CDR3, V_L-CDR1, V_L-CDR2, and/or V_L-CDR3 of **SEQ ID NOs: 34, 74, 126, 187, 225, 252**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof includes 1, 2, 3, 4, 5, or 6 of the V_H-CDR1, V_H-CDR2, V_H-CDR3, V_L-CDR1, V_L-CDR2, and/or V_L-CDR3 of **SEQ ID NOs: 66, 108, 164, 215, 225, 291**.

[0203] Also disclosed herein are methods for inhibiting, reducing, preventing, and/or treating traumatic brain injury (TBI) in a subject in need thereof. The methods comprise administering an anti-Gal3 antibody or binding fragment thereof to the subject, thereby inhibiting, reducing, preventing, and/or treating the TBI.

[0204] In some embodiments, the methods further comprise selecting the subject as having the TBI or at risk of contracting the TBI prior to the administering step. In some embodiments, selecting the subject as having the TBI comprises assessing the subject for level of consciousness, memory loss, and/or the Glasgow Coma Scale, neuroimaging (such as CT or MRI) and/or detecting TBI biomarkers (including but not limited to GFAP and/or ubiquitin carboxy-terminal hydrolase L1 (UCH-L1). In some embodiments, the methods further comprise detecting an amelioration of symptoms associated with the TBI after the administering step. In some embodiments, the TBI is associated with a concussion, edema, diffuse axonal injury, spinal cord injury, coma, neuroinflammation, microhemorrhage, astrocytosis, activated microglia, and/or hematoma. In some embodiments, any of the methods disclosed herein involving an anti-Gal3 antibody or binding fragment can be performed with an antigen binding molecule that binds to Gal3.

[0205] In some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject prevents the TBI, concussion, edema, diffuse axonal injury, spinal cord injury, coma, neuroinflammation, microhemorrhage, astrocytosis, activated microglia, and/or hematoma. This may also involve reducing the severity of the TBI, concussion, edema, diffuse axonal injury, spinal cord injury, coma, neuroinflammation, microhemorrhage, astrocytosis, activated microglia, and/or hematoma. In some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof prevents elevation of levels of activated microglia, prevents elevation of levels of activated astrocytes, prevents elevation of levels of macrophages, prevents elevation of levels of hyperphosphorylated Tau, prevents incidence of microhemorrhage, prevents neuroinflammation, prevents elevation of levels of circulating proinflammatory cytokines, or any combination thereof, in the subject.

[0206] In some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject reduces the chance of the TBI, concussion, edema, diffuse axonal injury, spinal cord injury, coma, neuroinflammation, microhemorrhage, astrocytosis, activated microglia, and/or hematoma or reduces the chances of a severe form of said conditions by at least 5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, or 95%, or any percentage within a range defined by any two of the aforementioned reductions. In some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject reduces the chance of the TBI, concussion, edema, diffuse axonal injury, spinal cord injury, coma, neuroinflammation, microhemorrhage, astrocytosis, activated microglia, and/or hematoma or reduces the chances of a severe form of said conditions by at least 50%, 60%, 70%, 80%, 90%, 95%, 96%, 97%, 98%, 99% or higher, or any percentage within a range defined by any two of the aforementioned reductions.

[0207] In some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject treats the TBI, concussion, edema, diffuse axonal injury, spinal cord injury, coma, neuroinflammation, microhemorrhage, astrocytosis, activated microglia, and/or hematoma. In some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof improves the level of consciousness, memory loss, and/or the Glasgow Coma Scale of the patient; and/or reduces levels of activated microglia, reduces levels of activated astrocytes, reduces levels of macrophages, reduces levels of hyperphosphorylated Tau, reduces microhemorrhage, reduces neuroinflammation, reduces levels of circulating proinflammatory cytokines or any combination thereof, in the subject.

[0208] In some embodiments, the reduction in levels of activated microglia, reduction in levels of activated astrocytes, reduction in levels of macrophages, reduction in levels of hyperphosphorylated Tau, reduction in microhemorrhage, reduction in neuroinflammation, reduction in levels of circulating proinflammatory cytokines, or any combination thereof, in the subject, is by at least 5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, 95%, 96%, 97%, 98%, 99% or higher, or any percentage within a range defined by any two of the aforementioned reductions. In some embodiments, the reduction in levels of activated microglia in the subject is by at least 70%. In some embodiments, the reduction in levels of activated microglia is assessed by detection of microglia activation markers. In some embodiments, the microglia activation markers include but are not limited to ionized calcium-binding adaptor molecule 1 (Iba1), monocyte chemoattractant protein-1 (MCP-1), chitinase-3-like protein 1 (YKL-40), and/or soluble CD14 (sCD14). In some embodiments, the microglia activation markers are detected in the cerebrospinal fluid of the subject. In some embodiments,

the reduction in levels of activated astrocytes in the subject is by at least 90%. In some embodiments, the reduction in levels of activated astrocytes is assessed by detection of astrocyte activation markers. In some embodiments, the astrocyte activation markers include but are not limited to GFAP. In some embodiments, the astrocyte activation markers are detected in the cerebrospinal fluid of the subject. In some embodiments, the reduction in levels of macrophages in the subject is by at least 70%. In some embodiments, the reduction in levels of macrophages is assessed by detection of macrophage activation markers. In some embodiments, the macrophage activation markers include but are not limited to CD68. In some embodiments, the macrophage activation markers are detected in the cerebrospinal fluid of the subject. In some embodiments, the reduction in levels of hyperphosphorylated Tau in the subject is by at least 80%. In some embodiments, the reduction in levels of microhemorrhage in the subject is by at least 80%. In some embodiments, the reduction in levels of microhemorrhage is assessed by neuroimaging, MRI, and/or Prussian blue staining. In some embodiments, the reduction in neuroinflammation in the subject is by at least 70%. In some embodiments, the proinflammatory cytokines comprise IL-6, IL-10, and/or TNF-α.

[0209] In some embodiments, the anti-Gal3 antibody or binding fragment thereof is administered with one or more additional therapeutic compositions, such as those for treating TBI. In some embodiments, the one or more additional therapeutic compositions comprise levodopa, bromocriptine, NMDA receptor antagonists, amantadine, memantine, cholinesterase inhibitors, tacrine, rivastigmine, galantamine, donepezil, or any combination thereof. The administration of the anti-Gal3 antibody or binding fragment thereof may also be accompanied with surgery.

[0210] In some embodiments, the anti-Gal3 antibody or binding fragment thereof is or comprises any one or more of the sequences illustrated in **FIG. 3A-C, 4A-C, 5, 6, 7, 8, or 9**, includes any 1, 2, 3, 4, 5, or 6 of the CDRs in **SEQ ID NOs: 27-538, 801-865**, and/or includes one or both of the VH/VL in **SEQ ID NOs: 297-447, 803-865, 926-929**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof includes 1, 2, 3, 4, 5, or 6 of the V_H-CDR1, V_H-CDR2, V_H-CDR3, V_L-CDR1, V_L-CDR2, and/or V_L-CDR3 of **SEQ ID NOs: 27, 71, 112, 170, 221, 248**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof includes 1, 2, 3, 4, 5, or 6 of the V_H-CDR1, V_H-CDR2, V_H-CDR3, V_L-CDR1, V_L-CDR2, and/or V_L-CDR3 of **SEQ ID NOs: 31, 72, 113, 171, 222, 249**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof includes 1, 2, 3, 4, 5, or 6 of the V_H-CDR1, V_H-CDR2, V_H-CDR3, V_L-CDR1, V_L-CDR2, and/or V_L-CDR3 of **SEQ ID NOs: 30, 86, 130, 189, 230, 263**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof includes 1, 2,

3, 4, 5, or 6 of the V_H-CDR1, V_H-CDR2, V_H-CDR3, V_L-CDR1, V_L-CDR2, and/or V_L-CDR3 of **SEQ ID NOs: 34, 74, 116, 174, 225, 252**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof includes 1, 2, 3, 4, 5, or 6 of the V_H-CDR1, V_H-CDR2, V_H-CDR3, V_L-CDR1, V_L-CDR2, and/or V_L-CDR3 of **SEQ ID NOs: 32, 84, 119, 186, 228, 255**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof includes 1, 2, 3, 4, 5, or 6 of the V_H-CDR1, V_H-CDR2, V_H-CDR3, V_L-CDR1, V_L-CDR2, and/or V_L-CDR3 of **SEQ ID NOs: 37, 77, 118, 178, 229, 256**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof includes 1, 2, 3, 4, 5, or 6 of the V_H-CDR1, V_H-CDR2, V_H-CDR3, V_L-CDR1, V_L-CDR2, and/or V_L-CDR3 of **SEQ ID NOs: 34, 74, 126, 187, 225, 252**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof includes 1, 2, 3, 4, 5, or 6 of the V_H-CDR1, V_H-CDR2, V_H-CDR3, V_L-CDR1, V_L-CDR2, and/or V_L-CDR3 of **SEQ ID NOs: 66, 108, 164, 215, 225, 291**.

[0211] Also disclosed herein are methods for inhibiting, reducing, preventing, and/or treating a disorder associated with fibrin activity or dysfunction in a subject in need thereof. The methods comprise administering an anti-Gal3 antibody or binding fragment thereof to the subject, thereby inhibiting, reducing, preventing, and/or treating the disorder associated with fibrin activity or dysfunction.

[0212] In some embodiments, the disorder associated with fibrin activity or dysfunction comprises atherosclerosis, thrombosis, thromboembolism, carotid artery disease, coronary artery disease, peripheral artery disease, myocardial infarction, heart failure, heart attack, hypertension, chronic kidney disease, coagulopathy, or thrombocytopathy. In some embodiments, the disorder associated with fibrin activity or dysfunction is atherosclerosis. In some embodiments, the disorder associated with fibrin activity or dysfunction is thrombosis. In some embodiments, the disorder associated with fibrin activity or dysfunction is thromboembolism. In some embodiments, the disorder associated with fibrin activity or dysfunction is carotid artery disease. In some embodiments, the disorder associated with fibrin activity or dysfunction is coronary artery disease. In some embodiments, the disorder associated with fibrin activity or dysfunction is peripheral artery disease. In some embodiments, the disorder associated with fibrin activity or dysfunction is myocardial infarction. In some embodiments, the disorder associated with fibrin activity or dysfunction is heart failure. In some embodiments, the disorder associated with fibrin activity or dysfunction is chronic kidney disease. In some embodiments, the disorder associated with fibrin activity or dysfunction is coagulopathy. In some embodiments, the disorder associated with fibrin activity or dysfunction is thrombocytopathy. In some embodiments, the methods further comprise

selecting the subject as having the disorder associated with fibrin activity or dysfunction or at risk of contracting the disorder associated with fibrin activity or dysfunction prior to the administering step. In some embodiments, selecting the subject as having the disorder associated with fibrin activity or dysfunction comprises detecting thrombotic biomarkers. In some embodiments, the thrombotic biomarkers include but are not limited to fibrinogen, C-reactive protein (CRP), and/or plasminogen activator inhibitor-1 (PAI-1). In some embodiments, the methods further comprise detecting an amelioration of symptoms associated with the disorder associated with fibrin activity or dysfunction after the administering step. In some embodiments, any of the methods disclosed herein involving an anti-Gal3 antibody or binding fragment can be performed with an antigen binding molecule that binds to Gal3.

[0213] In some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject prevents neuroinflammation and/or fibrin oligomerization, in the subject. In some embodiments, administration of the anti-Gal3 antibody or binding fragment thereof to the subject reduces neuroinflammation and/or fibrin oligomerization in the subject.

[0214] In some embodiments, the reduction in neuroinflammation and/or the reduction in fibrin oligomerization, in the subject, is by at least 5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, or 95%, or any percentage within a range defined by any two of the aforementioned reductions.

[0215] In some embodiments, the anti-Gal3 antibody or binding fragment thereof is administered with one or more additional therapeutic compositions, such as those used for treating a disorder associated with fibrin activity or dysfunction, atherosclerosis, thrombosis, thromboembolism, carotid artery disease, coronary artery disease, peripheral artery disease, myocardial infarction, heart failure, heart attack, hypertension, chronic kidney disease, coagulopathy, or thrombocytopathy. In some embodiments, the one or more additional therapeutic compositions comprises anti-clotting agents, aspirin, statins, antihypertensives, diuretics, calcium channel blockers, ACE inhibitors, angiotensin II receptor antagonists, adrenergic receptor antagonists, vasodilators, renin inhibitors, aldosterone receptor antagonists, endothelium receptor blockers, or any combination thereof. The administration of the anti-Gal3 antibody or binding fragment thereof may also be accompanied with surgery.

[0216] In addition to the indications provided herein, the anti-Gal3 antibodies and binding fragments thereof are also envisioned to be effective for related indications, such as those related to inflammation where a subject would benefit from a reduction in proinflammatory cytokines. In some embodiments are provided methods for inhibiting,

reducing, preventing, and/or treating a disorder associated with inflammation and elevation of proinflammatory cytokines in a subject in need thereof. The methods comprise administering an anti-Gal3 antibody or binding fragment thereof to the subject, thereby treating the disorder associated with inflammation. In some embodiments, the administration reduces proinflammatory cytokines, such as circulating cytokines, in the subject.

[0217] In some embodiments, the anti-Gal3 antibody or binding fragment thereof is or comprises any one or more of the sequences illustrated in **FIG. 3A-C, 4A-C, 5, 6, 7, 8, or 9**, includes any 1, 2, 3, 4, 5, or 6 of the CDRs in **SEQ ID NOs: 27-538, 801-865**, and/or includes one or both of the VH/VL in **SEQ ID NOs: 297-447, 803-865, 926-929**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof includes 1, 2, 3, 4, 5, or 6 of the V_H-CDR1, V_H-CDR2, V_H-CDR3, V_L-CDR1, V_L-CDR2, and/or V_L-CDR3 of **SEQ ID NOs: 27, 71, 112, 170, 221, 248**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof includes 1, 2, 3, 4, 5, or 6 of the V_H-CDR1, V_H-CDR2, V_H-CDR3, V_L-CDR1, V_L-CDR2, and/or V_L-CDR3 of **SEQ ID NOs: 31, 72, 113, 171, 222, 249**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof includes 1, 2, 3, 4, 5, or 6 of the V_H-CDR1, V_H-CDR2, V_H-CDR3, V_L-CDR1, V_L-CDR2, and/or V_L-CDR3 of **SEQ ID NOs: 30, 86, 130, 189, 230, 263**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof includes 1, 2, 3, 4, 5, or 6 of the V_H-CDR1, V_H-CDR2, V_H-CDR3, V_L-CDR1, V_L-CDR2, and/or V_L-CDR3 of **SEQ ID NOs: 34, 74, 116, 174, 225, 252**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof includes 1, 2, 3, 4, 5, or 6 of the V_H-CDR1, V_H-CDR2, V_H-CDR3, V_L-CDR1, V_L-CDR2, and/or V_L-CDR3 of **SEQ ID NOs: 32, 84, 119, 186, 228, 255**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof includes 1, 2, 3, 4, 5, or 6 of the V_H-CDR1, V_H-CDR2, V_H-CDR3, V_L-CDR1, V_L-CDR2, and/or V_L-CDR3 of **SEQ ID NOs: 37, 77, 118, 178, 229, 256**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof includes 1, 2, 3, 4, 5, or 6 of the V_H-CDR1, V_H-CDR2, V_H-CDR3, V_L-CDR1, V_L-CDR2, and/or V_L-CDR3 of **SEQ ID NOs: 34, 74, 126, 187, 225, 252**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof includes 1, 2, 3, 4, 5, or 6 of the V_H-CDR1, V_H-CDR2, V_H-CDR3, V_L-CDR1, V_L-CDR2, and/or V_L-CDR3 of **SEQ ID NOs: 66, 108, 164, 215, 225, 291**.

[0218] As applied to any of the methods comprising administering an anti-Gal3 antibody or binding fragment thereof to a subject disclosed herein, in some embodiments, administering an anti-Gal3 antibody or binding fragment thereof to the subject comprises administration of one or more unit doses of the anti-Gal3 antibody or binding fragment thereof, optionally 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10 unit doses. In some embodiments, 5, 6, 7, 8, 9, or 10

unit doses are administered. In some embodiments, 5 unit doses are administered. In some embodiments, 8 unit doses are administered. In some embodiments, the one or more unit doses comprise 50, 60, 70, 80, 90, 100, 200, 300, 400, 500, 600, 700, 800, 900, 1000, 1100, 1200, 1300, 1400, 1500, 1600, 1700, 1800, 1900, 2000, 2500, 3000, 3500, 4000, 4500 or 5000 mg of the anti-Gal3 antibody or binding fragment thereof per unit dose, or any amount per unit dose within a range defined by any two of the aforementioned amounts per unit dose. In some embodiments, the one or more unit doses are between 70 to 5000 mg of the anti-Gal3 antibody or binding fragment thereof per unit dose. In some embodiments, the one or more unit doses comprise 800, 900, 1000, 1100, 1200, 1300, 1400, or 1500 mg of the anti-Gal3 antibody or binding fragment thereof per unit dose, or any amount per unit dose within a range defined by any two of the aforementioned amounts per unit dose. In some embodiments, the one or more unit doses comprise 1000 mg or about 1000 mg of the anti-Gal3 antibody or binding fragment thereof per unit dose. In some embodiments, the one or more unit doses comprise 1, 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, 100, 105, 110, 115, 120, 125, 130, 135, 140, 145, or 150 mg/kg weight of the subject, or any amount per unit dose within a range defined by any two of the aforementioned amounts per unit dose. In some embodiments, the one or more unit doses comprise 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, or 15 mg/kg weight of the subject, or any amount per unit dose within a range defined by any two of the aforementioned amounts per unit dose. In some embodiments, the one or more unit doses comprise 10 mg/kg or about 10 mg/kg weight of the subject. In some embodiments, a combined total of 1000, 2000, 3000, 4000, 5000, 6000, 7000, 8000, 9000, or 10000 mg of anti-Gal3 antibody or binding fragment thereof is administered to the subject. In some embodiments, a combined total of 4000, 4500, 5000, 5500, or 6000 mg of anti-Gal3 antibody or binding fragment thereof is administered to the subject. In some embodiments, a combined total of 5000 mg of anti-Gal3 antibody or binding fragment thereof is administered to the subject. In some embodiments, the one or more unit doses are administered every 1, 2, 3, 4, 5, 6, or 7 days, or 1, 2, 3, or 4 weeks, or any interval within a range defined by any two of the aforementioned intervals. In some embodiments, the one or more unit doses are administered every 7 days or about 7 days. In some embodiments, the one or more unit doses comprise 1000 mg or about 1000 mg of the anti-Gal3 antibody or binding fragment thereof per unit dose and the unit doses are administered every 7 days or about 7 days. In some embodiments, 5 unit doses comprise 1000 mg or about 1000 mg of the anti-Gal3 antibody or binding fragment thereof per unit dose and the unit doses are administered every 7 days or about 7 days. In some embodiments, the one or more unit doses are administered over

the course of 10, 20, 30, 40, 50, 60, 70, 80, 90, or 100 minutes, or any amount of time within a range defined by any two of the aforementioned durations. In some embodiments, the one or more unit doses are administered over the course of 60 minutes or about 60 minutes. In some embodiments, the anti-Gal3 antibody or binding fragment thereof is administered enterally, orally, intranasally, parenterally, intracranially, subcutaneously, intramuscularly, intradermally, or intravenously, or any combination thereof, optionally intravenously.

[0219] In some embodiments, the anti-Gal3 antibody or binding fragment thereof is or comprises any one or more of the sequences illustrated in **FIG. 3A-C, 4A-C, 5, 6, 7, 8, or 9**, includes any 1, 2, 3, 4, 5, or 6 of the CDRs in **SEQ ID NOs: 27-538, 801-865**, and/or includes one or both of the VH/VL in **SEQ ID NOs: 297-447, 803-865, 926-929**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof includes 1, 2, 3, 4, 5, or 6 of the V_H-CDR1, V_H-CDR2, V_H-CDR3, V_L-CDR1, V_L-CDR2, and/or V_L-CDR3 of **SEQ ID NOs: 27, 71, 112, 170, 221, 248**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof includes 1, 2, 3, 4, 5, or 6 of the V_H-CDR1, V_H-CDR2, V_H-CDR3, V_L-CDR1, V_L-CDR2, and/or V_L-CDR3 of **SEQ ID NOs: 31, 72, 113, 171, 222, 249**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof includes 1, 2, 3, 4, 5, or 6 of the V_H-CDR1, V_H-CDR2, V_H-CDR3, V_L-CDR1, V_L-CDR2, and/or V_L-CDR3 of **SEQ ID NOs: 30, 86, 130, 189, 230, 263**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof includes 1, 2, 3, 4, 5, or 6 of the V_H-CDR1, V_H-CDR2, V_H-CDR3, V_L-CDR1, V_L-CDR2, and/or V_L-CDR3 of **SEQ ID NOs: 34, 74, 116, 174, 225, 252**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof includes 1, 2, 3, 4, 5, or 6 of the V_H-CDR1, V_H-CDR2, V_H-CDR3, V_L-CDR1, V_L-CDR2, and/or V_L-CDR3 of **SEQ ID NOs: 32, 84, 119, 186, 228, 255**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof includes 1, 2, 3, 4, 5, or 6 of the V_H-CDR1, V_H-CDR2, V_H-CDR3, V_L-CDR1, V_L-CDR2, and/or V_L-CDR3 of **SEQ ID NOs: 37, 77, 118, 178, 229, 256**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof includes 1, 2, 3, 4, 5, or 6 of the V_H-CDR1, V_H-CDR2, V_H-CDR3, V_L-CDR1, V_L-CDR2, and/or V_L-CDR3 of **SEQ ID NOs: 34, 74, 126, 187, 225, 252**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof includes 1, 2, 3, 4, 5, or 6 of the V_H-CDR1, V_H-CDR2, V_H-CDR3, V_L-CDR1, V_L-CDR2, and/or V_L-CDR3 of **SEQ ID NOs: 66, 108, 164, 215, 225, 291**.

[0220] As applied to any of the methods comprising administering an anti-Gal3 antibody or binding fragment thereof, in some embodiments, the anti-Gal3 antibody or binding fragment thereof selectively binds to an N-terminal domain of Gal3. In some embodiments, the anti-Gal3 antibody or binding fragment thereof binds to Peptide 1 (**SEQ ID NO: 3**), Peptide 6

(**SEQ ID NO: 8**), or Peptide 7 (**SEQ ID NO:9**), or any combination thereof. In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises (1) a heavy chain variable region comprising a V_H-CDR1, a V_H-CDR2, and a V_H-CDR3; and (2) a light chain variable region comprising a V_L-CDR1, a V_L-CDR2, and a V_L-CDR3. In some embodiments, the V_H-CDR1 comprises an amino acid sequence having at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, 99%, or 100% identity to any one of the amino acid sequences of **SEQ ID NOs: 27-70**. In some embodiments, the V_H-CDR2 comprises an amino acid sequence having at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, 99%, or 100% identity to any one of the amino acid sequences of **SEQ ID NOs: 71-111, 801**. In some embodiments, the V_H-CDR3 comprises an amino acid sequence having at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, 99%, or 100% identity to any one of the amino acid sequences of **SEQ ID NOs: 112-169, 802**. In some embodiments, the V_L-CDR1 comprises an amino acid sequence having at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, 99%, or 100% identity to any one of the amino acid sequences of **SEQ ID NOs: 170-220**. In some embodiments, the V_L-CDR2 comprises an amino acid sequence having at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, 99%, or 100% identity to any one of the amino acid sequences of **SEQ ID NOs: 221-247**. In some embodiments, the V_L-CDR3 comprises an amino acid sequence having at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, 99%, or 100% identity to any one of the amino acid sequences of **SEQ ID NOs: 248-296**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises a combination of the V_H-CDR1, V_H-CDR2, V_H-CDR3, V_L-CDR1, V_L-CDR2, and V_L-CDR3 as illustrated in **FIG. 7**. In some embodiments, the heavy chain variable region comprises a sequence having at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% identity to the sequence selected from **SEQ ID NOs: 297-373, 803, 806-820**. In some embodiments, the light chain variable region comprises a sequence having at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% identity to the sequence selected from **SEQ ID NOs: 374-447, 821-835**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises a heavy chain, wherein the heavy chain comprises a sequence having at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% identity to the sequence

selected from **SEQ ID NOs: 448-494, 804, 836-850**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises a light chain, wherein the light chain comprises a sequence having at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% identity to the sequence selected from **SEQ ID NOs: 495-538, 805, 851-865**. In some embodiments, any of the methods disclosed herein involving an anti-Gal3 antibody or binding fragment can be performed with an antigen binding molecule that binds to Gal3.

[0221] As applied to any of the methods disclosed herein comprising administering an anti-Gal3 antibody or binding fragment thereof, in some embodiments, the anti-Gal3 antibody or binding fragment thereof is selected from the group consisting of: TB001, TB006, 12G5.D7, 13A12.2E5, 14H10.2C9, 15F10.2D6, 19B5.2E6, 20D11.2C6, 20H5.A3, 23H9.2E4, 2D10.2B2, 3B11.2G2, 7D8.2D8, mIMT001, 4A11.2B5, 4A11.H1L1, 4A11.H4L2, 4G2.2G6, 6B3.2D3, 6H6.2D6, 9H2.2H10, 13G4.2F8, 13H12.2F8, 15G7.2A7, 19D9.2E5, 23B10.2B12, 24D12.2H9, F846C.1B2, F846C.1F5, F846C.1H12, F846C.1H5, F846C.2H3, F846TC.14A2, F846TC.14E4, F846TC.16B5, F846TC.7F10, F847C.10B9, F847C.11B1, F847C.12F12, F847C.26F5, F847C.4B10, F849C.8D10, F849C.8H3, 846.2B11, 846.4D5, 846T.1H2, 847.14H4, 846.2D4, 846.2F11, 846T.10B1, 846T.2E3, 846T.4C9, 846T.4E11, 846T.4F5, 846T.8D1, 847.10C9, 847.11D6, 847.15D12, 847.15F9, 847.15H11, 847.20H7, 847.21B11, 847.27B9, 847.28D1, 847.2B8, 847.3B3, 849.1D2, 849.2D7, 849.2F12, 849.4B2, 849.4F12, 849.4F2, 849.5C2, 849.8D12, F847C.21H6, 849.5H1, 847.23F11, 847.16D10, 847.13E2-mH0mL1, 847.13E2-mH0mL2, 847.12C4, 847.4D3, 2D10-VH0-VL0, 2D10-hVH4-HVL1, 2D10-hVH4-HVL2, 2D10-hVH4-HVL3, 2D10-hVH4-HVL4, 2D10-hVH3-HVL1, 2D10-hVH3-HVL2, 2D10-hVH3-HVL3, 2D10-hVH3-HVL4, 20H5.A3-VH3VL1, 20H5.A3-VH3VL3, 20H5.A3-VH4VL1, 20H5.A3-VH5VL1, 20H5.A3-VH5VL3, 20H5.A3-VH6VL1, 20H5.A3-VH6VL3, or binding fragment thereof. In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises one or more of: TB001, TB006, F846C.1F5, F846TC.16B5, 14H10.2C9, 15G7.2A7, 20H5.A3, 19D9.2E5, 19B5.2E6, or F847C.21H6. In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises TB001. In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises TB006. In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises F846C.1F5. In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises F846TC.16B5. In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises 14H10.2C9. In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises 15G7.2A7. In some embodiments, the anti-Gal3 antibody or binding

fragment thereof comprises 20H5.A3. In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises 19D9.2E5. In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises 19B5.2E6. In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises F847C.21H6. In some embodiments, any of the methods disclosed herein involving an anti-Gal3 antibody or binding fragment can be performed with an antigen binding molecule that binds to Gal3.

[0222] As applied to any of the methods of use disclosed herein, in some embodiments, the anti-Gal3 antibody or binding fragment thereof binds to one or more peptides of **SEQ ID NOs: 3-26**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof binds to an epitope present within a region of Gal3 defined by Peptide 1 (ADNFSLHDALSGSGNPNPQG; **SEQ ID NO: 3**), Peptide 4 (GAGGYPGASYPGAYPGQAPP; **SEQ ID NO: 6**), Peptide 6 (GAYPGQAPPGAYPGAPGAYP; **SEQ ID NO: 8**), Peptide 7 (AYPGAPGAYPGAPAPGVYPG; **SEQ ID NO: 9**), or a combination thereof. In some embodiments, any of the methods disclosed herein involving an anti-Gal3 antibody or binding fragment can be performed with an antigen binding molecule that binds to Gal3.

[0223] As applied to any of the methods of use disclosed herein, in some embodiments, the anti-Gal3 antibody or binding fragment thereof binds to an epitope of Gal3 that includes a motif of GxYPG, where x is the amino acids alanine (A), glycine (G), or valine (V). In some embodiments, an anti-Gal3 antibody as described herein binds to an epitope of Gal3 that includes two GxYPG motifs separated by three amino acids, where x is A, G, or V. In some embodiments, any of the methods disclosed herein involving an anti-Gal3 antibody or binding fragment can be performed with an antigen binding molecule that binds to Gal3.

[0224] As applied to any of the methods of use disclosed herein, in some embodiments, exemplary V_H-CDR1 sequences are depicted in **FIG. 3A**. In some embodiments, exemplary V_H-CDR2 sequences are depicted in **FIG. 3B**. In some embodiments, exemplary V_H-CDR3 sequences are depicted in **FIG. 3C**. In some embodiments, exemplary V_L-CDR1 sequences are depicted in **FIG. 4A**. In some embodiments, exemplary V_L-CDR2 sequences are depicted in **FIG. 4B**. In some embodiments, exemplary V_L-CDR3 sequences are depicted in **FIG. 4C**. In some embodiments, any of the methods disclosed herein involving an anti-Gal3 antibody or binding fragment can be performed with an antigen binding molecule that binds to Gal3.

[0225] As applied to any of the methods of use disclosed herein, in some embodiments, the heavy chain variable region of any of the anti-Gal3 antibodies or binding

fragments thereof disclosed herein comprises an amino acid sequence having at least 75%, 80%, 85%, 90%, 95%, or 100% sequence identity to any sequence according to **SEQ ID NOs: 297-373, 803, 806-82**. In some embodiments, the heavy chain variable region of any of the anti-Gal3 antibodies or binding fragments thereof disclosed herein is selected from the group consisting of **SEQ ID NOs: 297-373, 803, 806-82**. In some embodiments, exemplary V_H are depicted in **FIG. 5**. In some embodiments, any of the methods disclosed herein involving an anti-Gal3 antibody or binding fragment can be performed with an antigen binding molecule that binds to Gal3.

[0226] As applied to any of the methods of use disclosed herein, in some embodiments, the light chain variable region of any of the anti-Gal3 antibodies or binding fragments thereof disclosed herein comprises an amino acid sequence having at least 75%, 80%, 85%, 90%, 95%, or 100% sequence identity to any sequence according to **SEQ ID NOs: 374-447, 821-835**. In some embodiments, the light chain variable region of any of the anti-Gal3 antibodies or binding fragments thereof disclosed herein is selected from the group consisting of **SEQ ID NOs: 374-447, 821-835**. In some embodiments, exemplary V_L are depicted in **FIG. 6**. In some embodiments, any of the methods disclosed herein involving an anti-Gal3 antibody or binding fragment can be performed with an antigen binding molecule that binds to Gal3.

[0227] As applied to any of the methods of use disclosed herein, in some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises the heavy chain sequence of any one of **SEQ ID NOs: 448-494, 804, 836-850**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises the light chain sequence of any one of **SEQ ID NOs: 495-538, 805, 851-865**. In some embodiments, any of the methods disclosed herein involving an anti-Gal3 antibody or binding fragment can be performed with an antigen binding molecule that binds to Gal3.

[0228] As applied to any of the methods of use disclosed herein, in some embodiments, the anti-Gal3 antibody or binding fragment thereof excludes the subset of named anti-Gal3 antibodies or binding fragments thereof depicted in any one of **FIG. 19A-D**. In some embodiments, CDRs (including heavy chain and light chain CDRs), heavy chain variable regions, light chain variable regions, heavy chains, and/or light chains are excluded from the sequences associated with the subset of named anti-Gal3 antibodies or binding fragments thereof depicted in any one of **FIG. 19A-D**. In some embodiments, combinations of CDRs (including heavy chain and light chain CDRs), heavy chain variable regions, light chain variable regions, heavy chains, and/or light chains are excluded from the sequences associated

with the subset of named anti-Gal3 antibodies or binding fragments thereof depicted in any one of **FIG. 19A-D**, or excludes any one or more of the CDRs, VH, VL, HC, and/or LC thereof. In some embodiments, the anti-Gal3 antibody or binding fragment thereof excludes those selected from the group of named anti-Gal3 antibody or binding fragment thereof depicted in **FIG. 19A**, or excludes any one or more of the CDRs, VH, VL, HC, and/or LC thereof. In some embodiments, the anti-Gal3 antibody or binding fragment thereof excludes those selected from the group of named anti-Gal3 antibody or binding fragment thereof depicted in **FIG. 19B**, or excludes any one or more of the CDRs, VH, VL, HC, and/or LC thereof. In some embodiments, the anti-Gal3 antibody or binding fragment thereof excludes those selected from the group of named anti-Gal3 antibody or binding fragment thereof depicted in **FIG. 19C**, or excludes any one or more of the CDRs, VH, VL, HC, and/or LC thereof. In some embodiments, the anti-Gal3 antibody or binding fragment thereof excludes those selected from the group of named anti-Gal3 antibody or binding fragment thereof depicted in **FIG. 19D**, or excludes any one or more of the CDRs, VH, VL, HC, and/or LC thereof.

[0229] As applied to any of the methods of use disclosed herein, in some embodiments, the anti-Gal3 antibody or binding fragment thereof is selected from the subset of named anti-Gal3 antibodies or binding fragments thereof depicted in any one of **FIG. 20A-D**. In some embodiments, CDRs (including heavy chain and light chain CDRs), heavy chain variable regions, light chain variable regions, heavy chains, and/or light chains are selected from the sequences associated with the subset of named anti-Gal3 antibodies or binding fragments thereof depicted in any one of **FIG. 20A-D**. In some embodiments, combinations of CDRs (including heavy chain and light chain CDRs), heavy chain variable regions, light chain variable regions, heavy chains, and/or light chains are selected from the sequences associated with the subset of named anti-Gal3 antibodies or binding fragments thereof depicted in any one of **FIG. 20A-D**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof is selected from the group of named anti-Gal3 antibody or binding fragment thereof depicted in **FIG. 20A**, or comprises any one or more of the CDRs, VH, VL, HC, and/or LC thereof. In some embodiments, the anti-Gal3 antibody or binding fragment thereof is selected from the group of named anti-Gal3 antibody or binding fragment thereof depicted in **FIG. 20B**, or comprises any one or more of the CDRs, VH, VL, HC, and/or LC thereof. In some embodiments, the anti-Gal3 antibody or binding fragment thereof is selected from the group of named anti-Gal3 antibody or binding fragment thereof depicted in **FIG. 20C**, or comprises any one or more of the CDRs, VH, VL, HC, and/or LC thereof. In some embodiments, the anti-Gal3 antibody or binding fragment thereof is selected from the group of named anti-Gal3

antibody or binding fragment thereof depicted in **FIG. 20D**, or comprises any one or more of the CDRs, VH, VL, HC, and/or LC thereof.

[0230] As applied to any of the methods of use disclosed herein, in some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises a payload. In some embodiments, the payload is conjugated to the anti-Gal3 antibody or binding fragment thereof. In some embodiments, the payload is a cytotoxic payload, microtubule disrupting agent, DNA modifying agent, Akt inhibitor, polymerase inhibitor, detectable moiety, immunomodulatory agent, immune modulator, immunotoxin, nucleic acid polymer, aptamer, peptide, or any combination thereof. In some embodiments, the payload is a detectable moiety. In some embodiments, any of the methods disclosed herein involving an anti-Gal3 antibody or binding fragment can be performed with an antigen binding molecule that binds to Gal3.

[0231] As applied to any of the methods of use disclosed herein, in some embodiments, the anti-Gal3 antibody or binding fragment thereof is or comprises a humanized antibody. In some embodiments, the anti-Gal3 antibody or binding fragment thereof is or comprises a full-length antibody or a binding fragment thereof. In some embodiments, the anti-Gal3 antibody or binding fragment thereof is or comprises a bispecific antibody or a binding fragment thereof. In some embodiments, the anti-Gal3-antibody or binding fragment thereof is or comprises a monovalent Fab', a divalent Fab2, a single-chain variable fragment (scFv), a diabody, a minibody, a nanobody, a single-domain antibody (sdAb), or a camelid antibody, or binding fragment thereof. In some embodiments, the anti-Gal3 antibody or binding fragment thereof is or comprises an IgG framework. In some embodiments, the anti-Gal3 antibody or binding fragment thereof is or comprises an IgG1, IgG2, or IgG4 framework. In some embodiments, any of the methods disclosed herein involving an anti-Gal3 antibody or binding fragment can be performed with an antigen binding molecule that binds to Gal3.

[0232] As applied to any of the methods of treatment disclosed herein, in some embodiments, in some embodiments, the anti-Gal3 antibody or binding fragment thereof is administered enterally, orally, intranasally, parenterally, intracranially, subcutaneously, intramuscularly, intradermally, or intravenously, or any combination thereof.

[0233] As applied to any of the methods of treatment disclosed herein, the subject is administered TB006 sterilized drug product supplied in 8 mL glass vials, sealed with a rubber stopper and an aluminum flip top, with strength of 160 mg (20 mg/mL, 8 mL) TB006 drug product per vial.

[0234] As applied to any of the methods of treatment disclosed herein, the subject is administered TB006 sterilized drug product via IV infusion over 60 minutes, after dilution in 0.9% Sodium Chloride Injection, USP (normal saline) to a final volume of 250 mL.

[0235] As applied to any of the methods of treatment disclosed herein, in some embodiments, the anti-Gal3 antibody or binding fragment thereof is formulated for systemic administration. In some embodiments, the anti-Gal3 antibody or binding fragment thereof is formulated for parenteral administration. In some embodiments, more than one anti-Gal3 antibody or binding fragment is administered. In some embodiments, when more than one anti-Gal3 antibody or binding fragment is administered, the more than one anti-Gal3 antibodies or binding fragments thereof may be selected from the anti-Gal3 antibodies or binding fragments thereof disclosed herein. In some embodiments, any of the methods disclosed herein involving an anti-Gal3 antibody or binding fragment can be performed with an antigen binding molecule that binds to Gal3.

[0236] As applied to any of the methods of use or treatment disclosed herein, the subject is a mammal. In some embodiments, the mammal is a human, cat, dog, mouse, rat, hamster, rodent, pig, cow, horse, sheep, or goat. In some embodiments, the mammal is a human.

Therapeutic Regimens

[0237] In some embodiments, the anti-Gal3 antibodies or binding fragments thereof disclosed herein are administered for therapeutic applications. In some embodiments, the anti-Gal3 antibody or binding fragment thereof is administered once per day, twice per day, three times per day or more. The anti-Gal3 antibody or binding fragment thereof is administered daily, every day, every alternate day, five days a week, once a week, every other week, two weeks per month, three weeks per month, once a month, twice a month, three times per month, or more. In some embodiments, the anti-Gal3 antibody or binding fragment thereof is administered for at least 1 month, 2 months, 3 months, 4 months, 5 months, 6 months, 7 months, 8 months, 9 months, 10 months, 11 months, 12 months, 18 months, 2 years, 3 years, or more.

[0238] In the case wherein the patient's status does improve, upon the doctor's discretion the administration of the anti-Gal3 antibody or binding fragment thereof is given continuously; alternatively, the dose of the anti-Gal3 antibody or binding fragment thereof being administered is temporarily reduced or temporarily suspended for a certain length of time (i.e., a "drug holiday"). In some instances, the length of the drug holiday varies between 2 days and 1 year, including by way of example only, 2 days, 3 days, 4 days, 5 days, 6 days, 7 days, 10 days, 12 days, 15 days, 20 days, 28 days, 35 days, 50 days, 70 days, 100 days, 120 days,

150 days, 180 days, 200 days, 250 days, 280 days, 300 days, 320 days, 350 days, or 365 days. The dose reduction during a drug holiday is from 10%-100%, including, by way of example only, 10%, 15%, 20%, 25%, 30%, 35%, 40%, 45%, 50%, 55%, 60%, 65%, 70%, 75%, 80%, 85%, 90%, 95%, or 100%.

[0239] In an exemplary therapeutic regimen, an anti-Gal3 antibody or binding fragment thereof is administered in 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10 unit doses. In some embodiments, 5, 6, 7, 8, 9, or 10 unit doses are administered. In some embodiments, 5 unit doses are administered. In some embodiments, 8 unit doses are administered. In some embodiments, each unit dose comprises 1000 mg or about 1000 mg of the anti-Gal3 antibody or binding fragment thereof, the unit doses are administered every 7 days or about 7 days, and where each unit dose is administered over the course of 1 hour or about 1 hour. In some embodiments, the anti-Gal3 antibody or binding fragment thereof is TB006 or binding fragment thereof. In some embodiments, the anti-Gal3 antibody or binding fragment thereof is administered enterally, orally, intranasally, parenterally, intracranially, subcutaneously. In some embodiments, the anti-Gal3 antibody or binding fragment thereof is administered intravenously.

[0240] In an exemplary therapeutic regimen, an anti-Gal3 antibody or binding fragment thereof is administered in 5 unit doses. In some embodiments, each unit dose comprises 50, 60, 70, 80, 90, 100, 200, 300, 400, 500, 600, 700, 800, 900, 1000, 1100, 1200, 1300, 1400, 1500, 1600, 1700, 1800, 1900, 2000, 2500, 3000, 3500, 4000, 4500 or 5000 mg of the anti-Gal3 antibody or binding fragment thereof per unit dose, or any amount per unit dose within a range defined by any two of the aforementioned amounts per unit dose. In some embodiments, each unit dose comprises 800, 900, 1000, 1100, 1200, 1300, 1400, or 1500 mg of the anti-Gal3 antibody or binding fragment thereof per unit dose, or any amount per unit dose within a range defined by any two of the aforementioned amounts per unit dose. In some embodiments, each unit dose comprises 1000 mg or about 1000 mg of the anti-Gal3 antibody or binding fragment thereof per unit dose. The unit doses are administered every 7 days or about 7 days, and where each unit dose is administered over the course of 1 hour or about 1 hour. In some embodiments, the anti-Gal3 antibody or binding fragment thereof is TB006 or binding fragment thereof. In some embodiments, the anti-Gal3 antibody or binding fragment thereof is administered enterally, orally, intranasally, parenterally, intracranially, subcutaneously. In some embodiments, the anti-Gal3 antibody or binding fragment thereof is administered intravenously.

[0241] In an exemplary therapeutic regimen, an anti-Gal3 antibody or binding fragment thereof is administered in 5 unit doses, where each unit dose comprises 1000 mg or about 1000 mg of the anti-Gal3 antibody or binding fragment thereof per unit dose. In some embodiments, the unit doses are administered every 1, 2, 3, 4, 5, 6, or 7 days, or 1, 2, 3, or 4 weeks, or any interval within a range defined by any two of the aforementioned intervals. In some embodiments, the unit doses are administered every 7 days or about 7 days. Each unit dose is administered over the course of 1 hour or about 1 hour. In some embodiments, the anti-Gal3 antibody or binding fragment thereof is TB006 or binding fragment thereof. In some embodiments, the anti-Gal3 antibody or binding fragment thereof is administered enterally, orally, intranasally, parenterally, intracranially, subcutaneously. In some embodiments, the anti-Gal3 antibody or binding fragment thereof is administered intravenously.

[0242] In an exemplary therapeutic regimen, an anti-Gal3 antibody or binding fragment thereof is administered in 5 unit doses, where each unit dose comprises 1000 mg or about 1000 mg of the anti-Gal3 antibody or binding fragment thereof per unit dose, and the unit doses are administered every 7 days or about 7 days. In some embodiments, each unit dose is administered over the course of 10, 20, 30, 40, 50, 60, 70, 80, 90, or 100 minutes, or any amount of time within a range defined by any two of the aforementioned durations. In some embodiments, each unit dose is administered over the course of 1 hour or about 1 hour. In some embodiments, the anti-Gal3 antibody or binding fragment thereof is TB006 or binding fragment thereof. In some embodiments, the anti-Gal3 antibody or binding fragment thereof is administered enterally, orally, intranasally, parenterally, intracranially, subcutaneously. In some embodiments, the anti-Gal3 antibody or binding fragment thereof is administered intravenously.

[0243] In an exemplary therapeutic regimen, an anti-Gal3 antibody or binding fragment thereof is administered in 5 unit doses, where each unit dose comprises 1000 mg or about 1000 mg of the anti-Gal3 antibody or binding fragment thereof, the unit doses are administered every 7 days or about 7 days, and where each unit dose is administered over the course of 1 hour or about 1 hour. In some embodiments, the anti-Gal3 antibody or binding fragment thereof is TB006 or binding fragment thereof. In some embodiments, the anti-Gal3 antibody or binding fragment thereof is administered enterally, orally, intranasally, parenterally, intracranially, subcutaneously. In some embodiments, the anti-Gal3 antibody or binding fragment thereof is administered intravenously.

[0244] In some embodiments, an anti-Gal3 antibody or binding fragment thereof, such as TB006, is supplied in 8 mL glass vials, sealed with a rubber stopper and an aluminum

flip top, with strength of 160 mg (20 mg/mL, 8 mL) anti-Gal3 antibody or binding fragment per vial.

[0245] In some embodiments, the anti-Gal3 antibody or binding fragment thereof, such as TB006, is administered via IV infusion over 60 minutes, after dilution in 0.9% Sodium Chloride Injection, USP (normal saline) to a final volume of 250 mL.

[0246] Once improvement of the patient's condition has occurred, a maintenance dose is administered if necessary. Subsequently, the dosage or the frequency of administration, or both, can be reduced, as a function of the symptoms, to a level at which the treated disease, disorder, or condition is retained.

[0247] In some embodiments, any one of the appropriate regimens provided herein are performed to comprise administering the subject 5 unit doses of 1000 mg or about 1000 mg of the anti-Gal3 antibody or binding fragment thereof, such as TB006, every 7 days or about 7 days, and assessing the subject by the NIHSS at Baseline (day 1 at the initial administration) and further assessed at Days 15, 36, 64, and 104 following the initial intervention.

[0248] In some embodiments, the amount of a given agent that correspond to such an amount varies depending upon factors such as the particular compound, the severity of the disease, the identity (e.g., weight) of the subject or host in need of treatment, but nevertheless is routinely determined in a manner known in the art according to the particular circumstances surrounding the case, including, e.g., the specific agent being administered, the route of administration, and the subject or host being treated. In some instances, the desired dose is conveniently presented in a single dose or as divided doses administered simultaneously (or over a short period of time) or at appropriate intervals, for example as two, three, four or more sub-doses per day.

[0249] The foregoing ranges are merely suggestive, as the number of variables in regard to an individual treatment regime is large, and considerable excursions from these recommended values are not uncommon. Such dosages are altered depending on a number of variables, not limited to the activity of the compound used, the disease or condition to be treated, the mode of administration, the requirements of the individual subject, the severity of the disease or condition being treated, and the judgment of the practitioner.

[0250] In some embodiments, toxicity and therapeutic efficacy of such therapeutic regimens are determined by standard pharmaceutical procedures in cell cultures or experimental animals, including, but not limited to, the determination of the LD50 (the dose lethal to 50% of the population) and the ED50 (the dose therapeutically effective in 50% of the population). The dose ratio between the toxic and therapeutic effects is the therapeutic index

and it is expressed as the ratio between LD50 and ED50. Compounds exhibiting high therapeutic indices are preferred. The data obtained from cell culture assays and animal studies are used in formulating a range of dosage for use in human. The dosage of such compounds lies preferably within a range of circulating concentrations that include the ED50 with minimal toxicity. The dosage varies within this range depending upon the dosage form employed and the route of administration utilized.

Exemplary Anti-Gal3 Antibodies and Binding Fragments Thereof

[0251] Disclosed herein and as applicable to any of the methods or uses disclosed herein are anti-Gal3 antibodies or binding fragments thereof. In some embodiments, the anti-Gal3 antibody or binding fragment thereof binds to the N-terminal domain of Gal3, N-terminus of Gal3, or the tandem repeat domain (TRD) of Gal3. In some embodiments, the anti-Gal3 antibody or binding fragment thereof does not bind to the N-terminus of Gal3, the N-terminal domain of Gal3, or the TRD of Gal3. In some embodiments, the anti-Gal3 antibody or binding fragment thereof binds to the C-terminus of Gal3, the C-terminal domain of Gal3, or the CRD of Gal3. In some embodiments, the anti-Gal3 antibody or binding fragment thereof does not bind to the C-terminus of Gal3, the C-terminal domain of Gal3, or the CRD of Gal3. In some embodiments, any of the anti-Gal3 antibodies or binding fragments thereof or any arrangement of any of the anti-Gal3 antibodies or binding fragments provided herein may be substituted with an antigen binding molecule that binds to Gal3.

[0252] In some embodiments, antibodies or binding fragments thereof are provided. In some embodiments, the antibodies are anti-Gal3 antibodies or binding fragments thereof. In some embodiments, the anti-Gal3 antibodies or binding fragments thereof comprises a heavy chain variable region comprising a V_H-CDR1, a V_H-CDR2, and a V_H-CDR3. In some embodiments, the anti-Gal3 antibodies or binding fragments thereof comprise a light chain variable region comprising a V_L-CDR1, a V_L-CDR2, and a V_L-CDR3. In some embodiments, the V_H-CDR1 comprises an amino acid sequence having at least 60%, 61%, 62%, 63%, 64%, 65%, 66%, 67%, 68%, 69%, 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, 99%, or 100% sequence identity or similarity to any amino acid sequence according to **SEQ ID NOs: 27-70**. In some embodiments, the V_H-CDR2 comprises an amino acid sequence having at least 60%, 61%, 62%, 63%, 64%, 65%, 66%, 67%, 68%, 69%, 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, 99%, or 100% sequence

identity or similarity to any amino acid sequence according to **SEQ ID NOs: 71-111, 801**. In some embodiments, the V_H-CDR3 comprises an amino acid sequence having at least 60%, 61%, 62%, 63%, 64%, 65%, 66%, 67%, 68%, 69%, 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, 99%, or 100% sequence identity or similarity to any amino acid sequence according to **SEQ ID NOs: 112-169, 802**. In some embodiments, the V_L-CDR1 comprises an amino acid sequence having at least 60%, 61%, 62%, 63%, 64%, 65%, 66%, 67%, 68%, 69%, 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, 99%, or 100% sequence identity or similarity to any amino acid sequence according to **SEQ ID NOs: 170-220**. In some embodiments, the V_L-CDR2 comprises an amino acid sequence having at least 60%, 61%, 62%, 63%, 64%, 65%, 66%, 67%, 68%, 69%, 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, 99%, or 100% sequence identity or similarity to any amino acid sequence according to **SEQ ID NOs: 221-247**. In some embodiments, the V_L-CDR3 comprises an amino acid sequence having at least 60%, 61%, 62%, 63%, 64%, 65%, 66%, 67%, 68%, 69%, 70%, 71%, 72%, 73%, 74%, 75%, 76%, 77%, 78%, 79%, 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, 99%, or 100% sequence identity or similarity to any amino acid sequence according to **SEQ ID NOs: 248-296**. In some embodiments, the antibodies comprise one or more sequences having at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, 99%, or 100% identity or similarity to a VL sequence, a VH sequence, a VL/VH pairing, and/or V_H-CDR1, V_H-CDR2, V_H-CDR3, V_L-CDR1, V_L-CDR2, V_L-CDR3 (including 1, 2, 3, 4, or 5 amino acid substitutions of any one or more of these CDRs) set from the heavy chain and light chain sequences as depicted in **FIG. 9**.

[0253] In some embodiments, antibodies or binding fragments thereof are provided. In some embodiments, the antibodies or binding fragments thereof are anti-Gal3 antibodies or binding fragments thereof. In some embodiments, the anti-Gal3 antibodies or binding fragments thereof comprises a heavy chain variable region comprising a V_H-CDR1, a V_H-CDR2, and a V_H-CDR3. In some embodiments, the anti-Gal3 antibodies or binding fragments thereof comprise a light chain variable region comprising a V_L-CDR1, a V_L-CDR2, and a V_L-CDR3. In some embodiments, the V_H-CDR1 comprises an amino acid sequence having at least 0, 1, 2, 3, 4, 5, or 6 substitutions relative to any amino acid sequence according to **SEQ ID**

NOs: 27-70. In some embodiments, the V_H-CDR2 comprises an amino acid sequence having at least 0, 1, 2, 3, 4, 5, or 6 substitutions relative to any amino acid sequence according to **SEQ ID NOs: 71-111, 801**. In some embodiments, the V_H-CDR3 comprises an amino acid sequence having at least 0, 1, 2, 3, 4, 5, or 6 substitutions relative to any amino acid sequence according to **SEQ ID NOs: 112-169, 802**. In some embodiments, the V_L-CDR1 comprises an amino acid sequence having at least 0, 1, 2, 3, 4, 5, or 6 substitutions relative to any amino acid sequence according to **SEQ ID NOs: 170-220**. In some embodiments, the V_L-CDR2 comprises an amino acid sequence having at least 0, 1, 2, 3, 4, 5, or 6 substitutions relative to any amino acid sequence according to **SEQ ID NOs: 221-247**. In some embodiments, the V_L-CDR3 comprises an amino acid sequence having at least 0, 1, 2, 3, 4, 5, or 6 substitutions relative to any amino acid sequence according to **SEQ ID NOs: 248-296**.

[0254] In some embodiments, the antibody or binding fragment thereof comprises a combination of a V_L-CDR1, a V_L-CDR2, a V_L-CDR3, a V_H-CDR1, a V_H-CDR2, and a V_H-CDR3 as illustrated in **FIG. 7**.

[0255] In some embodiments, the antibody or binding fragment thereof comprises a combination of a V_H-CDR1, a V_H-CDR2, a V_H-CDR3, V_L-CDR1, a V_L-CDR2, and a V_L-CDR3, where one or more of these CDRs is defined by a consensus sequence. The consensus sequences provided herein have been derived from the alignments of CDRs depicted in **FIG. 18A-B**. However, it is envisioned that alternative alignments may be done (e.g. using global or local alignment, or with different algorithms, such as Hidden Markov Models, seeded guide trees, Needleman-Wunsch algorithm, or Smith-Waterman algorithm) and as such, alternative consensus sequences can be derived.

[0256] In some embodiments, the V_H-CDR1 is defined by the formula $X_1X_2X_3X_4X_5X_6X_7X_8X_9X_{10}$, (**SEQ ID No. 935**) where X_1 is E, G, or R; X_2 is F, N, or Y; X_3 is A, I, K, N, S, or T; X_4 is F, I, or L; X_5 is I, K, N, R, S, or T; X_6 is D, G, I, N, S, or T; X_7 is F, G, H, S, or Y; X_8 is no amino acid, A, D, G, I, M, N, T, V, W, or Y; X_9 is no amino acid, M, or Y; X_{10} is no amino acid or G; In some embodiments, the V_H-CDR1 comprises a sequence having at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, 99%, or 100% identity to this consensus sequence. In some embodiments, the V_H-CDR1 comprises a sequence having 0, 1, 2, 3, 4, 5, or 6 substitutions from this consensus sequence (**SEQ ID No. 935**).

[0257] In some embodiments, the V_H-CDR2 is defined by the formula $X_1X_2X_3X_4X_5X_6X_7X_8X_9X_{10}$, (**SEQ ID No. 936**) where X_1 is no amino acid, I, or L; X_2 is no amino acid or R; X_3 is no amino acid, F, I, L, or V; X_4 is A, D, F, H, K, L, N, S, W, or Y; X_5

is A, D, P, S, T, W, or Y; X_6 is D, E, G, H, K, N, S, V, or Y; X_7 is D, E, G, N, S, or T; X_8 is D, G, I, K, N, Q, R, S, V, or Y; X_9 is A, D, E, G, I, K, N, P, S, T, V, or Y; X_{10} is no amino acid, I, P, S, or T. In some embodiments, the V_H-CDR2 comprises a sequence having at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, 99%, or 100% identity to this consensus sequence. In some embodiments, the V_H-CDR2 comprises a sequence having 0, 1, 2, 3, 4, 5, or 6 substitutions from this consensus sequence (**SEQ ID No. 936**).

[0258] In some embodiments, the V_H-CDR3 is defined by the formula $X_1X_2X_3X_4X_5X_6X_7X_8X_9X_{10}X_{11}X_{12}X_{13}X_{14}X_{15}X_{16}X_{17}X_{18}X_{19}X_{20}X_{21}X_{22}X_{23}X_{24}X_{25}$ (**SEQ ID No. 937**), where X_1 is no amino acid or A; X_2 is no amino acid, A, R, or Y; X_3 is no amino acid, A, F, H, K, L, R, S, or V; X_4 is no amino acid, A, D, K, N, R, S, or T; X_5 is no amino acid, A, D, G, H, I, L, N, P, R, S, T, V, or Y; X_6 is no amino acid, A, D, G, H, K, N, P, Q, R, S, or Y; X_7 is no amino acid, D, F, G, H, P, R, S, W, or Y; X_8 is no amino acid, A, D, E, G, I, R, or S; X_9 is no amino acid, A, C, D, E, F, G, I, N, R, S, T, V, or Y; X_{10} is no amino acid, A, D, M, P, R, S, T, V, or Y; X_{11} is no amino acid, A, D, E, F, L, T, V, or Y; X_{12} is no amino acid, A, G, L, M, R, or T; X_{13} is no amino acid, A, D, E, F, G, R, S, T, or V; X_{14} is no amino acid, A, D, G, L, P, Q, R, S, T, V, or Y; X_{15} is no amino acid, A, D, G, N, S, V, W, or Y; X_{16} is no amino acid, A, D, E, F, L, P, T, V, W, or Y; X_{17} is no amino acid, F, I, L, M, R, or Y; X_{18} is no amino acid, A, D, G, N, or T; X_{19} is no amino acid, F, N, S, T, V, or Y; X_{20} is no amino acid or L; X_{21} is no amino acid or A; X_{22} is no amino acid or W; X_{23} is no amino acid or F; X_{24} is no amino acid or A; X_{25} is no amino acid or Y. In some embodiments, the V_H-CDR3 comprises a sequence having at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, 99%, or 100% identity to this consensus sequence. In some embodiments, the V_H-CDR3 comprises a sequence having 0, 1, 2, 3, 4, 5, or 6 substitutions from this consensus sequence (**SEQ ID No. 937**).

[0259] In some embodiments, the V_L-CDR1 is defined by the formula $X_1X_2X_3X_4X_5X_6X_7X_8X_9X_{10}X_{11}X_{12}X_{13}X_{14}X_{15}X_{16}X_{17}$ (**SEQ ID No. 938**), where X_1 is no amino acid or R; X_2 is no amino acid or S; X_3 is no amino acid, S, or T; X_4 is no amino acid, E, G, K, Q, or R; X_5 is no amino acid, A, D, G, I, N, or S; X_6 is no amino acid, I, L, or V; X_7 is no amino acid, F, L, S, or V; X_8 is no amino acid, D, E, H, N, S, T, or Y; X_9 is no amino acid, D, E, I, K, N, R, S, T, or V; X_{10} is no amino acid, D, H, N, R, S, or Y; X_{11} is no amino acid, A, G, N, S, T, or V; X_{12} is no amino acid, A, I, K, N, Q, T, V, or Y; X_{13} is no amino acid, D, G, H, K, N, S, T, or Y; X_{14} is no amino acid, C, F, I, N, S, T, V, or Y; X_{15} is no amino acid, D, L, N, W, or

Y; X_{16} is no amino acid, N, or D; X_{17} is no amino acid or D. In some embodiments, the V_L-CDR1 comprises a sequence having at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, 99%, or 100% identity to this consensus sequence (**SEQ ID No. 938**). In some embodiments, the V_L-CDR1 comprises a sequence having 0, 1, 2, 3, 4, 5, or 6 substitutions from this consensus sequence.

[0260] In some embodiments, the V_L-CDR2 is defined by the formula $X_1X_2X_3X_4X_5X_6X_7X_8$ (**SEQ ID No. 939**), where X_1 is no amino acid, K, L, N, Q, or R; X_2 is no amino acid, A, L, M, or V; X_3 is no amino acid, C, K, or S; X_4 is no amino acid or T; X_5 is no amino acid, A, E, F, G, H, K, Q, R, S, W, or Y; X_6 is no amino acid, A, G, or T; X_7 is no amino acid, I, K, N, S, or T; X_8 is no amino acid, N, or S. In some embodiments, the V_L-CDR2 comprises a sequence having at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, 99%, or 100% identity to this consensus sequence. In some embodiments, the V_L-CDR2 comprises a sequence having 0, 1, 2, 3, 4, 5, or 6 substitutions from this consensus sequence (**SEQ ID No. 939**).

[0261] In some embodiments, the V_L-CDR3 is defined by the formula $X_1X_2X_3X_4X_5X_6X_7X_8X_9X_{10}$ (**SEQ ID No. 940**), where X_1 is no amino acid, A, E, F, H, L, M, Q, S, V, or W; X_2 is A, H, or Q; X_3 is D, F, G, H, L, M, N, Q, S, T, W, or Y; X_4 is no amino acid or W; X_5 is A, D, I, K, L, N, Q, R, S, T, V, or Y; X_6 is D, E, H, I, K, L, N, Q, S, or T; X_7 is D, F, K, L, N, P, S, T, V, W, or Y; X_8 is H, P, or S; X_9 is F, L, P, Q, R, T, W, or Y; X_{10} is no amino acid, T, or V. In some embodiments, the V_L-CDR3 comprises a sequence having at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, 99%, or 100% identity to this consensus sequence. In some embodiments, the V_L-CDR3 comprises a sequence having 0, 1, 2, 3, 4, 5, or 6 substitutions from this consensus sequence (**SEQ ID No. 940**).

[0262] In some embodiments, the heavy chain variable region of the anti-Gal3 antibody or binding fragment thereof comprises a sequence having at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, 99%, or 100% identity or similarity to the sequence selected from **SEQ ID NOs: 297-373, 803, 806-820, 926**. In some embodiments, the light chain variable region of the antibody or binding fragment thereof comprises a sequence having at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, 99%, or 100% identity or similarity to the sequence selected from **SEQ ID NOs: 374-447, 821-835, 927-929**. In some embodiments, the antibodies or binding fragments thereof are anti-Gal3 antibodies or binding fragments thereof.

[0263] In some embodiments, the antibodies comprise one or more sequences having at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91% , 92%, 93%, 94%, 95%, 96%, 97%, 98%, 99%, or 100% identity or similarity to a VL sequence, a VH sequence, a VL/VH pairing, and/or V_L-CDR1, V_L-CDR2, V_L-CDR3, V_H-CDR1, V_H-CDR2, V_H-CDR3 (including 1, 2, 3, 4, or 5 amino acid substitutions of any one or more of these CDRs) set from the heavy chain and light chain sequences as depicted in **FIG. 9**.

[0264] In some embodiments, antibodies or binding fragments thereof are provided. In some embodiments, the antibodies are anti-Gal3 antibodies or binding fragments thereof. In some embodiments, the anti-Gal3 antibodies or binding fragments thereof comprises a heavy chain variable region comprising a V_H-CDR1, a V_H-CDR2, and a V_H-CDR3. In some embodiments, the anti-Gal3 antibodies or binding fragments thereof comprise a light chain variable region comprising a V_L-CDR1, a V_L-CDR2, and a V_L-CDR3. In some embodiments, the V_H-CDR1 comprises one of the amino acid sequences of **SEQ ID NOs: 27-70**, the V_H-CDR2 comprises one of the amino acid sequences of **SEQ ID NOs: 71-111, 801**, the V_H-CDR3 comprises one of the amino acid sequences of **SEQ ID NO: 112-169, 802**, the V_L-CDR1 comprises one of the amino acid sequences of **SEQ ID NOs: 170-220**, the V_L-CDR2 comprises one of the amino acid sequences of **SEQ ID NOs: 211-247**, the V_L-CDR3 comprises one of the amino acid sequences of **SEQ ID NOs: 248-296**, the heavy chain variable region has a sequence having at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, 99%, or 100% identity to one of the amino acid sequences of **SEQ ID NOs: 297-373, 803, 806-820, 926**, and the light chain variable region has a sequence having at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, 99%, or 100% identity to one of the amino acid sequences of **SEQ ID NOs: 374-447, 821-835, 927-929**.

[0265] In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises a heavy chain, wherein the heavy chain comprises a sequence having at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, 99%, or 100% identity or similarity to the sequence selected from **SEQ ID NOs: 448-494, 804, 836-850**. In some embodiments, the antibody or binding fragment thereof comprises a light chain, wherein the light chain comprises a sequence having at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, or 99% identity or similarity to the sequence selected from **SEQ ID NOs: 495-538, 805, 851-865**. In some embodiments, the antibodies or binding fragments thereof are anti-Gal3 antibodies or binding fragments thereof.

[0266] In some embodiments, antibodies or binding fragments thereof are provided. In some embodiments, the antibodies are anti-Gal3 antibodies or binding fragments thereof. In some embodiments, the anti-Gal3 antibodies or binding fragments thereof comprise a heavy chain variable region and a light chain variable region. In some embodiments, the heavy chain variable region is paired with an IgG4 heavy chain constant domain or an IgG2 heavy chain constant domain. In some embodiments, the IgG4 heavy chain constant domain or IgG2 heavy chain constant domain are human or murine. In some embodiments, the IgG4 heavy chain constant domain comprises a sequence having at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, 99%, or 100% identity to **SEQ ID NO: 931**. In some embodiments, the IgG4 heavy chain constant domain is an S228P mutant. In some embodiments, the IgG2 heavy chain constant domain comprises a sequence having at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, 99%, or 100% identity to **SEQ ID NO: 933** or **SEQ ID NO: 934**. In some embodiments, the IgG2 heavy chain constant domain is a LALAPG or a LALA mutant. In some embodiments, the light chain variable region is paired with an IgG4 kappa chain constant domain. In some embodiments, the IgG4 kappa chain constant domain comprises a sequence having at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, 99%, or 100% identity to **SEQ ID NO: 932**. In some embodiments, the light chain variable region and/or heavy chain variable region may be selected from those depicted in **FIG. 5 and 6** and/or the combinations of light chain variable region and heavy chain variable region as depicted in **FIG. 8.** In some embodiments, the light chain variable region and/or heavy chain variable regions comprise one or more CDRs depicted in **FIG. 3A-C, 4A-C** and/or the combinations of CDRs depicted in **FIG. 7**.

[0267] In some embodiments, the antibody or binding fragment thereof is selected from the group consisting of: TB001, TB006, 12G5.D7, 13A12.2E5, 14H10.2C9, 15F10.2D6, 19B5.2E6, 20D11.2C6, 20H5.A3, 23H9.2E4, 2D10.2B2, 3B11.2G2, 7D8.2D8, mIMT001, 4A11.2B5, 4A11.H1L1, 4A11.H4L2, 4G2.2G6, 6B3.2D3, 6H6.2D6, 9H2.2H10, 13G4.2F8, 13H12.2F8, 15G7.2A7, 19D9.2E5, 23B10.2B12, 24D12.2H9, F846C.1B2, F846C.1F5, F846C.1H12, F846C.1H5, F846C.2H3, F846TC.14A2, F846TC.14E4, F846TC.16B5, F846TC.7F10, F847C.10B9, F847C.11B1, F847C.12F12, F847C.26F5, F847C.4B10, F849C.8D10, F849C.8H3, 846.2B11, 846.4D5, 846T.1H2, 847.14H4, 846.2D4, 846.2F11, 846T.10B1, 846T.2E3, 846T.4C9, 846T.4E11, 846T.4F5, 846T.8D1, 847.10C9, 847.11D6, 847.15D12, 847.15F9, 847.15H11, 847.20H7, 847.21B11, 847.27B9, 847.28D1, 847.2B8, 847.3B3, 849.1D2, 849.2D7, 849.2F12, 849.4B2, 849.4F12, 849.4F2, 849.5C2, 849.8D12,

F847C.21H6, 849.5H1, 847.23F11, 847.16D10, 847.13E2-mH0mL1, 847.13E2-mH0mL2, 847.12C4, 847.4D3, 2D10-VH0-VL0, 2D10-hVH4-HVL1, 2D10-hVH4-HVL2, 2D10-hVH4-HVL3, 2D10-hVH4-HVL4, 2D10-hVH3-HVL1, 2D10-hVH3-HVL2, 2D10-hVH3-HVL3, 2D10-hVH3-HVL4, 20H5.A3-VH3VL1, 20H5.A3-VH3VL3, 20H5.A3-VH4VL1, 20H5.A3-VH5VL1, 20H5.A3-VH5VL3, 20H5.A3-VH6VL1, 20H5.A3-VH6VL3, or binding fragment thereof.

[0268] In some embodiments, the antibody or binding fragment thereof comprises a sequence (e.g. CDR, VL, VH, LC, HC) having at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, 99%, or 100% sequence identity or similarity to a sequence of TB001, TB006, 12G5.D7, 13A12.2E5, 14H10.2C9, 15F10.2D6, 19B5.2E6, 20D11.2C6, 20H5.A3, 23H9.2E4, 2D10.2B2, 3B11.2G2, 7D8.2D8, mIMT001, 4A11.2B5, 4A11.H1L1, 4A11.H4L2, 4G2.2G6, 6B3.2D3, 6H6.2D6, 9H2.2H10, 13G4.2F8, 13H12.2F8, 15G7.2A7, 19D9.2E5, 23B10.2B12, 24D12.2H9, F846C.1B2, F846C.1F5, F846C.1H12, F846C.1H5, F846C.2H3, F846TC.14A2, F846TC.14E4, F846TC.16B5, F846TC.7F10, F847C.10B9, F847C.11B1, F847C.12F12, F847C.26F5, F847C.4B10, F849C.8D10, F849C.8H3, 846.2B11, 846.4D5, 846T.1H2, 847.14H4, 846.2D4, 846.2F11, 846T.10B1, 846T.2E3, 846T.4C9, 846T.4E11, 846T.4F5, 846T.8D1, 847.10C9, 847.11D6, 847.15D12, 847.15F9, 847.15H11, 847.20H7, 847.21B11, 847.27B9, 847.28D1, 847.2B8, 847.3B3, 849.1D2, 849.2D7, 849.2F12, 849.4B2, 849.4F12, 849.4F2, 849.5C2, 849.8D12, F847C.21H6, 849.5H1, 847.23F11, 847.16D10, 847.13E2-mH0mL1, 847.13E2-mH0mL2, 847.12C4, 847.4D3, 2D10-VH0-VL0, 2D10-hVH4-HVL1, 2D10-hVH4-HVL2, 2D10-hVH4-HVL3, 2D10-hVH4-HVL4, 2D10-hVH3-HVL1, 2D10-hVH3-HVL2, 2D10-hVH3-HVL3, 2D10-hVH3-HVL4, 20H5.A3-VH3VL1, 20H5.A3-VH3VL3, 20H5.A3-VH4VL1, 20H5.A3-VH5VL1, 20H5.A3-VH5VL3, 20H5.A3-VH6VL1, 20H5.A3-VH6VL3, or binding fragment thereof.

[0269] In some embodiments, the anti-Gal3 antibody or binding fragment thereof excludes the subset of named anti-Gal3 antibodies or binding fragments thereof depicted in any one of **FIG. 19A-D**. In some embodiments, CDRs (including heavy chain and light chain CDRs), heavy chain variable regions, light chain variable regions, heavy chains, and/or light chains are excluded from the sequences associated with the subset of named anti-Gal3 antibodies or binding fragments thereof depicted in any one of **FIG. 19A-D**. In some embodiments, combinations of CDRs (including heavy chain and light chain CDRs), heavy chain variable regions, light chain variable regions, heavy chains, and/or light chains are excluded from the sequences associated with the subset of named anti-Gal3 antibodies or

binding fragments thereof depicted in any one of **FIG. 19A-D**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof excludes those selected from the group of named anti-Gal3 antibody or binding fragment thereof depicted in **FIG. 19A**, or excludes any one or more of the CDRs, VH, VL, HC, and/or LC thereof. In some embodiments, the anti-Gal3 antibody or binding fragment thereof excludes those selected from the group of named anti-Gal3 antibody or binding fragment thereof depicted in **FIG. 19B**, or excludes any one or more of the CDRs, VH, VL, HC, and/or LC thereof. In some embodiments, the anti-Gal3 antibody or binding fragment thereof excludes those selected from the group of named anti-Gal3 antibody or binding fragment thereof depicted in **FIG. 19C**, or excludes any one or more of the CDRs, VH, VL, HC, and/or LC thereof. In some embodiments, the anti-Gal3 antibody or binding fragment thereof excludes those selected from the group of named anti-Gal3 antibody or binding fragment thereof depicted in **FIG. 19D**, or excludes any one or more of the CDRs, VH, VL, HC, and/or LC thereof. In some embodiments, the anti-Gal3 antibody or binding fragment thereof excludes those selected from the group of named anti-Gal3 antibody or binding fragment thereof depicted in **FIG. 19A**, or excludes any one or more of the CDRs, VH, VL, HC, and/or LC thereof. In some embodiments, the anti-Gal3 antibody or binding fragment thereof excludes those selected from the group of named anti-Gal3 antibody or binding fragment thereof depicted in **FIG. 19B**, or excludes any one or more of the CDRs, VH, VL, HC, and/or LC thereof. In some embodiments, the anti-Gal3 antibody or binding fragment thereof excludes those selected from the group of named anti-Gal3 antibody or binding fragment thereof depicted in **FIG. 19C**, or excludes any one or more of the CDRs, VH, VL, HC, and/or LC thereof. In some embodiments, the anti-Gal3 antibody or binding fragment thereof excludes those selected from the group of named anti-Gal3 antibody or binding fragment thereof depicted in **FIG. 19D**, or excludes any one or more of the CDRs, VH, VL, HC, and/or LC thereof. In other embodiments, any of these constructs are used for any of the methods provided herein.

[0270] In some embodiments, the anti-Gal3 antibody or binding fragment thereof is selected from the subset of named anti-Gal3 antibodies or binding fragments thereof depicted in any one of **FIG. 20A-D**. In some embodiments, CDRs (including heavy chain and light chain CDRs), heavy chain variable regions, light chain variable regions, heavy chains, and/or light chains are selected from the sequences associated with the subset of named anti-Gal3 antibodies or binding fragments thereof depicted in any one of **FIG. 20A-D**. In some embodiments, combinations of CDRs (including heavy chain and light chain CDRs), heavy chain variable regions, light chain variable regions, heavy chains, and/or light chains are

selected from the sequences associated with the subset of named anti-Gal3 antibodies or binding fragments thereof depicted in any one of **FIG. 20A-D**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof is selected from the group of named anti-Gal3 antibody or binding fragment thereof depicted in **FIG. 20A**, or comprises any one or more of the CDRs, VH, VL, HC, and/or LC thereof. In some embodiments, the anti-Gal3 antibody or binding fragment thereof is selected from the group of named anti-Gal3 antibody or binding fragment thereof depicted in **FIG. 20B**, or comprises any one or more of the CDRs, VH, VL, HC, and/or LC thereof. In some embodiments, the anti-Gal3 antibody or binding fragment thereof is selected from the group of named anti-Gal3 antibody or binding fragment thereof depicted in **FIG. 20C**, or comprises any one or more of the CDRs, VH, VL, HC, and/or LC thereof. In some embodiments, the anti-Gal3 antibody or binding fragment thereof is selected from the group of named anti-Gal3 antibody or binding fragment thereof depicted in **FIG. 20D**, or comprises any one or more of the CDRs, VH, VL, HC, and/or LC thereof.

[0271] In some embodiments, the anti-Gal3 antibody or binding fragment thereof binds to specific epitopes within a Gal3 protein. In some embodiments, the anti-Gal3 antibody or binding fragment thereof binds to a specific epitope within a Gal3 protein having an amino acid sequence according to **SEQ ID NO: 1-2**, provided in **FIG. 1**.

[0272] In some embodiments, the anti-Gal3 antibody or binding fragment thereof may bind to at least 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, or 20 amino acid residues within a peptide illustrated in **FIG. 2 (SEQ ID NOs: 3-26)**.

[0273] In some embodiments, the anti-Gal3 antibody or binding fragment thereof may bind to at least 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, or 20 amino acid residues within amino acid residues 1-20 of **SEQ ID NO: 1-2**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof may bind to at least 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, or 20 amino acid residues within amino acid residues 31-50 of **SEQ ID NO: 1-2**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof may bind to at least 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, or 20 amino acid residues within amino acid residues 51-70 of **SEQ ID NO: 1-2**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof may bind to at least 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, or 20 amino acid residues within amino acid residues 61-80 of **SEQ ID NO: 1-2**.

[0274] In some embodiments, the anti-Gal3 antibody or binding fragment thereof may bind to at least 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, or 20 amino acid residues within Peptide 1 (**SEQ ID NO: 3**), Peptide 4 (**SEQ ID NO: 6**), Peptide 6 (**SEQ**

ID NO: 8), or Peptide 7 (**SEQ ID NO: 9**). In some embodiments, the anti-Gal3 antibody or binding fragment thereof may bind to at least 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, or 20 amino acid residues within Peptide 1 (**SEQ ID NO: 3**). In some embodiments, the anti-Gal3 antibody or binding fragment thereof may bind to at least 11, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, or 20 amino acid residues within Peptide 4 (**SEQ ID NO: 6**). In some embodiments, the anti-Gal3 antibody or binding fragment thereof may bind to at least 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, or 20 amino acid residues within Peptide 6 (**SEQ ID NO: 8**). In some embodiments, the anti-Gal3 antibody or binding fragment thereof may bind to at least 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, or 20 amino acid residues within Peptide 7 (**SEQ ID NO: 9**). In some embodiments, the anti-Gal3 antibody or binding fragment thereof binds to an epitope present within a region of Gal3 defined by Peptide 1 (**SEQ ID NO: 3**). In some embodiments, the anti-Gal3 antibody or binding fragment thereof binds to an epitope present within a region of Gal3 defined by Peptide 4 (**SEQ ID NO: 6**). In some embodiments, the anti-Gal3 antibody or binding fragment thereof binds to an epitope present within a region of Gal3 defined by Peptide 6 (**SEQ ID NO: 8**). In some embodiments, the anti-Gal3 antibody or binding fragment thereof binds to an epitope present within a region of Gal3 defined by Peptide 7 (**SEQ ID NO: 9**). In some embodiments, the antibody is one that binds to 1, 2, or all 3 of peptides 1, 6, and/or 7.

[0275] In some embodiments, an anti-Gal3 antibody or binding fragment thereof as described herein may bind to the N-terminal domain of Gal3 or a portion thereof. In some embodiments, an anti-Gal3 antibody or binding fragment thereof as described herein may bind to an epitope of Gal3 that includes a motif of GxYPG, where x is the amino acids alanine (A), glycine (G), or valine (V). In some embodiments, an anti-Gal3 antibody or binding fragment thereof as described herein may bind to an epitope of Gal3 that includes two GxYPG motifs separated by three amino acids, where x is A, G, or V.

[0276] In some embodiments, the anti-Gal3 antibody or binding fragment thereof binds to Gal3. In some embodiments, the anti-Gal3 antibody or binding fragment thereof binds to the N-terminus of Gal3, the N-terminal domain of Gal3, or the TRD of Gal3. In some embodiments, the anti-Gal3 antibody or binding fragment thereof does not bind to the N-terminus of Gal3, the N-terminal domain of Gal3, or the TRD of Gal3. In some embodiments, the anti-Gal3 antibody or binding fragment thereof binds to the C-terminus of Gal3, the C-terminal domain of Gal3, or the CRD of Gal3. In some embodiments, the anti-Gal3 antibody or binding fragment thereof does not bind to the C-terminus of Gal3, the C-terminal domain of Gal3, or the CRD of Gal3. In some embodiments, the anti-Gal3 antibody or binding fragment

thereof binds to Gal3 isoform 1. In some embodiments, the anti-Gal3 antibody or binding fragment thereof binds to the N-terminus of Gal3 isoform 1, the N-terminal domain of Gal3 isoform 1, amino acids 1-111 of Gal3 isoform 1, the TRD of Gal3 isoform 1, or amino acids 36-109 of Gal3 isoform 1. In some embodiments, the anti-Gal3 antibody or binding fragment thereof does not bind to the N-terminus of Gal3 isoform 1, the N-terminal domain of Gal3 isoform 1, amino acids 1-111 of Gal3, the TRD of Gal3 isoform 1, or amino acids 36-109 of Gal3 isoform 1. In some embodiments, the anti-Gal3 antibody or binding fragment thereof binds to the C-terminus of Gal3 isoform 1, the C-terminal domain of Gal3 isoform 1, amino acids 112-250 of Gal3, or the CRD of Gal3. In some embodiments, the anti-Gal3 antibody or binding fragment thereof does not bind to the C-terminus of Gal3 isoform 1, the C-terminal domain of Gal3 isoform 1, amino acids 112-250 of Gal3 isoform 1, or the CRD of Gal3. In some embodiments, the anti-Gal3 antibody or binding fragment thereof binds to the N-terminus of Gal3 isoform 3, the N-terminal domain of Gal3 isoform 3, amino acids 1-125 of Gal3, the TRD of Gal3 isoform 3, or amino acids 50-123 of Gal3 isoform 3. In some embodiments, the anti-Gal3 antibody or binding fragment thereof does not bind to the N-terminus of Gal3 isoform 3, the N-terminal domain of Gal3 isoform 3, amino acids 1-125 of Gal3 isoform 3, the TRD of Gal3, or amino acids 50-123 of Gal3 isoform 3. In some embodiments, the anti-Gal3 antibody or binding fragment thereof binds to the C-terminus of Gal3 isoform 3, the C-terminal domain of Gal3 isoform 3, amino acids 126-264 of Gal3 isoform 3, or the CRD of Gal3. In some embodiments, the anti-Gal3 antibody or binding fragment thereof does not bind to the C-terminus of Gal3 isoform 3, the C-terminal domain of Gal3 isoform 3, amino acids 126-264 of Gal3 isoform 3, or the CRD of Gal3 isoform 3.

[0277] In some embodiments, the anti-Gal3 antibody or binding fragment thereof reduces an interaction between Gal3 and a target protein to less than 80%, less than 75%, less than 70%, less than 60%, less than 59%, less than 50%, less than 40%, less than 34%, less than 30%, less than 20%, less than 14%, less than 10%, less than 7%, less than 5%, less than 4%, or less than 1%.

[0278] In some embodiments, the anti-Gal3 antibody or binding fragment thereof binds to Gal3 with a dissociation constant (K_D) of less than 1 nM, less than 1.2 nM, less than 2 nM, less than 5 nM, less than 10 nM, less than 13.5 nM, less than 15 nM, less than 20 nM, less than 25 nM, or less than 30 nM. In some embodiments, the anti-Gal3 antibody or binding fragment thereof binds to Gal3 with a K_D of less than 1 nM. In some embodiments, the anti-Gal3 antibody or binding fragment thereof binds to Gal3 with a K_D of less than 1.2 nM. In some embodiments, the anti-Gal3 antibody or binding fragment thereof binds to Gal3 with a

K_D of less than 2 nM. In some embodiments, the anti-Gal3 antibody or binding fragment thereof binds to Gal3 with a K_D of less than 5 nM. In some embodiments, the anti-Gal3 antibody or binding fragment thereof binds to Gal3 with a K_D of less than 10 nM. In some embodiments, the anti-Gal3 antibody or binding fragment thereof binds to Gal3 with a K_D of less than 13.5 nM. In some embodiments, the anti-Gal3 antibody or binding fragment thereof binds to Gal3 with a K_D of less than 15 nM. In some embodiments, the anti-Gal3 antibody or binding fragment thereof binds to Gal3 with a K_D of less than 20 nM. In some embodiments, the anti-Gal3 antibody or binding fragment thereof binds to Gal3 with a K_D of less than 25 nM. In some embodiments, the anti-Gal3 antibody or binding fragment thereof binds to Gal3 with a K_D of less than 30 nM.

[0279] In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises any one of the variable heavy chain complementarity-determining region 1 (V_H-CDR1) sequences illustrated in **FIG. 3A** (**SEQ ID NOs: 27-70**). In some embodiments, the anti-Gal3 antibody comprises a V_H-CDR1 sequence having at least 60%, at least 65%, at least 70%, at least 75%, at least 80%, at least 85%, at least 86%, at least 87%, at least 88%, at least 89%, at least 90%, at least 91%, at least 92%, at least 93%, at least 94%, at least 95%, at least 96%, at least 97%, at least 98%, or at least 99% sequence identity or similarity to any one of **SEQ ID NOs: 27-70**.

[0280] In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises any one of the variable heavy chain complementarity-determining region 2 (V_H-CDR2) sequences illustrated in **FIG. 3B** (**SEQ ID NOs: 71-111, 801**). In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises a V_H-CDR2 sequence having at least 60%, at least 65%, at least 70%, at least 75%, at least 80%, at least 85%, at least 86%, at least 87%, at least 88%, at least 89%, at least 90%, at least 91%, at least 92%, at least 93%, at least 94%, at least 95%, at least 96%, at least 97%, at least 98%, or at least 99% sequence identity or similarity to any one of **SEQ ID NOs: 71-111, 801**.

[0281] In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises any one of the variable heavy chain complementarity-determining region 3 (V_H-CDR3) sequences illustrated in **FIG. 3C** (**SEQ ID NOs: 112-169, 802**). In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises a V_H-CDR3 sequence having at least 60%, at least 65%, at least 70%, at least 75%, at least 80%, at least 85%, at least 86%, at least 87%, at least 88%, at least 89%, at least 90%, at least 91%, at least 92%, at least 93%, at least 94%, at least 95%, at least 96%, at least 97%, at least 98%, or at least 99% sequence identity or similarity to any one of **SEQ ID NOs: 112-169, 802**.

[0282] In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises any one of the variable light chain complementarity-determining region 1 (V_L-CDR1) sequences illustrated in **FIG. 4A** (**SEQ ID NOs: 170-220**). In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises a V_L-CDR1 sequence having at least 60%, at least 65%, at least 70%, at least 75%, at least 80%, at least 85%, at least 86%, at least 87%, at least 88%, at least 89%, at least 90%, at least 91%, at least 92%, at least 93%, at least 94%, at least 95%, at least 96%, at least 97%, at least 98%, or at least 99% sequence identity or similarity to any one of **SEQ ID NOs: 170-220**.

[0283] In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises any one of the variable light chain complementarity-determining region 2 (V_L-CDR2) sequences illustrated in **FIG. 4B** (**SEQ ID NOs: 221-247**). In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises a V_L-CDR2 sequence having at least 60%, at least 65%, at least 70%, at least 75%, at least 80%, at least 85%, at least 86%, at least 87%, at least 88%, at least 89%, at least 90%, at least 91%, at least 92%, at least 93%, at least 94%, at least 95%, at least 96%, at least 97%, at least 98%, or at least 99% sequence identity or similarity to any one of **SEQ ID NOs: 221-247**.

[0284] In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises any one of the variable light chain complementarity-determining region 3 (V_L-CDR3) sequences illustrated in **FIG. 4C** (**SEQ ID NOs: 248-296**). In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises a V_L-CDR3 sequence having at least 60%, at least 65%, at least 70%, at least 75%, at least 80%, at least 85%, at least 86%, at least 87%, at least 88%, at least 89%, at least 90%, at least 91%, at least 92%, at least 93%, at least 94%, at least 95%, at least 96%, at least 97%, at least 98%, or at least 99% sequence identity or similarity to any one of **SEQ ID NOs: 248-296**.

[0285] In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises a heavy chain variable region (V_H) and a light chain variable region (V_L). In some embodiments, the V_H may comprise a V_H-CDR1, a V_H-CDR2, and/or a V_H-CDR3 selected from any of **FIG. 3A-C**. In some embodiments, the V_L may comprise a V_L-CDR1, a V_L-CDR2, and/or a V_L-CDR3 selected from any of **FIG. 4A-C**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises CDRs within the V_H and V_L sequences as illustrated in **FIG. 5 and 6**.

[0286] In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises a heavy chain variable region (V_H) sequence selected from **FIG. 5** (**SEQ ID NOs: 297-373, 803, 806-820, 926**). In some embodiments, the anti-Gal3 antibody or binding

fragment thereof comprises a V_H- sequence having at least 60%, at least 65%, at least 70%, at least 75%, at least 80%, at least 85%, at least 86%, at least 87%, at least 88%, at least 89%, at least 90%, at least 91%, at least 92%, at least 93%, at least 94%, at least 95%, at least 96%, at least 97%, at least 98%, or at least 99% sequence identity or similarity to any one of **SEQ ID NOs: 297-373, 803, 806-820, 926**.

[0287] In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises a light chain variable region (V_L) sequence selected from **FIG. 6** (**SEQ ID NOs: 374-447, 821-835, 927-929**). In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises a V_L sequence having at least 60%, at least 65%, at least 70%, at least 75%, at least 80%, at least 85%, at least 86%, at least 87%, at least 88%, at least 89%, at least 90%, at least 91%, at least 92%, at least 93%, at least 94%, at least 95%, at least 96%, at least 97%, at least 98%, or at least 99% sequence identity or similarity to any one of **SEQ ID NOs: 374-447, 821-835, 927-929**.

[0288] In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises a combination of heavy chain variable region and light chain variable region as illustrated in **FIG. 8**.

[0289] In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises heavy chain and light chain sequences as illustrated in **FIG. 9** (**SEQ ID NOs: 448-538, 804-805, 836-865**.

[0290] In some embodiments, the anti-Gal3 antibody or binding fragment thereof is selected from the group of: TB001, TB006, 12G5.D7, 13A12.2E5, 14H10.2C9, 15F10.2D6, 19B5.2E6, 20D11.2C6, 20H5.A3, 23H9.2E4, 2D10.2B2, 3B11.2G2, 7D8.2D8, mIMT001, 4A11.2B5, 4A11.H1L1, 4A11.H4L2, 4G2.2G6, 6B3.2D3, 6H6.2D6, 9H2.2H10, 13G4.2F8, 13H12.2F8, 15G7.2A7, 19D9.2E5, 23B10.2B12, 24D12.2H9, F846C.1B2, F846C.1F5, F846C.1H12, F846C.1H5, F846C.2H3, F846TC.14A2, F846TC.14E4, F846TC.16B5, F846TC.7F10, F847C.10B9, F847C.11B1, F847C.12F12, F847C.26F5, F847C.4B10, F849C.8D10, F849C.8H3, 846.2B11, 846.4D5, 846T.1H2, 847.14H4, 846.2D4, 846.2F11, 846T.10B1, 846T.2E3, 846T.4C9, 846T.4E11, 846T.4F5, 846T.8D1, 847.10C9, 847.11D6, 847.15D12, 847.15F9, 847.15H11, 847.20H7, 847.21B11, 847.27B9, 847.28D1, 847.2B8, 847.3B3, 849.1D2, 849.2D7, 849.2F12, 849.4B2, 849.4F12, 849.4F2, 849.5C2, 849.8D12, F847C.21H6, 849.5H1, 847.23F11, 847.16D10, 847.13E2-mH0mL1, 847.13E2-mH0mL2, 847.12C4, 847.4D3, 2D10-VH0-VL0, 2D10-hVH4-HVL1, 2D10-hVH4-HVL2, 2D10-hVH4-HVL3, 2D10-hVH4-HVL4, 2D10-hVH3-HVL1, 2D10-hVH3-HVL2, 2D10-hVH3-HVL3, 2D10-hVH3-HVL4, 20H5.A3-VH3VL1, 20H5.A3-VH3VL3, 20H5.A3-VH4VL1, 20H5.A3-

VH5VL1, 20H5.A3-VH5VL3, 20H5.A3-VH6VL1, 20H5.A3-VH6VL3, or a binding fragment thereof.

[0291] In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises, consists essentially of, or consists of TB001, TB006, 12G5.D7, 13A12.2E5, 14H10.2C9, 15F10.2D6, 19B5.2E6, 20D11.2C6, 20H5.A3, 23H9.2E4, 2D10.2B2, 3B11.2G2, 7D8.2D8, mIMT001, 4A11.2B5, 4A11.H1L1, 4A11.H4L2, 4G2.2G6, 6B3.2D3, 6H6.2D6, 9H2.2H10, 13G4.2F8, 13H12.2F8, 15G7.2A7, 19D9.2E5, 23B10.2B12, 24D12.2H9, F846C.1B2, F846C.1F5, F846C.1H12, F846C.1H5, F846C.2H3, F846TC.14A2, F846TC.14E4, F846TC.16B5, F846TC.7F10, F847C.10B9, F847C.11B1, F847C.12F12, F847C.26F5, F847C.4B10, F849C.8D10, F849C.8H3, 846.2B11, 846.4D5, 846T.1H2, 847.14H4, 846.2D4, 846.2F11, 846T.10B1, 846T.2E3, 846T.4C9, 846T.4E11, 846T.4F5, 846T.8D1, 847.10C9, 847.11D6, 847.15D12, 847.15F9, 847.15H11, 847.20H7, 847.21B11, 847.27B9, 847.28D1, 847.2B8, 847.3B3, 849.1D2, 849.2D7, 849.2F12, 849.4B2, 849.4F12, 849.4F2, 849.5C2, 849.8D12, F847C.21H6, 849.5H1, 847.23F11, 847.16D10, 847.13E2-mH0mL1, 847.13E2-mH0mL2, 847.12C4, 847.4D3, 2D10-VH0-VL0, 2D10-hVH4-HVL1, 2D10-hVH4-HVL2, 2D10-hVH4-HVL3, 2D10-hVH4-HVL4, 2D10-hVH3-HVL1, 2D10-hVH3-HVL2, 2D10-hVH3-HVL3, 2D10-hVH3-HVL4, 20H5.A3-VH3VL1, 20H5.A3-VH3VL3, 20H5.A3-VH4VL1, 20H5.A3-VH5VL1, 20H5.A3-VH5VL3, 20H5.A3-VH6VL1, 20H5.A3-VH6VL3, or a binding fragment thereof.

[0292] In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises one or more heavy chain variable region CDRs depicted in **FIG. 3A-C**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises one or more light chain variable region CDRs depicted in **FIG. 4A-C**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises a heavy chain variable region depicted in **FIG. 5**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises a light chain variable region depicted in **FIG. 6**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises a combination of heavy chain variable region and light chain variable region depicted in **FIG. 8**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises a heavy chain and/or light chain depicted in **FIG. 9**. In some embodiments, the anti-Gal3 antibody or binding fragment thereof can comprise or include any one or more of the sequences provided in any one or more of **FIG. 3A-C, 4A-C, 5, 6, 7, 8, 9,** or any one or more of a sequence that is at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, 99% or greater identical thereto. In some embodiments, the anti-Gal3 antibody or binding fragment thereof

can comprise or include any one or more of the sequences provided in any one or more of **FIG. 3A-C, 4A-C, 5, 6, 7, 8, 9,** or any one or more of a sequence that is at least 80%, 81%, 82%, 83%, 84%, 85%, 86%, 87%, 88%, 89%, 90%, 91%, 92%, 93%, 94%, 95%, 96%, 97%, 98%, 99% or greater similar thereto.

[0293] In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises a humanized antibody or binding fragment thereof. In other instances, the anti-Gal3 antibody or binding fragment thereof comprises a chimeric antibody or binding fragment thereof. In some embodiments, the anti-Gal3 antibody comprises a full-length antibody or a binding fragment thereof. In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises a bispecific antibody or a binding fragment thereof. In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises a monovalent Fab', a divalent Fab2, a single-chain variable fragment (scFv), a diabody, a minibody, a nanobody, a single-domain antibody (sdAb), or a camelid antibody or binding fragment thereof.

[0294] In some embodiments, the anti-Gal3 antibody or binding fragment thereof is a bispecific antibody or binding fragment thereof. Exemplary bispecific antibody formats include, but are not limited to, Knobs-into-Holes (KiH), Asymmetric Re-engineering Technology-immunoglobulin (ART-Ig), Triomab quadroma, bispecific monoclonal antibody (BiMAb, BsmAb, BsAb, bsMab, BS-Mab, or Bi-MAb), Azymetric, Biclonics, Fab-scFv-Fc, Two-in-one/Dual Action Fab (DAF), FinomAb, scFv-Fc-(Fab)-fusion, Dock-aNd-Lock (DNL), Tandem diAbody (TandAb), Dual-affinity-ReTargeting (DART), nanobody, triplebody, tandems scFv (taFv), triple heads, tandem dAb/VHH, triple dAb/VHH, or tetravalent dAb/VHH. In some embodiments, the anti-Gal3 antibody or binding fragment thereof is a bispecific antibody or binding fragment thereof comprising a bispecific antibody format illustrated in Brinkmann and Kontermann, "The making of bispecific antibodies," *MABS* 9(2): 182-212 (2017).

[0295] In some embodiments, the anti-Gal3 antibody or binding fragment thereof can comprise an IgM, IgG (e.g., IgG1, IgG2, IgG3, or IgG4), IgA, or IgE framework. The IgG framework can be IgG1, IgG2, IgG3 or IgG4. In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises an IgG1 framework. In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises an IgG2 framework. In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises an IgG4 framework. The anti-Gal3 antibody or binding fragment thereof can further comprise a Fc mutation.

[0296] In some embodiments, the Fc region comprises one or more mutations that modulate Fc receptor interactions, e.g., to enhance effector functions such as ADCC and/or

CDC. In such instances, exemplary residues when mutated modulate effector functions include S239, K326, A330, I332, or E333, in which the residue position correspond to IgG1 and the residue numbering is in accordance to Kabat numbering (EU index of Kabat et al 1991 Sequences of Proteins of Immunological Interest). In some embodiments, the one or more mutations comprise S239D, K326W, A330L, I332E, E333A, E333S, or a combination thereof. In some embodiments, the one or more mutations comprise S239D, I332E, or a combination thereof. In some embodiments, the one or more mutations comprise S239D, A330L, I332E, or a combination thereof. In some embodiments, the one or more mutations comprise K326W, E333S, or a combination thereof. In some embodiments, the mutation comprises E333A.

[0297] In some embodiments, an anti-Gal3 antibody or binding fragment thereof comprises a humanization score of above 70, above 80, above 81, above 82, above 83, above 84, above 85, above 86, above 87, above 88, above 89, above 90, or above 95. In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises a humanization score of above 80. In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises a humanization score of above 83. In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises a humanization score of above 85. In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises a humanization score of above 87. In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises a humanization score of above 90. In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises a humanization score of the heavy chain of above 70, above 80, above 81, above 82, above 83, above 84, above 85, above 86, above 87, above 88, above 89, above 90, or above 95, optionally above 80, above 85, or above 87. In some embodiments, the anti-Gal3 antibody or binding fragment thereof comprises a humanization score of the light chain of above 70, above 80, above 81, above 82, above 83, above 84, above 85, above 86, above 87, above 88, above 89, above 90, or above 95, optionally above 80, above 83, or above 85.

Pharmaceutical Formulations

[0298] A pharmaceutical formulation for treating a disease as provided herein can comprise an anti-Gal3 antibody or binding fragment thereof described herein. The anti-Gal3 antibody or binding fragment thereof can be formulated for systemic administration. Alternatively, the anti-Gal3 antibody or binding fragment thereof can be formulated for parenteral administration.

[0299] In some embodiments, an anti-Gal3 antibody or binding fragment thereof is formulated as a pharmaceutical composition for administration to a subject by, but not limited to, parenteral (e.g., intravenous, subcutaneous, intramuscular, intraarterial, intradermal, intraperitoneal, intravitreal, intracerebral, or intracerebroventricular), oral, intranasal, buccal, rectal, or transdermal administration routes. In some instances, the pharmaceutical composition described herein is formulated for parenteral (e.g., intravenous, subcutaneous, intramuscular, intraarterial, intradermal, intraperitoneal, intravitreal, intracerebral, or intracerebroventricular) administration. In other instances, the pharmaceutical composition described herein is formulated for systemic administration. In other instances, the pharmaceutical composition described herein is formulated for oral administration. In still other instances, the pharmaceutical composition described herein is formulated for intranasal administration. In some embodiments, the antibodies or binding fragments thereof disclosed herein are provided in a subcutaneous formulation or an intravenous formulation. In some embodiments, the antibodies or binding fragments thereof disclosed herein are provided in an intravenous formulation.

[0300] In some instances, the pharmaceutical compositions further include pH adjusting agents or buffering agents which include acids such as acetic, boric, citric, lactic, phosphoric and hydrochloric acids; bases such as sodium hydroxide, sodium phosphate, sodium borate, sodium citrate, sodium acetate, sodium lactate and tris-hydroxymethylaminomethane; and buffers such as citrate/dextrose, sodium bicarbonate and ammonium chloride. Such acids, bases and buffers are included in an amount required to maintain pH of the composition in an acceptable range.

[0301] In some instances, the pharmaceutical compositions include one or more salts in an amount required to bring osmolality of the composition into an acceptable range. Such salts include those having sodium, potassium or ammonium cations and chloride, citrate, ascorbate, borate, phosphate, bicarbonate, sulfate, thiosulfate or bisulfite anions; suitable salts include sodium chloride, potassium chloride, sodium thiosulfate, sodium bisulfite and ammonium sulfate.

[0302] In some instances, the pharmaceutical compositions further include diluent which are used to stabilize compounds because they can provide a more stable environment. Salts dissolved in buffered solutions (which also can provide pH control or maintenance) are utilized as diluents in the art, including, but not limited to a phosphate buffered saline solution. In certain instances, diluents increase bulk of the composition to facilitate compression or create sufficient bulk for homogenous blend for capsule filling. Such compounds can include

e.g., lactose, starch, mannitol, sorbitol, dextrose, microcrystalline cellulose such as Avicel®; dibasic calcium phosphate, dicalcium phosphate dihydrate; tricalcium phosphate, calcium phosphate; anhydrous lactose, spray-dried lactose; pregelatinized starch, compressible sugar, such as Di-Pac® (Amstar); mannitol, hydroxypropylmethylcellulose, hydroxypropylmethylcellulose acetate stearate, sucrose-based diluents, confectioner's sugar; monobasic calcium sulfate monohydrate, calcium sulfate dihydrate; calcium lactate trihydrate, dextrates; hydrolyzed cereal solids, amylose; powdered cellulose, calcium carbonate; glycine, kaolin; mannitol, sodium chloride; inositol, bentonite, and the like.

[0303] In some embodiments, the pharmaceutical formulations include, but are not limited to, aqueous liquid dispersions, self-emulsifying dispersions, solid solutions, liposomal dispersions, aerosols, solid dosage forms, powders, immediate release formulations, controlled release formulations, fast melt formulations, tablets, capsules, pills, delayed release formulations, extended release formulations, pulsatile release formulations, multi-particulate formulations (e.g., nanoparticle formulations), and mixed immediate and controlled release formulations.

[0304] Provided herein in some embodiments are pharmaceutical formulations of any one or more of the anti-Gal3 antibodies or binding fragments disclosed herein. These pharmaceutical formulations may be in the form of prepared solutions that are compatible for administration, such as contained in a sterile IV infusion bag or other container. In some embodiments, the pharmaceutical formulations are prepared as unit doses. In some embodiments, the pharmaceutical formulations are unit doses formulated as 50, 60, 70, 80, 90, 100, 200, 300, 400, 500, 600, 700, 800, 900, 1000, 1100, 1200, 1300, 1400, 1500, 1600, 1700, 1800, 1900, 2000, 2500, 3000, 3500, 4000, 4500 or 5000 mg of the anti-Gal3 antibody or binding fragment thereof per unit dose, or any amount per unit dose within a range defined by any two of the aforementioned amounts per unit dose. In some embodiments, the pharmaceutical formulations are unit doses formulated as 1000 mg or about 1000 mg of the anti-Gal3 antibody or binding fragment thereof. In some embodiments, the pharmaceutical formulations are unit doses (such as in the amounts provided herein) prepared in 100, 110, 120, 130, 140, 150, 160, 170, 180, 190, 200, 210, 220, 230, 240, 250, 260, 270, 280, 290, or 300 mL of sterile saline or other compatible excipient, carrier, or diluent known in the art. In some embodiments, the pharmaceutical formulations are unit doses (such as in the amounts provided herein) prepared in 250 mL or about 250 mL of sterile saline or other compatible excipient, carrier, or diluent known in the art.

[0305] Also provided herein are pharmaceutical formulations comprising 1000 mg or about 1000 mg of an anti-Gal3 antibody or binding fragment thereof dissolved in 250 mL or about 250 mL of saline. In some embodiments, the pharmaceutical formulation is prepared in an IV infusion bag.

[0306] Also provided herein are pharmaceutical formulations comprising 1000 mg or about 1000 mg of an anti-Gal3 antibody diluted in 0.9% Sodium Chloride Injection, USP (normal sterile saline) in a volume of 250 mL. In some embodiments, the anti-Gal3 antibody is TB006.

[0307] Also provided herein are single-use sealed injectable glass vials comprising a pharmaceutical formulation of any one or more of the anti-Gal3 antibodies or binding fragments thereof disclosed herein. In some embodiments, the vials comprise 4, 5, 6, 7, 8, 9, 10, 11, or 12 mL of a concentrated solution of the anti-Gal3 antibody or binding fragment thereof. In some embodiments, the vials comprise 8 mL of a concentrated solution of the anti-Gal3 antibody or binding fragment thereof. In some embodiments, the concentrated solution, which is meant to be diluted prior to administration, is 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, or 25 mg/mL. In some embodiments, the concentrated solution, which is meant to be diluted prior to administration, is 20 mg/mL of the anti-Gal3 antibody or binding fragment thereof. In some embodiments, the pharmaceutical compositions disclosed herein for administration (e.g. those prepared in an IV infusion bag or other container) may be prepared by diluting the concentrated solution in the vials.

[0308] Also provided herein are single-use sealed injectable glass vials comprising 8 mL or about 8 mL of 20 mg/mL or about 20 mg/mL (i.e. total of 160 mg or about 160 mg) of an anti-Gal3 antibody or binding fragment thereof.

[0309] Also provided herein are pharmaceutical formulations comprising TB006 supplied in 8 mL glass vials, sealed with a rubber stopper and an aluminum flip top, with a strength of 160 mg (20 mg/mL, 8 mL) TB006 per vial. In some embodiments, the pharmaceutical formulation is stored at 2-8°C.

Polynucleotides and Vectors

[0310] In some embodiments, the present disclosure provides isolated nucleic acids encoding any of the anti-Gal3 antibodies or binding fragments thereof disclosed herein. In another embodiment, the present disclosure provides vectors comprising a nucleic acid sequence encoding any anti-Gal3 antibody or binding fragment thereof disclosed herein. In some embodiments, this disclosure provides isolated nucleic acids that encode heavy chain

variable regions, light chain variable regions, heavy chains, or light chains of an anti-Gal3 antibody or binding fragment thereof disclosed herein.

[0311] In some embodiments, nucleic acid sequences encoding for heavy chain variable regions are depicted in **FIG. 14** (**SEQ ID NOs: 539-620, 797, 866-880**). In some embodiments, nucleic acid sequences encoding for light chain variable regions are depicted in **FIG. 15** (**SEQ ID NOs: 621-702, 798, 881-895**). In some embodiments, nucleic acid sequences encoding for heavy chains are depicted in **FIG. 16** (**SEQ ID NO: 703-749, 799, 896-910**). In some embodiments, nucleic acid sequences encoding for light chains are depicted in **FIG. 17** (**SEQ ID NO: 750-796, 800, 911-925**).

[0312] Any one of the anti-Gal3 antibodies or binding fragments thereof described herein can be prepared by recombinant DNA technology, synthetic chemistry techniques, or a combination thereof. For instance, sequences encoding the desired components of the anti-Gal3 antibodies, including light chain CDRs and heavy chain CDRs are typically assembled cloned into an expression vector using standard molecular techniques known in the art. These sequences may be assembled from other vectors encoding the desired protein sequence, from PCR-generated fragments using respective template nucleic acids, or by assembly of synthetic oligonucleotides encoding the desired sequences. Expression systems can be created by transfecting a suitable cell with an expressing vector which comprises an anti-Gal3 antibody of interest or binding fragment thereof.

[0313] Nucleotide sequences corresponding to various regions of light or heavy chains of an existing antibody can be readily obtained and sequenced using convention techniques including but not limited to hybridization, PCR, and DNA sequencing. Hybridoma cells that produce monoclonal antibodies serve as a preferred source of antibody nucleotide sequences. A vast number of hybridoma cells producing an array of monoclonal antibodies may be obtained from public or private repositories. The largest depository agent is American Type Culture Collection, which offers a diverse collection of well-characterized hybridoma cell lines. Alternatively, antibody nucleotides can be obtained from immunized or non-immunized rodents or humans, and form organs such as spleen and peripheral blood lymphocytes.

[0314] Polynucleotides encoding anti-Gal3 antibodies or binding fragments thereof can also be modified, for example, by substituting the coding sequence for human heavy and light chain constant regions in place of the homologous non-human sequences. In that manner, chimeric antibodies are prepared that retain the binding specificity of the original anti-Gal3 antibody or binding fragment thereof.

[0315] Also disclosed herein are methods of producing an anti-Gal3 antibody or binding fragment thereof. In some embodiments, the methods comprise expressing a nucleic acid that encodes for the anti-Gal3 antibody or binding fragment thereof in a cell and isolating the expressed anti-Gal3 antibody or binding fragment thereof from the cell. In some embodiments, the methods further comprise concentrating the anti-Gal3 antibody or binding fragment thereof to a desired concentration. In some embodiments, the cell is a mammalian cell, insect cell, or bacterial cell. In some embodiments, the anti-Gal3 antibody or binding fragment thereof is any one of the anti-Gal3 antibodies or binding fragments disclosed herein. Specific procedures of expressing antibodies in a cell and isolation of the expressed antibodies are conventionally known and can be practiced by one skilled in the art.

Antibody Production

[0316] In some cases, anti-Gal3 antibodies or binding fragments thereof are raised by standard protocol by injecting a production animal with an antigenic composition. See, e.g., Harlow and Lane, Antibodies: A Laboratory Manual, Cold Spring Harbor Laboratory, 1988. When utilizing an entire protein, or a larger section of the protein, antibodies may be raised by immunizing the production animal with the protein and a suitable adjuvant (e.g., Freund's, Freund's complete, oil-in-water emulsions, etc.). When a smaller peptide is utilized, it is advantageous to conjugate the peptide with a larger molecule to make an immunostimulatory conjugate. Commonly utilized conjugate proteins that are commercially available for such use include bovine serum albumin (BSA) and keyhole limpet hemocyanin (KLH). In order to raise antibodies to particular epitopes, peptides derived from the full sequence may be utilized. Alternatively, in order to generate antibodies to relatively short peptide portions of the protein target, a superior immune response may be elicited if the polypeptide is joined to a carrier protein, such as ovalbumin, BSA or KLH.

[0317] Polyclonal or monoclonal anti-Gal3 antibodies or binding fragments thereof can be produced from animals which have been genetically altered to produce human immunoglobulins. A transgenic animal can be produced by initially producing a “knock-out” animal which does not produce the animal's natural antibodies, and stably transforming the animal with a human antibody locus (e.g., by the use of a human artificial chromosome). In such cases, only human antibodies are then made by the animal. Techniques for generating such animals, and deriving antibodies therefrom, are described in U.S. Pat. Nos. 6,162,963 and 6,150,584, each incorporated fully herein by reference in its entirety. Such antibodies can be referred to as human xenogenic antibodies.

[0318] Alternatively, anti-Gal3 antibodies or binding fragments thereof can be produced from phage libraries containing human variable regions. See U.S. Pat. No. 6,174,708, incorporated fully herein by reference in its entirety.

[0319] In some aspects of any of the embodiments disclosed herein, an anti-Gal3 antibody or binding fragment thereof is produced by a hybridoma.

[0320] For monoclonal anti-Gal3 antibodies, hybridomas may be formed by isolating the stimulated immune cells, such as those from the spleen of the inoculated animal. These cells can then be fused to immortalized cells, such as myeloma cells or transformed cells, which are capable of replicating indefinitely in cell culture, thereby producing an immortal, immunoglobulin-secreting cell line. The immortal cell line utilized can be selected to be deficient in enzymes necessary for the utilization of certain nutrients. Many such cell lines (such as myelomas) are known to those skilled in the art, and include, for example: thymidine kinase (TK) or hypoxanthine-guanine phosphoriboxyl transferase (HGPRT). These deficiencies allow selection for fused cells according to their ability to grow on, for example, hypoxanthine aminopterinthymidine medium (HAT).

[0321] In addition, the anti-Gal3 antibody or binding fragment thereof may be produced by genetic engineering.

[0322] Anti-Gal3 antibodies or binding fragments thereof disclosed herein can have a reduced propensity to induce an undesired immune response in humans, for example, anaphylactic shock, and can also exhibit a reduced propensity for priming an immune response which would prevent repeated dosage with an antibody therapeutic or imaging agent (e.g., the human-anti-murine-antibody "HAMA" response). Such anti-Gal3 antibodies or binding fragments thereof include, but are not limited to, humanized, chimeric, or xenogenic human anti-Gal3 antibodies or binding fragments thereof.

[0323] Chimeric anti-Gal3 antibodies or binding fragments thereof can be made, for example, by recombinant means by combining the murine variable light and heavy chain regions (VK and VH), obtained from a murine (or other animal-derived) hybridoma clone, with the human constant light and heavy chain regions, in order to produce an antibody with predominantly human domains. The production of such chimeric antibodies is well known in the art and may be achieved by standard means (as described, e.g., in U.S. Pat. No. 5,624,659, incorporated fully herein by reference).

[0324] The term "humanized" as applies to a non-human (e.g. rodent or primate) antibodies are hybrid immunoglobulins, immunoglobulin chains or fragments thereof which contain minimal sequence derived from non-human immunoglobulin. For the most part,

humanized antibodies are human immunoglobulins (recipient antibody) in which residues from a complementary determining region (CDR) of the recipient are replaced by residues from a CDR of a non-human species (donor antibody) such as mouse, rat, rabbit or primate having the desired specificity, affinity and capacity. In some instances, Fv framework region (FR) residues of the human immunoglobulin are replaced by corresponding non-human residues. Furthermore, the humanized antibody may comprise residues which are found neither in the recipient antibody nor in the imported CDR or framework sequences. These modifications are made to further refine and optimize antibody performance and minimize immunogenicity when introduced into a human body. In some examples, the humanized antibody will comprise substantially all of at least one, and typically two, variable domains, in which all or substantially all of the CDR regions correspond to those of a non-human immunoglobulin and all or substantially all of the FR regions are those of a human immunoglobulin sequence. The humanized antibody may also comprise at least a portion of an immunoglobulin constant region (Fc), typically that of a human immunoglobulin.

[0325] Humanized antibodies can be engineered to contain human-like immunoglobulin domains and incorporate only the complementarity-determining regions of the animal-derived antibody. This can be accomplished by carefully examining the sequence of the hyper-variable loops of the variable regions of a monoclonal antigen binding unit or monoclonal antibody and fitting them to the structure of a human antigen binding unit or human antibody chains. See, e.g., U.S. Pat. No. 6,187,287, incorporated fully herein by reference.

[0326] Methods for humanizing non-human antibodies are well known in the art. "Humanized" antibodies are antibodies in which at least part of the sequence has been altered from its initial form to render it more like human immunoglobulins. In some versions, the heavy (H) chain and light (L) chain constant (C) regions are replaced with human sequence. This can be a fusion polypeptide comprising a variable (V) region and a heterologous immunoglobulin C region. In some versions, the complementarity determining regions (CDRs) comprise non-human antibody sequences, while the V framework regions have also been converted to human sequences. See, for example, EP 0329400. In some versions, V regions are humanized by designing consensus sequences of human and mouse V regions and converting residues outside the CDRs that are different between the consensus sequences.

[0327] In principle, a framework sequence from a humanized antibody can serve as the template for CDR grafting; however, it has been demonstrated that straight CDR replacement into such a framework can lead to significant loss of binding affinity to the antigen. Glaser et al. (1992) J. Immunol. 149:2606; Tempest et al. (1992) Biotechnology 9:266; and

Shalaby et al. (1992) J. Exp. Med. 17:217. The more homologous a human antibody (HuAb) is to the original murine antibody (muAb), the less likely that the human framework will introduce distortions into the murine CDRs that could reduce affinity. Based on a sequence homology search against an antibody sequence database, the HuAb IC4 provides good framework homology to muM4TS.22, although other highly homologous HuAbs would be suitable as well, especially kappa L chains from human subgroup I or H chains from human subgroup III. Kabat et al. (1987). Various computer programs such as ENCAD (Levitt et al. (1983) J. Mol. Biol. 168:595) are available to predict the ideal sequence for the V region. The disclosure thus encompasses HuAbs with different variable (V) regions. It is within the skill of one in the art to determine suitable V region sequences and to optimize these sequences. Methods for obtaining antibodies with reduced immunogenicity are also described in U.S. Pat. No. 5,270,202 and EP 699,755, each hereby incorporated by reference in its entirety.

[0328] Humanized antibodies can be prepared by a process of analysis of the parental sequences and various conceptual humanized products using three dimensional models of the parental and humanized sequences. Three-dimensional immunoglobulin models are familiar to those skilled in the art. Computer programs are available which illustrate and display probable three-dimensional conformational structures of selected candidate immunoglobulin sequences. Inspection of these displays permits analysis of the likely role of the residues in the functioning of the candidate immunoglobulin sequence, i.e., the analysis of residues that influence the ability of the candidate immunoglobulin to bind its antigen. In this way, FR residues can be selected and combined from the consensus and import sequence so that the desired antibody characteristic, such as increased affinity for the target antigen(s), is achieved.

[0329] A process for humanization of subject antigen binding units can be as follows. The best-fit germline acceptor heavy and light chain variable regions are selected based on homology, canonical structure and physical properties of the human antibody germlines for grafting. Computer modeling of mVH/VL versus grafted hVH/VL is performed and prototype humanized antibody sequence is generated. If modeling indicated a need for framework back-mutations, second variant with indicated FW changes is generated. DNA fragments encoding the selected germline frameworks and murine CDRs are synthesized. The synthesized DNA fragments are subcloned into IgG expression vectors and sequences are confirmed by DNA sequencing. The humanized antibodies are expressed in cells, such as 293F and the proteins are tested, for example in MDM phagocytosis assays and antigen binding assays. The humanized antigen binding units are compared with parental antigen binding units in antigen binding affinity, for example, by FACS on cells expressing the target antigen. If the affinity is

greater than 2-fold lower than parental antigen binding unit, a second round of humanized variants can be generated and tested as described above.

[0330] As noted above, an anti-Gal3 antibody or binding fragment thereof can be either "monovalent" or "multivalent." Whereas the former has one binding site per antigen-binding unit, the latter contains multiple binding sites capable of binding to more than one antigen of the same or different kind. Depending on the number of binding sites, antigen binding units may be bivalent (having two antigen-binding sites), trivalent (having three antigen-binding sites), tetravalent (having four antigen-binding sites), and so on.

[0331] Multivalent anti-Gal3 antibodies or binding fragments thereof can be further classified on the basis of their binding specificities. A "monospecific" anti-Gal3 antibody or binding fragment thereof is a molecule capable of binding to one or more antigens of the same kind. A "multispecific" anti-Gal3 antibody or binding fragment thereof is a molecule having binding specificities for at least two different antigens. While such molecules normally will only bind two distinct antigens (i.e. bispecific anti-Gal3 antibodies), antibodies with additional specificities such as trispecific antibodies are encompassed by this expression when used herein. This disclosure further provides multispecific anti-Gal3 antibodies. Multispecific anti-Gal3 antibodies or binding fragments thereof are multivalent molecules capable of binding to at least two distinct antigens, e.g., bispecific and trispecific molecules exhibiting binding specificities to two and three distinct antigens, respectively.

[0332] In some embodiments, the methods further provide for screening for or identifying antibodies or binding fragments thereof capable of disrupting an interaction between Gal3 and a target protein, such as a target protein associated with stroke, traumatic brain injury, fibrin disorders, atherosclerosis, cardiovascular disease, or any other disease or disorder envisioned herein. In some aspects, the method may comprise: (a) contacting Gal3 protein with an antibody or binding fragment thereof that selectively binds to Gal3, thereby forming a Gal3-antibody complex; (b) contacting the Gal3-antibody complex with the target protein; (c) removing unbound target protein; and (d) detecting the target protein bound to the Gal3-antibody complex, wherein the antibody or binding fragment thereof is capable of disrupting an interaction of Gal3 and the target protein when the target protein is not detected in (d). In some cases, the method comprises an immunoassay. In some cases, the immunoassay is an enzyme-linked immunosorbent assay (ELISA).

Host Cells

[0333] In some embodiments, the present disclosure provides host cells expressing any one of the anti-Gal3 antibodies or binding fragments thereof disclosed herein. A subject host cell typically comprises a nucleic acid encoding any one of the anti-Gal3 antibodies or binding fragments thereof disclosed herein.

[0334] The disclosure provides host cells transfected with the polynucleotides, vectors, or a library of the vectors described above. The vectors can be introduced into a suitable prokaryotic or eukaryotic cell by any of a number of appropriate means, including electroporation, microprojectile bombardment; lipofection, infection (where the vector is coupled to an infectious agent), transfection employing calcium chloride, rubidium chloride, calcium phosphate, DEAE-dextran, or other substances. The choice of the means for introducing vectors will often depend on features of the host cell.

[0335] For most animal cells, any of the above-mentioned methods is suitable for vector delivery. Preferred animal cells are vertebrate cells, preferably mammalian cells, capable of expressing exogenously introduced gene products in large quantity, e.g. at the milligram level. Non-limiting examples of preferred cells are NIH3T3 cells, COS, HeLa, and CHO cells.

[0336] Once introduced into a suitable host cell, expression of the anti-Gal3 antibodies or binding fragments thereof can be determined using any nucleic acid or protein assay known in the art. For example, the presence of transcribed mRNA of light chain CDRs or heavy chain CDRs, or the anti-Gal3 antibody or binding fragment thereof can be detected and/or quantified by conventional hybridization assays (e.g. Northern blot analysis), amplification procedures (e.g. RT-PCR), SAGE (U.S. Pat. No. 5,695,937), and array-based technologies (see e.g. U.S. Pat. Nos. 5,405,783, 5,412,087 and 5,445,934), using probes complementary to any region of a polynucleotide that encodes the anti-Gal3 antibody or binding fragment thereof.

[0337] Expression of the vector can also be determined by examining the expressed anti-Gal3 antibody or binding fragment thereof. A variety of techniques are available in the art for protein analysis. They include but are not limited to radioimmunoassays, ELISA (enzyme linked immunoradiometric assays), "sandwich" immunoassays, immunoradiometric assays, in situ immunoassays (using e.g., colloidal gold, enzyme or radioisotope labels), western blot analysis, immunoprecipitation assays, immunofluorescent assays, and SDS-PAGE.

Payload

[0338] In some embodiments, any anti-Gal3 antibody disclosed herein further comprises a payload. In some cases, the payload comprises a small molecule, a protein or functional fragment thereof, a peptide, or a nucleic acid polymer.

[0339] In some cases, the number of payloads conjugated to the anti-Gal3 antibody (e.g., the drug-to-antibody ratio or DAR) is about 1:1, one payload to one anti-Gal3 antibody. In some cases, the ratio of the payloads to the anti-Gal3 antibody is about 2:1, 3:1, 4:1, 5:1, 6:1, 7:1, 8:1, 9:1, 10:1, 11:1, 12:1, 13:1, 14:1, 15:1, 16:1, 17:1, 18:1, 19:1, or 20:1. In some cases, the ratio of the payloads to the anti-Gal3 antibody is about 2:1. In some cases, the ratio of the payloads to the anti-Gal3 antibody is about 3:1. In some cases, the ratio of the payloads to the anti-Gal3 antibody is about 4:1. In some cases, the ratio of the payloads to the anti-Gal3 antibody is about 6:1. In some cases, the ratio of the payloads to the anti-Gal3 antibody is about 8:1. In some cases, the ratio of the payloads to the anti-Gal3 antibody is about 12:1.

[0340] In some embodiment, the payload is a small molecule. In some instances, the small molecule is a cytotoxic payload. Exemplary cytotoxic payloads include, but are not limited to, microtubule disrupting agents, DNA modifying agents, or Akt inhibitors.

[0341] In some embodiments, the payload comprises a microtubule disrupting agent. Exemplary microtubule disrupting agents include, but are not limited to, 2-methoxyestradiol, auristatin, chalcones, colchicine, combretastatin, cryptophycin, dictyostatin, discodermolide, dolastain, eleutherobin, epothilone, halichondrin, laulimalide, maytansine, noscapinoid, paclitaxel, peloruside, phomopsin, podophyllotoxin, rhizoxin, spongistatin, taxane, tubulysin, vinca alkaloid, vinorelbine, or derivatives or analogs thereof.

[0342] In some embodiments, the maytansine is a maytansinoid. In some embodiments, the maytansinoid is DM1, DM4, or ansamitocin. In some embodiments, the maytansinoid is DM1. In some embodiments, the maytansinoid is DM4. In some embodiments, the maytansinoid is ansamitocin. In some embodiments, the maytansinoid is a maytansionid derivative or analog such as described in U.S. Patent Nos. 5208020, 5416064, 7276497, and 6716821 or U.S. Publication Nos. 2013029900 and US20130323268.

[0343] In some embodiments, the payload is a dolastatin, or a derivative or analog thereof. In some embodiments, the dolastatin is dolastatin 10 or dolastatin 15, or derivatives or analogs thereof. In some embodiments, the dolastatin 10 analog is auristatin, soblidotin, symplostatin 1, or symplostatin 3. In some embodiments, the dolastatin 15 analog is cemadotin or tasidotin.

[0344] In some embodiments, the dolastatin 10 analog is auristatin or an auristatin derivative. In some embodiments, the auristatin or auristatin derivative is auristatin E (AE),

auristatin F (AF), auristatin E5-benzoylvaleric acid ester (AEVB), monomethyl auristatin E (MMAE), monomethyl auristatin F (MMAF), or monomethyl auristatin D (MMAD), auristatin PE, or auristatin PYE. In some embodiments, the auristatin derivative is monomethyl auristatin E (MMAE). In some embodiments, the auristatin derivative is monomethyl auristatin F (MMAF). In some embodiments, the auristatin is an auristatin derivative or analog such as described in U.S. Patent No. 6884869, 7659241, 7498298, 7964566, 7750116, 8288352, 8703714, and 8871720.

[0345] In some embodiments, the payload comprises a DNA modifying agent. In some embodiments, the DNA modifying agent comprises DNA cleavers, DNA intercalators, DNA transcription inhibitors, or DNA cross-linkers. In some instances, the DNA cleaver comprises bleomycine A2, calicheamicin, or derivatives or analogs thereof. In some instances, the DNA intercalator comprises doxorubicin, epirubicin, PNU-159682, duocarmycin, pyrrolobenzodiazepine, oligomycin C, daunorubicin, valrubicin, topotecan, or derivatives or analogs thereof. In some instances, the DNA transcription inhibitor comprises dactinomycin. In some instances, the DNA cross-linker comprises mitomycin C.

[0346] In some embodiments, the DNA modifying agent comprises amsacrine, anthracycline, camptothecin, doxorubicin, duocarmycin, enediyne, etoposide, indolinobenzodiazepine, netropsin, teniposide, or derivatives or analogs thereof.

[0347] In some embodiments, the anthracycline is doxorubicin, daunorubicin, epirubicin, idarubicin, mitomycin-C, dactinomycin, mithramycin, nemorubicin, pixantrone, sabarubicin, or valrubicin.

[0348] In some embodiments, the analog of camptothecin is topotecan, irinotecan, silatecan, cositecan, exatecan, lurtotecan, gimatecan, belotecan, rubitecan, or SN-38.

[0349] In some embodiments, the duocarmycin is duocarmycin A, duocarmycin B1, duocarmycin B2, duocarmycin C1, duocarmycin C2, duocarmycin D, duocarmycin SA, or CC-1065. In some embodiments, the enediyne is a calicheamicin, esperamicin, or dynemicin A.

[0350] In some embodiments, the pyrrolobenzodiazepine is anthramycin, abbeymycin, chicamycin, DC-81, mazethramycin, neothramycins A, neothramycin B, porothramycin, prothracarcin, sibanomicin (DC-102), sibiromycin, or tomaymycin. In some embodiments, the pyrrolobenzodiazepine is a tomaymycin derivative, such as described in U.S. Patent Nos. 8404678 and 8163736. In some embodiments, the pyrrolobenzodiazepine is such as described in U.S. Patent Nos. 8426402, 8802667, 8809320, 6562806, 6608192, 7704924, 7067511, US7612062, 7244724, 7528126, 7049311, 8633185, 8501934, and 8697688 and U.S. Publication No. US20140294868.

[0351] In some embodiments, the pyrrolobenzodiazepine is a pyrrolobenzodiazepine dimer. In some embodiments, the PBD dimer is a symmetric dimer. Examples of symmetric PBD dimers include, but are not limited to, SJG-136 (SG-2000), ZC-423 (SG2285), SJG-720, SJG-738, ZC-207 (SG2202), and DSB-120. In some embodiments, the PBD dimer is an unsymmetrical dimer. Examples of unsymmetrical PBD dimers include, but are not limited to, SJG-136 derivatives such as described in U.S. Patent Nos. 8697688 and 9242013 and U.S. Publication No. 20140286970.

[0352] In some embodiments, the payload comprises an Akt inhibitor. In some cases, the Akt inhibitor comprises ipatasertib (GDC-0068) or derivatives thereof.

[0353] In some embodiments, the payload comprises a polymerase inhibitor, including, but not limited to polymerase II inhibitors such as a-amanitin, and poly(ADP-ribose) polymerase (PARP) inhibitors. Exemplary PARP inhibitors include, but are not limited to Iniparib (BSI 201), Talazoparib (BMN-673), Olaparib (AZD-2281), Olaparib, Rucaparib (AG014699, PF-01367338), Veliparib (ABT-888), CEP 9722, MK 4827, BGB-290, or 3-aminobenzamide.

[0354] In some embodiments, the payload comprises a detectable moiety. As used herein, a "detectable moiety" may comprise an atom, molecule, or compound that is useful in diagnosing, detecting or visualizing a location and/or quantity of a target molecule, cell, tissue, organ, and the like. Detectable moieties that can be used in accordance with the embodiments herein include, but are not limited to, radioactive substances (e.g. radioisotopes, radionuclides, radiolabels or radiotracers), dyes, contrast agents, fluorescent compounds or molecules, bioluminescent compounds or molecules, enzyme and enhancing agents (e.g. paramagnetic ions), or specific binding moieties such as streptavidin, avidin, or biotin. In addition, some nanoparticles, for example quantum dots or metal nanoparticles can be suitable for use as a detectable moiety.

[0355] Exemplary radioactive substances that can be used as detectable moieties in accordance with the embodiments herein include, but are not limited to, ^{18}F, ^{18}F-FAC, ^{32}P, ^{33}P, ^{45}Ti, ^{47}Sc, ^{52}Fe, ^{59}Fe, ^{62}Cu, ^{64}Cu, ^{67}Cu, ^{67}Ga, ^{68}Ga, ^{75}Sc, ^{77}As, ^{86}Y, ^{90}Y, ^{89}Sr, ^{89}Zr, ^{94}Tc, ^{94}Tc, ^{99}mTc, ^{99}Mo, ^{105}Pd, ^{105}Rh, ^{111}Ag, ^{111}In, ^{123}I, ^{124}I, ^{125}I, ^{131}I, ^{142}Pr, ^{143}Pr, ^{149}Pm, ^{153}Sm, $^{154\text{-}158}$Gd, ^{161}Tb, ^{166}Dy, ^{166}Ho, ^{169}Er, ^{175}Lu, ^{177}Lu, ^{186}Re, ^{188}Re, ^{189}Re, ^{194}Ir, ^{198}Au, ^{199}Au, ^{211}At, ^{211}Pb, ^{212}Bi, ^{212}Pb, ^{213}Bi, ^{223}Ra and ^{225}Ac. Exemplary paramagnetic ions substances that can be used as detectable markers include, but are not limited to ions of transition and lanthanide metals (e.g. metals having atomic numbers of 6 to 9, 21-29, 42, 43, 44, or 57-71). These metals include

ions of Cr, V, Mn, Fe, Co, Ni, Cu, La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu.

[0356] When the detectable marker is a radioactive metal or paramagnetic ion, in some embodiments, the marker can be reacted with a reagent having a long tail with one or more chelating groups attached to the long tail for binding these ions. The long tail can be a polymer such as a polylysine, polysaccharide, or other derivatized or derivatizable chain having pendant groups to which may be bound to a chelating group for binding the ions. Examples of chelating groups that may be used according to the embodiments herein include, but are not limited to, ethylenediaminetetraacetic acid (EDTA), diethylenetriaminepentaacetic acid (DTPA), DOTA, NOTA, NOGADA, NETA, deferoxamine (DfO), porphyrins, polyamines, crown ethers, bis-thiosemicarbazones, polyoximes, and like groups. The chelate can be linked to the antigen binding construct by a group which allows formation of a bond to the molecule with minimal loss of immunoreactivity and minimal aggregation and/or internal cross-linking. The same chelates, when complexed with non-radioactive metals, such as manganese, iron and gadolinium are useful for MRI, when used along with the antigen binding constructs and carriers described herein. Macrocyclic chelates such as NOTA, NOGADA, DOTA, and TETA are of use with a variety of metals and radiometals including, but not limited to, radionuclides of gallium, yttrium and copper, respectively. Other ring-type chelates such as macrocyclic polyethers, which are of interest for stably binding radionuclides, such as Radium-223 for RAIT may be used. In certain embodiments, chelating moieties may be used to attach a PET imaging agent, such as an Aluminum-^{18}F complex, to a targeting molecule for use in PET analysis.

[0357] Exemplary contrast agents that can be used as detectable moieties in accordance with the embodiments of the disclosure include, but are not limited to, barium, diatrizoate, ethiodized oil, gallium citrate, iocarmic acid, iocetamic acid, iodamide, iodipamide, iodoxamic acid, iogulamide, iohexyl, iopamidol, iopanoic acid, ioprocemic acid, iosefamic acid, ioseric acid, iosulamide meglumine, iosemetic acid, iotasul, iotetric acid, iothalamic acid, iotroxic acid, ioxaglic acid, ioxotrizoic acid, ipodate, meglumine, metrizamide, metrizoate, propyliodone, thallous chloride, or combinations thereof.

[0358] Bioluminescent and fluorescent compounds or molecules and dyes that can be used as detectable moieties in accordance with the embodiments of the disclosure include, but are not limited to, fluorescein, fluorescein isothiocyanate (FITC), OREGON GREEN™, rhodamine, Texas red, tetrarhodimine isothiocynate (TRITC), Cy3, Cy5, and the like), fluorescent markers (e.g., green fluorescent protein (GFP), phycoerythrin, and the like),

autoquenched fluorescent compounds that are activated by tumor-associated proteases, enzymes (e.g., luciferase, horseradish peroxidase, alkaline phosphatase, and the like), nanoparticles, biotin, digoxigenin or combinations thereof.

[0359] Enzymes that can be used as detectable moieties in accordance with the embodiments of the disclosure include, but are not limited to, horseradish peroxidase, alkaline phosphatase, acid phosphatase, glucose oxidase, β-galactosidase, β-glucoronidase or β-lactamase. Such enzymes may be used in combination with a chromogen, a fluorogenic compound or a luminogenic compound to generate a detectable signal.

[0360] In some embodiments, the payload is a nanoparticle. The term "nanoparticle" refers to a microscopic particle whose size is measured in nanometers, e.g., a particle with at least one dimension less than about 100 nm. Nanoparticles can be used as detectable substances because they are small enough to scatter visible light rather than absorb it. For example, gold nanoparticles possess significant visible light extinction properties and appear deep red to black in solution. As a result, compositions comprising antigen binding constructs conjugated to nanoparticles can be used for the in vivo imaging of T-cells in a subject. At the small end of the size range, nanoparticles are often referred to as clusters. Metal, dielectric, and semiconductor nanoparticles have been formed, as well as hybrid structures (e.g. core-shell nanoparticles). Nanospheres, nanorods, and nanocups are just a few of the shapes that have been grown. Semiconductor quantum dots and nanocrystals are examples of additional types of nanoparticles. Such nanoscale particles can be used as payloads to be conjugated to any one of the anti-Gal3 antibodies disclosed herein.

[0361] In some embodiments, the payload comprises an immunomodulatory agent. Useful immunomodulatory agents include anti-hormones that block hormone action on tumors and immunosuppressive agents that suppress cytokine production, down-regulate self-antigen expression, or mask MHC antigens. Representative anti-hormones include anti-estrogens including, for example, tamoxifen, raloxifene, aromatase inhibiting 4(5)-imidazoles, 4-hydroxytamoxifen, trioxifene, keoxifene, LY 117018, onapnstone, and toremifene; and anti-androgens such as flutamide, nilutamide, bicalutamide, leuprolide, and goserelin; and anti-adrenal agents. Illustrative immunosuppressive agents include, but are not limited to 2-amino-6-aryl-5-substituted pyrimidines, azathioprine, cyclophosphamide, bromocryptine, danazol, dapsone, glutaraldehyde, anti-idiotypic antibodies for MHC antigens and MHC fragments, cyclosporin A, steroids such as glucocorticosteroids, streptokinase, or rapamycin.

[0362] In some embodiments, the payload comprises an immune modulator. Exemplary immune modulators include, but are not limited to, gancyclovier, etanercept,

tacrolimus, sirolimus, voclosporin, cyclosporine, rapamycin, cyclophosphamide, azathioprine, mycophenolgate mofetil, methotrextrate, glucocorticoid and its analogs, xanthines, stem cell growth factors, lymphotoxins, hematopoietic factors, tumor necrosis factor (TNF) (*e.g.*, TNF-α), interleukins (*e.g.*, interleukin-1 (IL-1), IL-2, IL-3, IL-6, IL-10, IL-12, IL-18, and IL-21), colony stimulating factors (*e.g.*, granulocyte-colony stimulating factor (G-CSF) and granulocyte macrophage-colony stimulating factor (GM-CSF)), interferons (*e.g.*, interferons-alpha, interferon-beta, interferon-gamma), the stem cell growth factor designated "S1 factor," erythropoietin and thrombopoietin, or a combination thereof.

[0363] In some embodiments, the payload comprises an immunotoxin. Immunotoxins include, but are not limited to, ricin, radionuclides, pokeweed antiviral protein, Pseudomonas exotoxin A, diphtheria toxin, ricin A chain, fungal toxins such as restrictocin and phospholipase enzymes. See, generally, "Chimeric Toxins," Olsnes and Pihl, *Pharmac. Ther.* 15:355-381 (1981); and "Monoclonal Antibodies for Cancer Detection and Therapy," eds. Baldwin and Byers, pp. 159-179, 224-266, Academic Press (1985).

[0364] In some instances, the payload comprises a nucleic acid polymer. In such instances, the nucleic acid polymer comprises short interfering nucleic acid (siNA), short interfering RNA (siRNA), double-stranded RNA (dsRNA), micro-RNA (miRNA), short hairpin RNA (shRNA), an antisense oligonucleotide. In other instances, the nucleic acid polymer comprises an mRNA, encoding, e.g., a cytotoxic protein or peptide or an apoptotic triggering protein or peptide. Exemplary cytotoxic proteins or peptides include a bacterial cytotoxin such as an alpha-pore forming toxin (e.g., cytolysin A from E. coli), a beta-pore-forming toxin (e.g., α-Hemolysin, PVL—panton Valentine leukocidin, aerolysin, clostridial Epsilon-toxin, clostridium perfringens enterotoxin), binary toxins (anthrax toxin, edema toxin, C. botulinum C2 toxin, C spirofome toxin, C. perfringens iota toxin, C. difficile cyto-lethal toxins (A and B)), prion, parasporin, a cholesterol-dependent cytolysins (e.g., pneumolysin), a small pore-forming toxin (e.g., Gramicidin A), a cyanotoxin (e.g., microcystins, nodularins), a hemotoxin, a neurotoxin (e.g., botulinum neurotoxin), a cytotoxin, cholera toxin, diphtheria toxin, Pseudomonas exotoxin A, tetanus toxin, or an immunotoxin (idarubicin, ricin A, CRM9, Pokeweed antiviral protein, DT). Exemplary apoptotic triggering proteins or peptides include apoptotic protease activating factor-1 (Apaf-1), cytochrome-c, caspase initiator proteins (CASP2, CASP8, CASP9, CASP10), apoptosis inducing factor (AIF), p53, p73, p63, Bcl-2, Bax, granzyme B, poly-ADP ribose polymerase (PARP), and P 21-activated kinase 2 (PAK2). In additional instances, the nucleic acid polymer comprises a nucleic acid decoy. In some instances, the nucleic acid decoy is a mimic of protein-binding

nucleic acids such as RNA-based protein-binding mimics. Exemplary nucleic acid decoys include transactivating region (TAR) decoy and Rev response element (RRE) decoy.

[0365] In some cases, the payload is an aptamer. Aptamers are small oligonucleotide or peptide molecules that bind to specific target molecules. Exemplary nucleic acid aptamers include DNA aptamers, RNA aptamers, or XNA aptamers which are RNA and/or DNA aptamers comprising one or more unnatural nucleotides. Exemplary nucleic acid aptamers include ARC19499 (Archemix Corp.), REG1 (Regado Biosciences), and ARC1905 (Ophthotech).

[0366] Nucleic acids in accordance with the embodiments described herein optionally include naturally occurring nucleic acids, or one or more nucleotide analogs or have a structure that otherwise differs from that of a naturally occurring nucleic acid. For example, 2'-modifications include halo, alkoxy, and allyloxy groups. In some embodiments, the 2'-OH group is replaced by a group selected from H, OR, R, halo, SH, SR, NH_2, NHR, NR_2 or CN, wherein R is C_1-C_6 alkyl, alkenyl, or alkynyl, and halo is F, Cl, Br, or I. Examples of modified linkages include phosphorothioate and 5'-N-phosphoramidite linkages.

[0367] Nucleic acids having a variety of different nucleotide analogs, modified backbones, or non-naturally occurring internucleoside linkages are utilized in accordance with the embodiments described herein. In some cases, nucleic acids include natural nucleosides (i.e., adenosine, thymidine, guanosine, cytidine, uridine, deoxyadenosine, deoxythymidine, deoxyguanosine, and deoxycytidine) or modified nucleosides. Examples of modified nucleotides include base modified nucleoside (e.g., aracytidine, inosine, isoguanosine, nebularine, pseudouridine, 2,6-diaminopurine, 2-aminopurine, 2-thiothymidine, 3-deaza-5-azacytidine, 2′-deoxyuridine, 3-nitorpyrrole, 4-methylindole, 4-thiouridine, 4-thiothymidine, 2-aminoadenosine, 2-thiothymidine, 2-thiouridine, 5-bromocytidine, 5-iodouridine, inosine, 6-azauridine, 6-chloropurine, 7-deazaadenosine, 7-deazaguanosine, 8-azaadenosine, 8-azidoadenosine, benzimidazole, M1-methyladenosine, pyrrolo-pyrimidine, 2-amino-6-chloropurine, 3-methyl adenosine, 5-propynylcytidine, 5-propynyluridine, 5-bromouridine, 5-fluorouridine, 5-methylcytidine, 7-deazaadenosine, 7-deazaguanosine, 8-oxoadenosine, 8-oxoguanosine, O(6)-methylguanine, and 2-thiocytidine), chemically or biologically modified bases (e.g., methylated bases), modified sugars (e.g., 2′-fluororibose, 2′-aminoribose, 2′-azidoribose, 2′-O-methylribose, L-enantiomeric nucleosides arabinose, and hexose), modified phosphate groups (e.g., phosphorothioates and 5′-N-phosphoramidite linkages), and combinations thereof. Natural and modified nucleotide monomers for the chemical synthesis of nucleic acids are readily available. In some cases, nucleic acids comprising such

modifications display enhanced properties relative to nucleic acids consisting only of naturally occurring nucleotides. In some embodiments, nucleic acid modifications described herein are utilized to reduce and/or prevent digestion by nucleases (e.g. exonucleases, endonucleases, etc.). For example, the structure of a nucleic acid may be stabilized by including nucleotide analogs at the 3′ end of one or both strands order to reduce digestion.

[0368] Different nucleotide modifications and/or backbone structures may exist at various positions in the nucleic acid. Such modifications include morpholinos, peptide nucleic acids (PNAs), methylphosphonate nucleotides, thiolphosphonate nucleotides, 2'-fluoro N3-P5'-phosphoramidites, 1', 5'- anhydrohexitol nucleic acids (HNAs), or a combination thereof.

[0369] Any of the anti-Gal3 antibodies disclosed herein may be conjugated to one or more (e.g. 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10, or more) payloads described herein.

Conjugation Chemistry

[0370] In some instances, the payload is conjugated to an anti-Gal3 antibody described herein by a native ligation. In some instances, the conjugation is as described in: Dawson, et al. "Synthesis of proteins by native chemical ligation," *Science* 1994, *266*, 776–779; Dawson, et al. "Modulation of Reactivity in Native Chemical Ligation through the Use of Thiol Additives," *J. Am. Chem. Soc.* 1997, 119, 4325–4329; Hackeng, et al. "Protein synthesis by native chemical ligation: Expanded scope by using straightforward methodology.," *Proc. Natl. Acad. Sci. USA* 1999, 96, 10068–10073; or Wu, et al. "Building complex glycopeptides: Development of a cysteine-free native chemical ligation protocol," *Angew. Chem. Int. Ed.* 2006, *45*, 4116–4125. In some instances, the conjugation is as described in U.S. Patent No. 8,936,910.

[0371] In some instances, the payload is conjugated to an anti-Gal3 antibody described herein by a site-directed method utilizing a "traceless" coupling technology (Philochem). In some instances, the "traceless" coupling technology utilizes an N-terminal 1,2-aminothiol group on the binding moiety which is then conjugated with a polynucleic acid molecule containing an aldehyde group.

[0372] In some instances, the payload is conjugated to an anti-Gal3 antibody described herein by a site-directed method utilizing an unnatural amino acid incorporated into the binding moiety. In some instances, the unnatural amino acid comprises *p*-acetylphenylalanine (pAcPhe). In some instances, the keto group of pAcPhe is selectively coupled to an alkoxy-amine derivatived conjugating moiety to form an oxime bond.

[0373] In some instances, the payload is conjugated to an anti-Gal3 antibody described herein by a site-directed method utilizing an enzyme-catalyzed process. In some instances, the site-directed method utilizes SMARTag™ technology (Redwood). In some instances, the SMARTag™ technology comprises generation of a formylglycine (FGly) residue from cysteine by formylglycine-generating enzyme (FGE) through an oxidation process under the presence of an aldehyde tag and the subsequent conjugation of FGly to an alkylhydraine-functionalized polynucleic acid molecule via hydrazino-Pictet-Spengler (HIPS) ligation.

[0374] In some instances, the enzyme-catalyzed process comprises microbial transglutaminase (mTG). In some cases, the payload is conjugated to the anti-Gal3 antibody utilizing a microbial transglutaminze catalyzed process. In some instances, mTG catalyzes the formation of a covalent bond between the amide side chain of a glutamine within the recognition sequence and a primary amine of a functionalized polynucleic acid molecule. In some instances, mTG is produced from *Streptomyces mobarensis*.

[0375] In some instances, the payload is conjugated to an anti-Gal3 antibody by a method as described in PCT Publication No. WO2014/140317, which utilizes a sequence-specific transpeptidase and is hereby expressly incorporated by reference in its entirety.

[0376] In some instances, the payload is conjugated to an anti-Gal3 antibody described herein by a method as described in U.S. Patent Publication Nos. 2015/0105539 and 2015/0105540.

Linker

[0377] In some instances, a linker described herein comprises a natural or synthetic polymer, consisting of long chains of branched or unbranched monomers, and/or cross-linked network of monomers in two or three dimensions. In some instances, the linker includes a polysaccharide, lignin, rubber, or polyalkylene oxide (e.g., polyethylene glycol).

[0378] In some instances, the linker includes, but is not limited to, alpha-, omega-dihydroxylpolyethyleneglycol, biodegradable lactone-based polymer, e.g. polyacrylic acid, polylactide acid (PLA), poly(glycolic acid) (PGA), polypropylene, polystyrene, polyolefin, polyamide, polycyanoacrylate, polyimide, polyethylenterephthalat (PET, PETG), polyethylene terephthalate (PETE), polytetramethylene glycol (PTG), or polyurethane as well as mixtures thereof. As used herein, a mixture refers to the use of different polymers within the same compound as well as in reference to block copolymers. In some cases, block copolymers are polymers wherein at least one section of a polymer is built up from monomers of another

polymer. In some instances, the linker comprises polyalkylene oxide. In some instances, the linker comprises PEG. In some instances, the linker comprises polyethylene imide (PEI) or hydroxy ethyl starch (HES).

[0379] In some cases, the polyalkylene oxide (e.g., PEG) is a polydispers or monodispers compound. In some instances, polydispers material comprises disperse distribution of different molecular weight of the material, characterized by mean weight (weight average) size and dispersity. In some instances, the monodisperse PEG comprises one size of molecules. In some embodiments, the linker is poly- or monodispersed polyalkylene oxide (e.g., PEG) and the indicated molecular weight represents an average of the molecular weight of the polyalkylene oxide, e.g., PEG, molecules.

[0380] In some embodiments, the linker comprises a polyalkylene oxide (e.g., PEG) and the molecular weight of the polyalkylene oxide (e.g., PEG) is about 200, 300, 400, 500, 600, 700, 800, 900, 1000, 1100, 1200, 1300, 1400, 1450, 1500, 1600, 1700, 1800, 1900, 2000, 2100, 2200, 2300, 2400, 2500, 2600, 2700, 2800, 2900, 3000, 3250, 3350, 3500, 3750, 4000, 4250, 4500, 4600, 4750, 5000, 5500, 6000, 6500, 7000, 7500, 8000, 10,000, 12,000, 20,000, 35,000, 40,000, 50,000, 60,000, or 100,000 Da.

[0381] In some embodiments, the polyalkylene oxide (e.g., PEG) is a discrete PEG, in which the discrete PEG is a polymeric PEG comprising more than one repeating ethylene oxide units. In some instances, a discrete PEG (dPEG) comprises from 2 to 60, from 2 to 50, or from 2 to 48 repeating ethylene oxide units. In some instances, a dPEG comprises about 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 22, 24, 26, 28, 30, 35, 40, 42, 48, 50 or more repeating ethylene oxide units. In some instances, a dPEG comprises about 2 or more repeating ethylene oxide units. In some cases, a dPEG is synthesized as a single molecular weight compound from pure (e.g., about 95%, 98%, 99%, or 99.5%) staring material in a step-wise fashion. In some cases, a dPEG has a specific molecular weight, rather than an average molecular weight.

[0382] In some instances, the linker is a discrete PEG, optionally comprising from 2 to 60, from 2 to 50, or from 2 to 48 repeating ethylene oxide units. In some cases, the linker comprises a dPEG comprising about 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 22, 24, 26, 28, 30, 35, 40, 42, 48, 50 or more repeating ethylene oxide units.

[0383] In some embodiments, the linker is a polypeptide linker. In some instances, the polypeptide linker comprises at least 2, 3, 4, 5, 6, 7, 8, 10, 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100, or more amino acid residues. In some instances, the polypeptide linker comprises at least 2, 3, 4, 5, 6, 7, 8, or more amino acid residues. In some instances, the

polypeptide linker comprises at most 2, 3, 4, 5, 6, 7, 8, or less amino acid residues. In some cases, the polypeptide linker is a cleavable polypeptide linker (e.g., either enzymatically or chemically). In some cases, the polypeptide linker is a non-cleavable polypeptide linker. In some instances, the polypeptide linker comprises Val-Cit (valine-citrulline), Gly-Gly-Phe-Gly, Phe-Lys, Val-Lys, Gly-Phe-Lys, Phe-Phe-Lys, Ala-Lys, Val-Arg, Phe-Cit, Phe-Arg, Leu-Cit, Ile-Cit, Trp-Cit, Phe-Ala, Ala-Leu-Ala-Leu, or Gly-Phe-Leu-Gly. In some instances, the polypeptide linker comprises a peptide such as: Val-Cit (valine-citrulline), Gly-Gly-Phe-Gly, Phe-Lys, Val-Lys, Gly-Phe-Lys, Phe-Phe-Lys, Ala-Lys, Val-Arg, Phe-Cit, Phe-Arg, Leu-Cit, Ile-Cit, Trp-Cit, Phe-Ala, Ala-Leu-Ala-Leu, or Gly-Phe-Leu-Gly. In some cases, the polypeptide linker comprises L-amino acids, D-amino acids, or a mixture of both L- and D-amino acids.

[0384] In some instances, the linker comprises a homobifunctional linker. Exemplary homobifunctional linkers include, but are not limited to, Lomant's reagent dithiobis (succinimidylpropionate) DSP, 3′3′-dithiobis(sulfosuccinimidyl proprionate (DTSSP), disuccinimidyl suberate (DSS), bis(sulfosuccinimidyl)suberate (BS), disuccinimidyl tartrate (DST), disulfosuccinimidyl tartrate (sulfo DST), ethylene glycobis(succinimidylsuccinate) (EGS), disuccinimidyl glutarate (DSG), N,N′-disuccinimidyl carbonate (DSC), dimethyl adipimidate (DMA), dimethyl pimelimidate (DMP), dimethyl suberimidate (DMS), dimethyl-3,3′-dithiobispropionimidate (DTBP), 1,4-di-3′-(2′-pyridyldithio)propionamido)butane (DPDPB), bismaleimidohexane (BMH), aryl halide-containing compound (DFDNB), such as e.g. 1,5-difluoro-2,4-dinitrobenzene or 1,3-difluoro-4,6-dinitrobenzene, 4,4′-difluoro-3,3′-dinitrophenylsulfone (DFDNPS), bis-[β-(4-azidosalicylamido)ethyl]disulfide (BASED), formaldehyde, glutaraldehyde, 1,4-butanediol diglycidyl ether, adipic acid dihydrazide, carbohydrazide, o-toluidine, 3,3′-dimethylbenzidine, benzidine, α,α′-p-diaminodiphenyl, diiodo-p-xylene sulfonic acid, N,N′-ethylene-bis(iodoacetamide), or N,N′-hexamethylene-bis(iodoacetamide).

[0385] In some embodiments, the linker comprises a heterobifunctional linker. Exemplary heterobifunctional linker include, but are not limited to, amine-reactive and sulfhydryl cross-linkers such as N-succinimidyl 3-(2-pyridyldithio)propionate (sPDP), long-chain N-succinimidyl 3-(2-pyridyldithio)propionate (LC-sPDP), water-soluble-long-chain N-succinimidyl 3-(2-pyridyldithio) propionate (sulfo-LC-sPDP), succinimidyloxycarbonyl-α-methyl-α-(2-pyridyldithio)toluene (sMPT), sulfosuccinimidyl-6-[α-methyl-α-(2-pyridyldithio)toluamido]hexanoate (sulfo-LC-sMPT), succinimidyl-4-(N-maleimidomethyl)cyclohexane-1-carboxylate (sMCC), sulfosuccinimidyl-4-(N-

maleimidomethyl)cyclohexane-1-carboxylate (sulfo-sMCC), m-maleimidobenzoyl-N-hydroxysuccinimide ester (MBs), m-maleimidobenzoyl-N-hydroxysulfosuccinimide ester (sulfo-MBs), N-succinimidyl(4-iodoacteyl)aminobenzoate (sIAB), sulfosuccinimidyl(4-iodoacteyl)aminobenzoate (sulfo-sIAB), succinimidyl-4-(p-maleimidophenyl)butyrate (sMPB), sulfosuccinimidyl-4-(p-maleimidophenyl)butyrate (sulfo-sMPB), N-(γ-maleimidobutyryloxy)succinimide ester (GMBs), N-(γ-maleimidobutyryloxy)sulfosuccinimide ester (sulfo-GMBs), succinimidyl 6-((iodoacetyl)amino)hexanoate (sIAX), succinimidyl 6-[6-(((iodoacetyl)amino)hexanoyl)amino]hexanoate (sIAXX), succinimidyl 4-(((iodoacetyl)amino)methyl)cyclohexane-1-carboxylate (sIAC), succinimidyl 6-((((4-iodoacetyl)amino)methyl)cyclohexane-1-carbonyl)amino) hexanoate (sIACX), p-nitrophenyl iodoacetate (NPIA), carbonyl-reactive and sulfhydryl-reactive cross-linkers such as 4-(4-N-maleimidophenyl)butyric acid hydrazide (MPBH), 4-(N-maleimidomethyl)cyclohexane-1-carboxyl-hydrazide-8 (M_2C_2H), 3-(2-pyridyldithio)propionyl hydrazide (PDPH), amine-reactive and photoreactive cross-linkers such as N-hydroxysuccinimidyl-4-azidosalicylic acid (NHs-AsA), N-hydroxysulfosuccinimidyl-4-azidosalicylic acid (sulfo-NHs-AsA), sulfosuccinimidyl-(4-azidosalicylamido)hexanoate (sulfo-NHs-LC-AsA), sulfosuccinimidyl-2-(ρ-azidosalicylamido)ethyl-1,3′-dithiopropionate (sAsD), N-hydroxysuccinimidyl-4-azidobenzoate (HsAB), N-hydroxysulfosuccinimidyl-4-azidobenzoate (sulfo-HsAB), N-succinimidyl-6-(4′-azido-2′-nitrophenylamino)hexanoate (sANPAH), sulfosuccinimidyl-6-(4′-azido-2′-nitrophenylamino)hexanoate (sulfo-sANPAH), N-5-azido-2-nitrobenzoyloxysuccinimide (ANB-NOs), sulfosuccinimidyl-2-(m-azido-o-nitrobenzamido)-ethyl-1,3′-dithiopropionate (sAND), N-succinimidyl-4(4-azidophenyl)1,3′-dithiopropionate (sADP), N-sulfosuccinimidyl(4-azidophenyl)-1,3′-dithiopropionate (sulfo-sADP), sulfosuccinimidyl 4-(ρ-azidophenyl)butyrate (sulfo-sAPB), sulfosuccinimidyl 2-(7-azido-4-methylcoumarin-3-acetamide)ethyl-1,3′-dithiopropionate (sAED), sulfosuccinimidyl 7-azido-4-methylcoumain-3-acetate (sulfo-sAMCA), ρ-nitrophenyl diazopyruvate (ρNPDP), ρ-nitrophenyl-2-diazo-3,3,3-trifluoropropionate (PNP-DTP), sulfhydryl-reactive and photoreactive cross-linkers such as1-(ρ-Azidosalicylamido)-4-(iodoacetamido)butane (AsIB), N-[4-(ρ-azidosalicylamido)butyl]-3′-(2′-pyridyldithio)propionamide (APDP), benzophenone-4-iodoacetamide, benzophenone-4-maleimide carbonyl-reactive and photoreactive cross-linkers such as ρ-azidobenzoyl hydrazide (ABH), carboxylate-reactive and photoreactive cross-linkers such as 4-(ρ-azidosalicylamido)butylamine (AsBA), and arginine-reactive and photoreactive cross-linkers such as ρ-azidophenyl glyoxal (APG).

[0386] In some embodiments, the linker comprises a benzoic acid group, or its derivatives thereof. In some instances, the benzoic acid group or its derivatives thereof comprise paraaminobenzoic acid (PABA). In some instances, the benzoic acid group or its derivatives thereof comprise gamma-aminobutyric acid (GABA).

[0387] In some embodiments, the linker comprises one or more of a maleimide group, a peptide moiety, and/or a benzoic acid group, in any combination. In some embodiments, the linker comprises a combination of a maleimide group, a peptide moiety, and/or a benzoic acid group. In some instances, the maleimide group is maleimidocaproyl (mc). In some instances, the peptide group is val-cit. In some instances, the benzoic acid group is PABA. In some instances, the linker comprises a mc-val-cit group. In some cases, the linker comprises a val-cit-PABA group. In additional cases, the linker comprises a mc-val-cit-PABA group.

[0388] In some embodiments, the linker is a self-immolative linker or a self-elimination linker. In some cases, the linker is a self-immolative linker. In other cases, the linker is a self-elimination linker (e.g., a cyclization self-elimination linker). In some instances, the linker comprises a linker described in U.S. Patent No. 9,089,614 or PCT Publication No. WO 2015/038426, each of which is hereby expressly incorporated by reference in its entirety.

[0389] In some embodiments, the linker is a dendritic type linker. In some instances, the dendritic type linker comprises a branching, multifunctional linker moiety. In some instances, the dendritic type linker comprises PAMAM dendrimers.

[0390] In some embodiments, the linker is a traceless linker or a linker in which after cleavage does not leave behind a linker moiety (e.g., an atom or a linker group) to the antibody or payload. Exemplary traceless linkers include, but are not limited to, germanium linkers, silicium linkers, sulfur linkers, selenium linkers, nitrogen linkers, phosphorus linkers, boron linkers, chromium linkers, or phenylhydrazide linker. In some cases, the linker is a traceless aryl-triazene linker as described in Hejesen, *et al.*, "A traceless aryl-triazene linker for DNA-directed chemistry," *Org Biomol Chem* **11**(15): 2493-2497 (2013). In some instances, the linker is a traceless linker described in Blaney, *et al.*, "Traceless solid-phase organic synthesis," *Chem. Rev.* **102**: 2607-2024 (2002). In some instances, a linker is a traceless linker as described in U.S. Patent No. 6,821,783.

Kit/Article of Manufacture

[0391] Disclosed herein, in certain embodiments, are kits and articles of manufacture for use with one or more of the compositions and methods described herein. Such kits include a carrier, package, or container that is compartmentalized to receive one or more containers

such as vials, tubes, and the like, each of the container(s) comprising one of the separate elements to be used in a method described herein. Suitable containers include, for example, bottles, vials, syringes, and test tubes. In one embodiment, the containers are formed from a variety of materials such as glass or plastic.

[0392] The articles of manufacture provided herein contain packaging materials. Examples of pharmaceutical packaging materials include, but are not limited to, blister packs, bottles, tubes, bags, containers, bottles, and any packaging material suitable for a selected formulation and intended mode of administration and treatment.

[0393] For example, the container(s) include an anti-Gal3 antibody as disclosed herein, host cells for producing one or more antibodies described herein, and/or vectors comprising nucleic acid molecules that encode the antibodies described herein. Such kits optionally include an identifying description or label or instructions relating to its use in the methods described herein.

[0394] A kit typically includes labels listing contents and/or instructions for use, and package inserts with instructions for use. A set of instructions will also typically be included.

[0395] In one embodiment, a label is on or associated with the container. In one embodiment, a label is on a container when letters, numbers or other characters forming the label are attached, molded or etched into the container itself; a label is associated with a container when it is present within a receptacle or carrier that also holds the container, e.g., as a package insert. In one embodiment, a label is used to indicate that the contents are to be used for a specific therapeutic application. The label also indicates directions for use of the contents, such as in the methods described herein.

[0396] In certain embodiments, the pharmaceutical compositions are presented in a pack or dispenser device which contains one or more unit dosage forms containing a compound provided herein. The pack, for example, contains metal or plastic foil, such as a blister pack. In one embodiment, the pack or dispenser device is accompanied by instructions for administration. In one embodiment, the pack or dispenser is also accompanied with a notice associated with the container in form prescribed by a governmental agency regulating the manufacture, use, or sale of pharmaceuticals, which notice is reflective of approval by the agency of the form of the drug for human or veterinary administration. Such notice, for example, is the labeling approved by the U.S. Food and Drug Administration for prescription drugs, or the approved product insert. In one embodiment, compositions containing a compound provided herein formulated in a compatible pharmaceutical carrier are also

prepared, placed in an appropriate container, and labeled for treatment of an indicated condition.

Numbered Arrangements 1

Some embodiments provided herein are described by way of the following provided numbered arrangements and also provided as possible combinations or overlapping embodiments:

1. A method for inhibiting, reducing, preventing, and/or treating stroke in a subject in need thereof, comprising administering an anti-Gal3 antibody or binding fragment thereof to the subject, thereby inhibiting, reducing, preventing, and/or treating the stroke.

2. The method of arrangement 1, further comprising selecting the subject as having the stroke or at risk of contracting the stroke prior to the administering step.

3. The method of arrangement 2, wherein selecting the subject as having the stroke or at risk of contracting the stroke comprises assessing the subject according to the National Institutes of Health Stroke Scale (NIHSS), modified Rankin Scale (mRS), Fugl-Meyer Assessment (FMA), Montreal Cognitive Assessment (MoCA), neuroimaging, optionally CT or MRI, and/or detecting stroke biomarkers, optionally S100 calcium binding protein B (S100B), glial fibrillary acidic protein (GFAP), neuron-specific enolase (NSE), and/or matrix metalloproteinase-9 (MMP9).

4. The method of any one of arrangements 1-3, further comprising detecting an amelioration of symptoms associated with the stroke after the administering step.

5. The method of arrangement 4, wherein detecting an amelioration of symptoms associated with the stroke after the administering step comprises detecting an improvement by the subject according to the NIHSS, mRS, FMA, or MoCA.

6. The method of arrangement 5, wherein:

a) the improvement by the subject according to the NIHSS comprises at least a 4 point decrease on the NIHSS;

b) the improvement by the subject according to the mRS comprises at least a 1 point decrease on the mRS;

c) the improvement by the subject according to the FMA comprises at least a 1 point increase on the FMA; and/or

d) the improvement by the subject according to the MoCA comprises at least a 1 point increase on the MoCA;

after the administering step, optionally as assessed 7, 35, and/or 75 days after the administering step.

7. The method of any one of arrangements 1-6, wherein the stroke is an ischemic stroke, thrombotic stroke, embolic stroke, transient ischemic attack, hemorrhagic stroke, intracerebral hemorrhage, or subarachnoid hemorrhage.

8. The method of any one of arrangements 1-7, wherein the stroke is intracerebral hemorrhage (ICH), optionally wherein the ICH is associated with deposition of amyloid aggregates and/or cerebral amyloid angiopathy (CAA).

9. The method of any one of arrangements 1-8, wherein administration of the anti-Gal3 antibody or binding fragment thereof to the subject prevents the stroke.

10. The method of any one of arrangements 1-9, wherein administration of the anti-Gal3 antibody or binding fragment thereof prevents loss of locomotor dysfunction, prevents incidence of microhemorrhage, prevents elevation of levels of activated microglia, prevents elevation of levels of activated astrocytes, prevents elevation of circulating proinflammatory immune cells, prevents elevation of circulating proinflammatory cytokines, or any combination thereof, in the subject.

11. The method of any one of arrangements 1-10, wherein administration of the anti-Gal3 antibody or binding fragment thereof to the subject treats the stroke.

12. The method of any one of arrangements 1-11, wherein administration of the anti-Gal3 antibody or binding fragment thereof reduces locomotor dysfunction, reduces microhemorrhage, reduces levels of activated microglia, reduces levels of activated astrocytes, reduces levels of circulating proinflammatory immune cells, reduces levels of circulating proinflammatory cytokines, or any combination thereof, in the subject.

13. The method of arrangement 12, wherein the reduction in locomotor dysfunction, reduction in microhemorrhage, reduction in levels of activated microglia, reduction in levels of activated astrocytes, reduction in levels of circulating proinflammatory cytokines, or any combination thereof, in the subject, is by at least 5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, or 95%, or any percentage within a range defined by any two of the aforementioned reductions.

14. The method of arrangements 12 or 13, wherein the reduction in locomotor dysfunction in the subject is by at least 50%.

15. The method of any one of arrangements 12-14, wherein the reduction in locomotor dysfunction is assessed by the Fugl-Meyer Assessment (FMA), Motor Assessment Scale (MAS), and/or the Chedoke-McMaster Stroke Assessment (CMSA).

16. The method of any one of arrangements 12-15, wherein the reduction in microhemorrhage in the subject is by at least 50%.

17. The method of any one of arrangements 12-16, wherein the reduction in microhemorrhage is assessed by neuroimaging, MRI, and/or Prussian blue staining.

18. The method of any one of arrangements 12-17, wherein the reduction in levels of activated microglia in the subject is by at least 20%.

19. The method of any one of arrangements 12-18, wherein the reduction in levels of activated microglia is assessed by detection of microglia activation markers, optionally ionized calcium-binding adaptor molecule 1 (Iba1), monocyte chemoattractant protein-1 (MCP-1), chitinase-3-like protein 1 (YKL-40), and/or soluble CD14 (sCD14), optionally from the cerebrospinal fluid of the subject.

20. The method of any one of arrangements 12-19, wherein the reduction in levels of activated astrocytes in the subject is by at least 30%.

21. The method of any one of arrangements 12-20, wherein the reduction in levels of activated astrocytes is assessed by detection of astrocyte activation markers, optionally GFAP and/or S100B, optionally from the cerebrospinal fluid of the subject.

22. The method of any one of arrangements 12-21, wherein the proinflammatory immune cells comprise NK cells, monocytes, and/or lymphocytes.

23. The method of any one of arrangements 12-22, wherein the proinflammatory cytokines comprise IL-6, TNF-α, and/or IL1β.

24. The method of any one of arrangements 1-23, wherein administering an anti-Gal3 antibody or binding fragment thereof to the subject comprises administration of one or more unit doses of the anti-Gal3 antibody or binding fragment thereof, optionally 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10 unit doses.

25. The method of arrangement 24, wherein the one or more unit doses comprise 50, 60, 70, 80, 90, 100, 200, 300, 400, 500, 600, 700, 800, 900, 1000, 1100, 1200, 1300, 1400, 1500, 1600, 1700, 1800, 1900, 2000, 2500, 3000, 3500, 4000, 4500 or 5000 mg of the anti-Gal3 antibody or binding fragment thereof per unit dose, or any amount per unit dose within a range defined by any two of the aforementioned amounts per unit dose.

26. The method of arrangements 24 or 25, wherein the one or more unit doses comprise 1, 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, 100, 105, 110, 115, 120, 125, 130, 135, 140, 145, or 150 mg/kg weight of the subject, or any amount per unit dose within a range defined by any two of the aforementioned amounts per unit dose.

27. The method of any one of arrangements 24-26, wherein the one or more unit doses are administered every 1, 2, 3, 4, 5, 6, or 7 days, or 1, 2, 3, or 4 weeks, or any interval within a range defined by any two of the aforementioned intervals.

28. The method of any one of arrangements 1-27, wherein the anti-Gal3 antibody or binding fragment thereof is administered enterally, orally, intranasally, parenterally, intracranially, subcutaneously, intramuscularly, intradermally, or intravenously, or any combination thereof, optionally intravenously.

29. The method of any one of arrangements 1-28, wherein the anti-Gal3 antibody or binding fragment thereof comprises one or more of: TB001, TB006, 12G5.D7, 13A12.2E5, 14H10.2C9, 15F10.2D6, 19B5.2E6, 20D11.2C6, 20H5.A3, 23H9.2E4, 2D10.2B2, 3B11.2G2, 7D8.2D8, mIMT001, 4A11.2B5, 4A11.H1L1, 4A11.H4L2, 4G2.2G6, 6B3.2D3, 6H6.2D6, 9H2.2H10, 13G4.2F8, 13H12.2F8, 15G7.2A7, 19D9.2E5, 23B10.2B12, 24D12.2H9, F846C.1B2, F846C.1F5, F846C.1H12, F846C.1H5, F846C.2H3, F846TC.14A2, F846TC.14E4, F846TC.16B5, F846TC.7F10, F847C.10B9, F847C.11B1, F847C.12F12, F847C.26F5, F847C.4B10, F849C.8D10, F849C.8H3, 846.2B11, 846.4D5, 846T.1H2, 847.14H4, 846.2D4, 846.2F11, 846T.10B1, 846T.2E3, 846T.4C9, 846T.4E11, 846T.4F5, 846T.8D1, 847.10C9, 847.11D6, 847.15D12, 847.15F9, 847.15H11, 847.20H7, 847.21B11, 847.27B9, 847.28D1, 847.2B8, 847.3B3, 849.1D2, 849.2D7, 849.2F12, 849.4B2, 849.4F12, 849.4F2, 849.5C2, 849.8D12, F847C.21H6, 849.5H1, 847.23F11, 847.16D10, 847.13E2-mH0mL1, 847.13E2-mH0mL2, 847.12C4, 847.4D3, 2D10-VH0-VL0, 2D10-hVH4-HVL1, 2D10-hVH4-HVL2, 2D10-hVH4-HVL3, 2D10-hVH4-HVL4, 2D10-hVH3-HVL1, 2D10-hVH3-HVL2, 2D10-hVH3-HVL3, 2D10-hVH3-HVL4, 20H5.A3-VH3VL1, 20H5.A3-VH3VL3, 20H5.A3-VH4VL1, 20H5.A3-VH5VL1, 20H5.A3-VH5VL3, 20H5.A3-VH6VL1, 20H5.A3-VH6VL3, or binding fragment thereof.

30. The method of any one of arrangements 1-29, wherein the anti-Gal3 antibody or binding fragment thereof comprises one or more of: TB001, TB006, F846C.1F5, F846TC.16B5, 14H10.2C9, 15G7.2A7, 20H5.A3, 19D9.2E5, 19B5.2E6, or F847C.21H6.

31. The method of any one of arrangements 1-30, wherein the anti-Gal3 antibody or binding fragment thereof comprises TB006.

32. The method of any one of arrangements 1-31, wherein the anti-Gal3 antibody or binding fragment thereof is administered with one or more additional therapeutic compositions.

33. The method of arrangement 32, wherein the stroke is ischemic stroke, thrombotic stroke, embolic stroke, or transient ischemic attack, and the one or more additional therapeutic compositions comprise thrombolytics, tissue plasminogen activator (tPA), alteplase, reteplase,

tenecteplase, desmoteplase, anticoagulants, ACE inhibitors, antihypertensives, nicardipine, or any combination thereof.

34. The method of arrangement 32, wherein the stroke is hemorrhagic stroke, intracerebral hemorrhage, or subarachnoid hemorrhage, and the one or more additional therapeutic compositions comprise antihypertensives, or nicardipine, or any combination thereof.

35. A method for inhibiting, reducing, preventing, and/or treating traumatic brain injury (TBI) in a subject in need thereof, comprising administering an anti-Gal3 antibody or binding fragment thereof to the subject, thereby inhibiting, reducing, preventing, and/or treating the TBI.

36. The method of arrangement 35, further comprising selecting the subject as having the TBI or at risk of contracting the TBI prior to the administering step.

37. The method of arrangement 36, wherein selecting the subject as having the TBI comprises assessing the subject for level of consciousness, memory loss, and/or the Glasgow Coma Scale, neuroimaging, optionally CT or MRI and/or detecting TBI biomarkers, optionally GFAP and/or ubiquitin carboxy-terminal hydrolase L1 (UCH-L1).

38. The method of any one of arrangements 35-37, further comprising detecting an amelioration of symptoms associated with the TBI after the administering step.

39. The method of any one of arrangements 35-38, wherein the TBI is associated with a concussion, edema, diffuse axonal injury, spinal cord injury, coma, neuroinflammation, microhemorrhage, astrocytosis, activated microglia, and/or hematoma.

40. The method of any one of arrangements 35-39, wherein administration of the anti-Gal3 antibody or binding fragment thereof to the subject prevents the TBI, concussion, edema, diffuse axonal injury, spinal cord injury, coma, neuroinflammation, microhemorrhage, astrocytosis, activated microglia, and/or hematoma.

41. The method of any one of arrangements 35-40, wherein administration of the anti-Gal3 antibody or binding fragment thereof prevents elevation of levels of activated microglia, prevents elevation of levels of activated astrocytes, prevents elevation of levels of macrophages, prevents elevation of levels of hyperphosphorylated Tau, prevents incidence of microhemorrhage, prevents neuroinflammation, prevents elevation of levels of circulating proinflammatory cytokines, or any combination thereof, in the subject.

42. The method of any one of arrangements 35-41, wherein administration of the anti-Gal3 antibody or binding fragment thereof to the subject treats the TBI, concussion, edema,

diffuse axonal injury, spinal cord injury, coma, neuroinflammation, microhemorrhage, astrocytosis, activated microglia, and/or hematoma.

43. The method of any one of arrangements 35-42, wherein administration of the anti-Gal3 antibody or binding fragment thereof improves the level of consciousness, memory loss, and/or the Glasgow Coma Scale of the patient; and/or reduces levels of activated microglia, reduces levels of activated astrocytes, reduces levels of macrophages, reduces levels of hyperphosphorylated Tau, reduces microhemorrhage, reduces neuroinflammation, reduces levels of circulating proinflammatory cytokines or any combination thereof, in the subject.

44. The method of arrangement 43, wherein the reduction in levels of activated microglia, reduction in levels of activated astrocytes, reduction in levels of macrophages, reduction in levels of hyperphosphorylated Tau, reduction in microhemorrhage, reduction in neuroinflammation, reduction in levels of circulating proinflammatory cytokines, or any combination thereof, in the subject, is by at least 5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, or 95%, or any percentage within a range defined by any two of the aforementioned reductions.

45. The method of arrangements 43 or 44, wherein the reduction in levels of activated microglia in the subject is by at least 70%.

46. The method of any one of arrangements 43-45, wherein the reduction in levels of activated microglia is assessed by detection of microglia activation markers, optionally ionized calcium-binding adaptor molecule 1 (Iba1), monocyte chemoattractant protein-1 (MCP-1), chitinase-3-like protein 1 (YKL-40), and/or soluble CD14 (sCD14), optionally from the cerebrospinal fluid of the subject.

47. The method of any one of arrangements 43-46, wherein the reduction in levels of activated astrocytes in the subject is by at least 90%.

48. The method of any one of arrangements 43-47, wherein the reduction in levels of activated astrocytes is assessed by detection of astrocyte activation markers, optionally GFAP, optionally from the cerebrospinal fluid of the subject.

49. The method of any one of arrangements 43-48, wherein the reduction in levels of macrophages in the subject is by at least 70%.

50. The method of any one of arrangements 43-49, wherein the reduction in levels of macrophages is assessed by detection of macrophage activation markers, optionally CD68, optionally from the cerebrospinal fluid of the subject.

51. The method of any one of arrangements 43-50, wherein the reduction in levels of hyperphosphorylated Tau in the subject is by at least 80%.

52. The method of any one of arrangements 43-51, wherein the reduction in levels of microhemorrhage in the subject is by at least 80%.

53. The method of any one of arrangements 43-52, wherein the reduction in levels of microhemorrhage is assessed by neuroimaging, MRI, and/or Prussian blue staining.

54. The method of any one of arrangements 43-53, wherein the reduction in neuroinflammation in the subject is by at least 70%.

55. The method of any one of arrangements 43-54, wherein the proinflammatory cytokines comprise IL-6, IL-10, and/or TNF-α.

56. The method of any one of arrangements 35-55, wherein the anti-Gal3 antibody or binding fragment thereof is administered enterally, orally, intranasally, parenterally, intracranially, subcutaneously, intramuscularly, intradermally, or intravenously, or any combination thereof, optionally intravenously.

57. The method of any one of arrangements 35-56, wherein administering an anti-Gal3 antibody or binding fragment thereof to the subject comprises administration of one or more unit doses of the anti-Gal3 antibody or binding fragment thereof, optionally 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10 unit doses.

58. The method of arrangement 57, wherein the one or more unit doses comprise 50, 60, 70, 80, 90, 100, 200, 300, 400, 500, 600, 700, 800, 900, 1000, 1100, 1200, 1300, 1400, 1500, 1600, 1700, 1800, 1900, 2000, 2500, 3000, 3500, 4000, 4500 or 5000 mg of the anti-Gal3 antibody or binding fragment thereof per unit dose, or any amount per unit dose within a range defined by any two of the aforementioned amounts per unit dose.

59. The method of arrangements 57 or 58, wherein the one or more unit doses comprise 1, 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, 100, 105, 110, 115, 120, 125, 130, 135, 140, 145, or 150 mg/kg weight of the subject, or any amount per unit dose within a range defined by any two of the aforementioned amounts per unit dose.

60. The method of any one of arrangements 57-59, wherein the one or more unit doses are administered every 1, 2, 3, 4, 5, 6, or 7 days, or 1, 2, 3, or 4 weeks, or any interval within a range defined by any two of the aforementioned intervals.

61. The method of any one of arrangements 35-60, wherein the anti-Gal3 antibody or binding fragment thereof comprises one or more of: TB001, TB006, 12G5.D7, 13A12.2E5, 14H10.2C9, 15F10.2D6, 19B5.2E6, 20D11.2C6, 20H5.A3, 23H9.2E4, 2D10.2B2, 3B11.2G2, 7D8.2D8, mIMT001, 4A11.2B5, 4A11.H1L1, 4A11.H4L2, 4G2.2G6, 6B3.2D3, 6H6.2D6, 9H2.2H10, 13G4.2F8, 13H12.2F8, 15G7.2A7, 19D9.2E5, 23B10.2B12, 24D12.2H9,

F846C.1B2, F846C.1F5, F846C.1H12, F846C.1H5, F846C.2H3, F846TC.14A2, F846TC.14E4, F846TC.16B5, F846TC.7F10, F847C.10B9, F847C.11B1, F847C.12F12, F847C.26F5, F847C.4B10, F849C.8D10, F849C.8H3, 846.2B11, 846.4D5, 846T.1H2, 847.14H4, 846.2D4, 846.2F11, 846T.10B1, 846T.2E3, 846T.4C9, 846T.4E11, 846T.4F5, 846T.8D1, 847.10C9, 847.11D6, 847.15D12, 847.15F9, 847.15H11, 847.20H7, 847.21B11, 847.27B9, 847.28D1, 847.2B8, 847.3B3, 849.1D2, 849.2D7, 849.2F12, 849.4B2, 849.4F12, 849.4F2, 849.5C2, 849.8D12, F847C.21H6, 849.5H1, 847.23F11, 847.16D10, 847.13E2-mH0mL1, 847.13E2-mH0mL2, 847.12C4, 847.4D3, 2D10-VH0-VL0, 2D10-hVH4-HVL1, 2D10-hVH4-HVL2, 2D10-hVH4-HVL3, 2D10-hVH4-HVL4, 2D10-hVH3-HVL1, 2D10-hVH3-HVL2, 2D10-hVH3-HVL3, 2D10-hVH3-HVL4, 20H5.A3-VH3VL1, 20H5.A3-VH3VL3, 20H5.A3-VH4VL1, 20H5.A3-VH5VL1, 20H5.A3-VH5VL3, 20H5.A3-VH6VL1, 20H5.A3-VH6VL3, or binding fragment thereof.

62. The method of any one of arrangements 35-61, wherein the anti-Gal3 antibody or binding fragment thereof comprises one or more of: TB001, TB006, F846C.1F5, F846TC.16B5, 14H10.2C9, 15G7.2A7, 20H5.A3, 19D9.2E5, 19B5.2E6, or F847C.21H6.

63. The method of any one of arrangements 35-62, wherein the anti-Gal3 antibody or binding fragment thereof comprises TB006.

64. The method of any one of arrangements 35-63, wherein the anti-Gal3 antibody or binding fragment thereof is administered with one or more additional therapeutic compositions.

65. The method of arrangement 64, wherein the one or more additional therapeutic compositions comprise levodopa, bromocriptine, NMDA receptor antagonists, amantadine, memantine, cholinesterase inhibitors, tacrine, rivastigmine, galantamine, donepezil, or any combination thereof.

66. A method for inhibiting, reducing, preventing, and/or treating a disorder associated with fibrin activity or dysfunction in a subject in need thereof, comprising administering an anti-Gal3 antibody or binding fragment thereof to the subject, thereby inhibiting, reducing, preventing, and/or treating the disorder associated with fibrin activity or dysfunction.

67. The method of arrangement 66, wherein the disorder associated with fibrin activity or dysfunction comprises atherosclerosis, thrombosis, thromboembolism, carotid artery disease, coronary artery disease, peripheral artery disease, myocardial infarction, heart failure, heart attack, hypertension, chronic kidney disease, coagulopathy, or thrombocytopathy.

68. The method of arrangement 67, further comprising selecting the subject as having the disorder associated with fibrin activity or dysfunction or at risk of contracting the disorder associated with fibrin activity or dysfunction prior to the administering step.

69. The method of arrangement 68, wherein selecting the subject as having the disorder associated with fibrin activity or dysfunction comprises detecting thrombotic biomarkers, optionally fibrinogen, C-reactive protein (CRP), and/or plasminogen activator inhibitor-1 (PAI-1).

70. The method of any one of arrangements 66-69, further comprising detecting an amelioration of symptoms associated with the disorder associated with fibrin activity or dysfunction after the administering step.

71. The method of any one of arrangements 66-70, wherein administration of the anti-Gal3 antibody or binding fragment thereof to the subject prevents neuroinflammation and/or fibrin oligomerization, in the subject.

72. The method of any one of arrangements 66-71, wherein administration of the anti-Gal3 antibody or binding fragment thereof to the subject reduces neuroinflammation and/or fibrin oligomerization in the subject.

73. The method of arrangement 72, wherein the reduction in neuroinflammation and/or the reduction in fibrin oligomerization, in the subject, is by at least 5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, or 95%, or any percentage within a range defined by any two of the aforementioned reductions.

74. The method of any one of arrangements 66-73, wherein the anti-Gal3 antibody or binding fragment thereof is administered enterally, orally, intranasally, parenterally, intracranially, subcutaneously, intramuscularly, intradermally, or intravenously, or any combination thereof, optionally intravenously.

75. The method of any one of arrangements 66-74, wherein administering an anti-Gal3 antibody or binding fragment thereof to the subject comprises administration of one or more unit doses of the anti-Gal3 antibody or binding fragment thereof, optionally 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10 unit doses.

76. The method of arrangement 75, wherein the one or more unit doses comprise 50, 60, 70, 80, 90, 100, 200, 300, 400, 500, 600, 700, 800, 900, 1000, 1100, 1200, 1300, 1400, 1500, 1600, 1700, 1800, 1900, 2000, 2500, 3000, 3500, 4000, 4500 or 5000 mg of the anti-Gal3 antibody or binding fragment thereof per unit dose, or any amount per unit dose within a range defined by any two of the aforementioned amounts per unit dose

77. The method of arrangements 75 or 76, wherein the one or more unit doses comprise 1, 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, 100, 105, 110, 115, 120, 125, 130, 135, 140, 145, or 150

mg/kg weight of the subject, or any amount per unit dose within a range defined by any two of the aforementioned amounts per unit dose.

78. The method of any one of arrangements 75-77, wherein the one or more unit doses are administered every 1, 2, 3, 4, 5, 6, or 7 days, or 1, 2, 3, or 4 weeks, or any interval within a range defined by any two of the aforementioned intervals.

79. The method of any one of arrangements 66-78, wherein the anti-Gal3 antibody or binding fragment thereof comprises one or more of: TB001, TB006, 12G5.D7, 13A12.2E5, 14H10.2C9, 15F10.2D6, 19B5.2E6, 20D11.2C6, 20H5.A3, 23H9.2E4, 2D10.2B2, 3B11.2G2, 7D8.2D8, mIMT001, 4A11.2B5, 4A11.H1L1, 4A11.H4L2, 4G2.2G6, 6B3.2D3, 6H6.2D6, 9H2.2H10, 13G4.2F8, 13H12.2F8, 15G7.2A7, 19D9.2E5, 23B10.2B12, 24D12.2H9, F846C.1B2, F846C.1F5, F846C.1H12, F846C.1H5, F846C.2H3, F846TC.14A2, F846TC.14E4, F846TC.16B5, F846TC.7F10, F847C.10B9, F847C.11B1, F847C.12F12, F847C.26F5, F847C.4B10, F849C.8D10, F849C.8H3, 846.2B11, 846.4D5, 846T.1H2, 847.14H4, 846.2D4, 846.2F11, 846T.10B1, 846T.2E3, 846T.4C9, 846T.4E11, 846T.4F5, 846T.8D1, 847.10C9, 847.11D6, 847.15D12, 847.15F9, 847.15H11, 847.20H7, 847.21B11, 847.27B9, 847.28D1, 847.2B8, 847.3B3, 849.1D2, 849.2D7, 849.2F12, 849.4B2, 849.4F12, 849.4F2, 849.5C2, 849.8D12, F847C.21H6, 849.5H1, 847.23F11, 847.16D10, 847.13E2-mH0mL1, 847.13E2-mH0mL2, 847.12C4, 847.4D3, 2D10-VH0-VL0, 2D10-hVH4-HVL1, 2D10-hVH4-HVL2, 2D10-hVH4-HVL3, 2D10-hVH4-HVL4, 2D10-hVH3-HVL1, 2D10-hVH3-HVL2, 2D10-hVH3-HVL3, 2D10-hVH3-HVL4, 20H5.A3-VH3VL1, 20H5.A3-VH3VL3, 20H5.A3-VH4VL1, 20H5.A3-VH5VL1, 20H5.A3-VH5VL3, 20H5.A3-VH6VL1, 20H5.A3-VH6VL3, or binding fragment thereof

80. The method of any one of arrangements 66-79, wherein the anti-Gal3 antibody or binding fragment thereof comprises one or more of: TB001, TB006, F846C.1F5, F846TC.16B5, 14H10.2C9, 15G7.2A7, 20H5.A3, 19D9.2E5, 19B5.2E6, or F847C.21H6.

81. The method of any one of arrangements 66-80, wherein the anti-Gal3 antibody or binding fragment thereof comprises TB006.

82. The method of any one of arrangements 66-81, wherein the anti-Gal3 antibody or binding fragment thereof is administered with one or more additional therapeutic compositions.

83. The method of arrangement 82, wherein the one or more additional therapeutic compositions comprises anti-clotting agents, aspirin, statins, antihypertensives, diuretics, calcium channel blockers, ACE inhibitors, angiotensin II receptor antagonists, adrenergic receptor antagonists, vasodilators, renin inhibitors, aldosterone receptor antagonists, endothelium receptor blockers, or any combination thereof.

84. The method of any one of arrangements 1-83, wherein administering an anti-Gal3 antibody or binding fragment thereof to the subject comprises administration of 5 unit doses of the anti-Gal3 antibody or binding fragment thereof, wherein each unit dose comprises 1000 mg or about 1000 mg of the anti-Gal3 antibody or binding fragment thereof, wherein the unit doses are administered every 7 days or about 7 days, and wherein each unit dose is administered over the course of 1 hour or about 1 hour.

85. A method comprising administering 5 unit doses of an anti-Gal3 antibody or binding fragment thereof, wherein each unit dose comprise 1000 mg or about 1000 mg of the anti-Gal3 antibody or binding fragment thereof, wherein the unit doses are administered every 7 days or about 7 days, and wherein each unit dose is administered over the course of 1 hour or about 1hour.

86. The method of arrangements 84 or 85, wherein the anti-Gal3 antibody or binding fragment thereof is TB006 or a binding fragment thereof.

87. The method of any one of arrangements 84-86, wherein each unit dose is formulated as 1000 mg or about 1000 mg of the anti-Gal3 antibody or binding fragment thereof in 250 mL of sterile saline.

88. The method of any one of arrangements 84-87, wherein each unit dose is prepared from single-use sealed injectable glass vials comprising 8 mL of 20 mg/mL of the anti-Gal3 antibody or binding fragment thereof.

89. The method of any one of arrangements 84-88, wherein the anti-Gal3 antibody or binding fragment thereof is administered intravenously.

90. A single-use sealed injectable glass vial comprising 8 mL of 20 mg/mL of an anti-Gal antibody or binding fragment thereof, optionally wherein the anti-Gal3 antibody or binding fragment thereof is TB006 or a binding fragment thereof.

91. An IV infusion bag comprising 1000 mg or about 1000 mg of an anti-Gal3 antibody or binding fragment thereof dissolved in 250 mL or about 250 mL of saline, optionally wherein the anti-Gal3 antibody or binding fragment thereof is TB006 or a binding fragment thereof.

Numbered Arrangements 2

Some embodiments provided herein are described by way of the following provided numbered arrangements and also provided as possible combinations or overlapping embodiments:

1. An anti-Gal3 antibody for use in inhibiting, reducing, preventing, and/or treating stroke in a subject in need thereof, wherein

the anti-Gal3 antibody or binding fragment thereof comprises one or more of: TB001, TB006, 12G5.D7, 13A12.2E5, 14H10.2C9, 15F10.2D6, 19B5.2E6, 20D11.2C6, 20H5.A3, 23H9.2E4, 2D10.2B2, 3B11.2G2, 7D8.2D8, mIMT001, 4A11.2B5, 4A11.H1L1, 4A11.H4L2, 4G2.2G6, 6B3.2D3, 6H6.2D6, 9H2.2H10, 13G4.2F8, 13H12.2F8, 15G7.2A7, 19D9.2E5, 23B10.2B12, 24D12.2H9, F846C.1B2, F846C.1F5, F846C.1H12, F846C.1H5, F846C.2H3, F846TC.14A2, F846TC.14E4, F846TC.16B5, F846TC.7F10, F847C.10B9, F847C.11B1, F847C.12F12, F847C.26F5, F847C.4B10, F849C.8D10, F849C.8H3, 846.2B11, 846.4D5, 846T.1H2, 847.14H4, 846.2D4, 846.2F11, 846T.10B1, 846T.2E3, 846T.4C9, 846T.4E11, 846T.4F5, 846T.8D1, 847.10C9, 847.11D6, 847.15D12, 847.15F9, 847.15H11, 847.20H7, 847.21B11, 847.27B9, 847.28D1, 847.2B8, 847.3B3, 849.1D2, 849.2D7, 849.2F12, 849.4B2, 849.4F12, 849.4F2, 849.5C2, 849.8D12, F847C.21H6, 849.5H1, 847.23F11, 847.16D10, 847.13E2-mH0mL1, 847.13E2-mH0mL2, 847.12C4, 847.4D3, 2D10-VH0-VL0, 2D10-hVH4-HVL1, 2D10-hVH4-HVL2, 2D10-hVH4-HVL3, 2D10-hVH4-HVL4, 2D10-hVH3-HVL1, 2D10-hVH3-HVL2, 2D10-hVH3-HVL3, 2D10-hVH3-HVL4, 20H5.A3-VH3VL1, 20H5.A3-VH3VL3, 20H5.A3-VH4VL1, 20H5.A3-VH5VL1, 20H5.A3-VH5VL3, 20H5.A3-VH6VL1, 20H5.A3-VH6VL3, TB001, TB006, F846C.1F5, F846TC.16B5, 14H10.2C9, 15G7.2A7, 20H5.A3, 19D9.2E5, 19B5.2E6, or F847C.21H6, or a binding fragment thereof; and wherein

administration of the anti-Gal3 antibody or binding fragment thereof to the subject, inhibits, reduces, prevents, and/or treats the stroke.

2. An anti-Gal3 antibody for use in inhibiting, reducing, preventing, and/or treating traumatic brain injury (TBI) in a subject in need thereof, wherein

the anti-Gal3 antibody or binding fragment thereof comprises one or more of: TB001, TB006, 12G5.D7, 13A12.2E5, 14H10.2C9, 15F10.2D6, 19B5.2E6, 20D11.2C6, 20H5.A3, 23H9.2E4, 2D10.2B2, 3B11.2G2, 7D8.2D8, mIMT001, 4A11.2B5, 4A11.H1L1, 4A11.H4L2, 4G2.2G6, 6B3.2D3, 6H6.2D6, 9H2.2H10, 13G4.2F8, 13H12.2F8, 15G7.2A7, 19D9.2E5, 23B10.2B12, 24D12.2H9, F846C.1B2, F846C.1F5, F846C.1H12, F846C.1H5, F846C.2H3, F846TC.14A2, F846TC.14E4, F846TC.16B5, F846TC.7F10, F847C.10B9, F847C.11B1, F847C.12F12, F847C.26F5, F847C.4B10, F849C.8D10, F849C.8H3, 846.2B11, 846.4D5, 846T.1H2, 847.14H4, 846.2D4, 846.2F11, 846T.10B1, 846T.2E3, 846T.4C9, 846T.4E11, 846T.4F5, 846T.8D1, 847.10C9, 847.11D6, 847.15D12, 847.15F9, 847.15H11,

847.20H7, 847.21B11, 847.27B9, 847.28D1, 847.2B8, 847.3B3, 849.1D2, 849.2D7, 849.2F12, 849.4B2, 849.4F12, 849.4F2, 849.5C2, 849.8D12, F847C.21H6, 849.5H1, 847.23F11, 847.16D10, 847.13E2-mH0mL1, 847.13E2-mH0mL2, 847.12C4, 847.4D3, 2D10-VH0-VL0, 2D10-hVH4-HVL1, 2D10-hVH4-HVL2, 2D10-hVH4-HVL3, 2D10-hVH4-HVL4, 2D10-hVH3-HVL1, 2D10-hVH3-HVL2, 2D10-hVH3-HVL3, 2D10-hVH3-HVL4, 20H5.A3-VH3VL1, 20H5.A3-VH3VL3, 20H5.A3-VH4VL1, 20H5.A3-VH5VL1, 20H5.A3-VH5VL3, 20H5.A3-VH6VL1, 20H5.A3-VH6VL3, TB001, TB006, F846C.1F5, F846TC.16B5, 14H10.2C9, 15G7.2A7, 20H5.A3, 19D9.2E5, 19B5.2E6, or F847C.21H6, or a binding fragment thereof; and wherein

administration of the anti-Gal3 antibody or binding fragment thereof to the subject, thereby inhibits, reduces, prevents, and/or treats the TBI.

3. An anti-Gal3 antibody for use in inhibiting, reducing, preventing, and/or treating a disorder associated with fibrin activity or dysfunction in a subject in need thereof, An anti-Gal3 antibody for use in inhibiting, reducing, preventing, and/or treating traumatic brain injury (TBI) in a subject in need thereof, wherein

the anti-Gal3 antibody or binding fragment thereof comprises one or more of: TB001, TB006, 12G5.D7, 13A12.2E5, 14H10.2C9, 15F10.2D6, 19B5.2E6, 20D11.2C6, 20H5.A3, 23H9.2E4, 2D10.2B2, 3B11.2G2, 7D8.2D8, mIMT001, 4A11.2B5, 4A11.H1L1, 4A11.H4L2, 4G2.2G6, 6B3.2D3, 6H6.2D6, 9H2.2H10, 13G4.2F8, 13H12.2F8, 15G7.2A7, 19D9.2E5, 23B10.2B12, 24D12.2H9, F846C.1B2, F846C.1F5, F846C.1H12, F846C.1H5, F846C.2H3, F846TC.14A2, F846TC.14E4, F846TC.16B5, F846TC.7F10, F847C.10B9, F847C.11B1, F847C.12F12, F847C.26F5, F847C.4B10, F849C.8D10, F849C.8H3, 846.2B11, 846.4D5, 846T.1H2, 847.14H4, 846.2D4, 846.2F11, 846T.10B1, 846T.2E3, 846T.4C9, 846T.4E11, 846T.4F5, 846T.8D1, 847.10C9, 847.11D6, 847.15D12, 847.15F9, 847.15H11, 847.20H7, 847.21B11, 847.27B9, 847.28D1, 847.2B8, 847.3B3, 849.1D2, 849.2D7, 849.2F12, 849.4B2, 849.4F12, 849.4F2, 849.5C2, 849.8D12, F847C.21H6, 849.5H1, 847.23F11, 847.16D10, 847.13E2-mH0mL1, 847.13E2-mH0mL2, 847.12C4, 847.4D3, 2D10-VH0-VL0, 2D10-hVH4-HVL1, 2D10-hVH4-HVL2, 2D10-hVH4-HVL3, 2D10-hVH4-HVL4, 2D10-hVH3-HVL1, 2D10-hVH3-HVL2, 2D10-hVH3-HVL3, 2D10-hVH3-HVL4, 20H5.A3-VH3VL1, 20H5.A3-VH3VL3, 20H5.A3-VH4VL1, 20H5.A3-VH5VL1, 20H5.A3-VH5VL3, 20H5.A3-VH6VL1, 20H5.A3-VH6VL3, TB001, TB006, F846C.1F5, F846TC.16B5, 14H10.2C9, 15G7.2A7,

20H5.A3, 19D9.2E5, 19B5.2E6, or F847C.21H6, or a binding fragment thereof; and wherein

administration of the anti-Gal3 antibody or binding fragment thereof to the subject, thereby inhibits, reduces, prevents, and/or treats the disorder associated with fibrin activity or dysfunction.

4. A method comprising administering 5 unit doses of an anti-Gal3 antibody or binding fragment thereof, wherein each unit dose comprise 1000 mg or about 1000 mg of the anti-Gal3 antibody or binding fragment thereof, wherein the unit doses are administered every 7 days or about 7 days, and wherein each unit dose is administered over the course of 1 hour or about 1hour.

5. A single-use sealed injectable glass vial comprising 8 mL of 20 mg/mL of an anti-Gal antibody or binding fragment thereof, optionally wherein the anti-Gal3 antibody or binding fragment thereof is TB006 or a binding fragment thereof.

6. An IV infusion bag comprising 1000 mg or about 1000 mg of an anti-Gal3 antibody or binding fragment thereof dissolved in 250 mL or about 250 mL of saline, optionally wherein the anti-Gal3 antibody or binding fragment thereof is TB006 or a binding fragment thereof.

7. The use of any one of the previous arrangements, wherein

a.) the subject is identified as having the stroke or at risk of contracting the stroke prior to the administering step;

b.) selecting the subject as having the stroke or at risk of contracting the stroke prior to the administering step;

c.) selecting the subject as having the stroke or at risk of contracting the stroke comprises assessing the subject according to the National Institutes of Health Stroke Scale (NIHSS), modified Rankin Scale (mRS), Fugl-Meyer Assessment (FMA), Montreal Cognitive Assessment (MoCA), neuroimaging, optionally CT or MRI, and/or detecting stroke biomarkers, optionally S100 calcium binding protein B (S100B), glial fibrillary acidic protein (GFAP), neuron-specific enolase (NSE), and/or matrix metalloproteinase-9 (MMP9);

d.) an amelioration of symptoms associated with the stroke is detected after the administering step;

e.) detecting an amelioration of symptoms associated with the stroke after the administering step comprises detecting an improvement by the subject according to the NIHSS, mRS, FMA, or MoCA;

f.) the improvement by the subject according to the NIHSS comprises at least a 4 point decrease on the NIHSS;

g.) the improvement by the subject according to the mRS comprises at least a 1 point decrease on the mRS;

h.) the improvement by the subject according to the FMA comprises at least a 1 point increase on the FMA;

i.) the improvement by the subject according to the MoCA comprises at least a 1 point increase on the MoCA;

j.) improvement by the subject according to the NIHSS, mRS, FMA, or MoCA is assessed 7, 35, and/or 75 days after the administering step;

k.) improvement by the subject according to the NIHSS, mRS, FMA, or MoCA is detected 7, 35, and/or 75 days after the administering step;

l.) the stroke is an ischemic stroke, thrombotic stroke, embolic stroke, transient ischemic attack, hemorrhagic stroke, intracerebral hemorrhage, or subarachnoid hemorrhage;

m.) the stroke is intracerebral hemorrhage (ICH), optionally wherein the ICH is associated with deposition of amyloid aggregates and/or cerebral amyloid angiopathy (CAA);

n.) administration of the anti-Gal3 antibody or binding fragment thereof to the subject prevents the stroke;

o.) administration of the anti-Gal3 antibody or binding fragment thereof prevents loss of locomotor dysfunction, prevents incidence of microhemorrhage, prevents elevation of levels of activated microglia, prevents elevation of levels of activated astrocytes, prevents elevation of circulating proinflammatory immune cells, prevents elevation of circulating proinflammatory cytokines, or any combination thereof, in the subject;

p.) administration of the anti-Gal3 antibody or binding fragment thereof to the subject treats the stroke;

q.) the reduction in locomotor dysfunction, reduction in microhemorrhage, reduction in levels of activated microglia, reduction in levels of activated astrocytes, reduction in levels of circulating proinflammatory cytokines, or

any combination thereof, in the subject, is by at least 5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, or 95%, or any percentage within a range defined by any two of the aforementioned reductions;

r.) the reduction in locomotor dysfunction is assessed by the Fugl-Meyer Assessment (FMA), Motor Assessment Scale (MAS), and/or the Chedoke-McMaster Stroke Assessment (CMSA);

s.) the reduction in microhemorrhage is assessed by neuroimaging, MRI, and/or Prussian blue staining;

t.) the reduction in levels of activated microglia is assessed by detection of microglia activation markers, optionally ionized calcium-binding adaptor molecule 1 (Iba1), monocyte chemoattractant protein-1 (MCP-1), chitinase-3-like protein 1 (YKL-40), and/or soluble CD14 (sCD14), optionally from the cerebrospinal fluid of the subject;

u.) the reduction in levels of activated astrocytes is assessed by detection of astrocyte activation markers, optionally GFAP and/or S100B, optionally from the cerebrospinal fluid of the subject;

v.) the proinflammatory immune cells comprise NK cells, monocytes, and/or lymphocytes;

w.) the proinflammatory cytokines comprise IL-6, TNF-α, and/or IL1β;

x.) administering an anti-Gal3 antibody or binding fragment thereof to the subject comprises administration of one or more unit doses of the anti-Gal3 antibody or binding fragment thereof, optionally 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10 unit doses;

y.) the one or more unit doses comprise 50, 60, 70, 80, 90, 100, 200, 300, 400, 500, 600, 700, 800, 900, 1000, 1100, 1200, 1300, 1400, 1500, 1600, 1700, 1800, 1900, 2000, 2500, 3000, 3500, 4000, 4500 or 5000 mg of the anti-Gal3 antibody or binding fragment thereof per unit dose, or any amount per unit dose within a range defined by any two of the aforementioned amounts per unit dose;

z.) the one or more unit doses comprise 1, 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, 100, 105, 110, 115, 120, 125, 130, 135, 140, 145, or 150 mg/kg weight of the subject, or any amount per unit dose within a range defined by any two of the aforementioned amounts per unit dose;

aa.)the one or more unit doses are administered every 1, 2, 3, 4, 5, 6, or 7 days, or 1, 2, 3, or 4 weeks, or any interval within a range defined by any two of the aforementioned intervals;

bb.) the anti-Gal3 antibody or binding fragment thereof is administered enterally, orally, intranasally, parenterally, intracranially, subcutaneously, intramuscularly, intradermally, or intravenously, or any combination thereof, optionally intravenously;

cc.)the anti-Gal3 antibody or binding fragment thereof is administered with one or more additional therapeutic compositions;

dd.) the stroke is ischemic stroke, thrombotic stroke, embolic stroke, or transient ischemic attack, and the one or more additional therapeutic compositions comprise thrombolytics, tissue plasminogen activator (tPA), alteplase, reteplase, tenecteplase, desmoteplase, anticoagulants, ACE inhibitors, antihypertensives, nicardipine, or any combination thereof;

ee.)the stroke is hemorrhagic stroke, intracerebral hemorrhage, or subarachnoid hemorrhage, and the one or more additional therapeutic compositions comprise antihypertensives, or nicardipine, or any combination thereof;

ff.) the subject is selected as having the TBI or at risk of contracting the TBI prior to the administering step;

gg.) selecting the subject as having the TBI comprises assessing the subject for level of consciousness, memory loss, and/or the Glasgow Coma Scale, neuroimaging, optionally CT or MRI and/or detecting TBI biomarkers, optionally GFAP and/or ubiquitin carboxy-terminal hydrolase L1 (UCH-L1);

hh.) an amelioration of symptoms associated with the TBI is detected after the administering step;

ii.) the TBI is associated with a concussion, edema, diffuse axonal injury, spinal cord injury, coma, neuroinflammation, microhemorrhage, astrocytosis, activated microglia, and/or hematoma;

jj.) administration of the anti-Gal3 antibody or binding fragment thereof to the subject prevents the TBI, concussion, edema, diffuse axonal injury, spinal cord injury, coma, neuroinflammation, microhemorrhage, astrocytosis, activated microglia, and/or hematoma;

kk.) administration of the anti-Gal3 antibody or binding fragment thereof prevents elevation of levels of activated microglia, prevents elevation of levels of activated astrocytes, prevents elevation of levels of macrophages, prevents elevation of levels of hyperphosphorylated Tau, prevents incidence of microhemorrhage, prevents neuroinflammation, prevents elevation of levels of circulating proinflammatory cytokines, or any combination thereof, in the subject;

ll.) administration of the anti-Gal3 antibody or binding fragment thereof to the subject treats the TBI, concussion, edema, diffuse axonal injury, spinal cord injury, coma, neuroinflammation, microhemorrhage, astrocytosis, activated microglia, and/or hematoma;

mm.) administration of the anti-Gal3 antibody or binding fragment thereof improves the level of consciousness, memory loss, and/or the Glasgow Coma Scale of the patient; and/or reduces levels of activated microglia, reduces levels of activated astrocytes, reduces levels of macrophages, reduces levels of hyperphosphorylated Tau, reduces microhemorrhage, reduces neuroinflammation, reduces levels of circulating proinflammatory cytokines or any combination thereof, in the subject;

nn.) reduction in levels of activated microglia is assessed by detection of microglia activation markers, optionally ionized calcium-binding adaptor molecule 1 (Iba1), monocyte chemoattractant protein-1 (MCP-1), chitinase-3-like protein 1 (YKL-40), and/or soluble CD14 (sCD14), optionally from the cerebrospinal fluid of the subject;

oo.) the reduction in levels of activated astrocytes is assessed by detection of astrocyte activation markers;

pp.) the reduction in levels of macrophages is assessed by detection of macrophage activation markers, optionally CD68, optionally from the cerebrospinal fluid of the subject;

qq.) the reduction in levels of microhemorrhage is assessed by neuroimaging, MRI, and/or Prussian blue staining;

rr.) the proinflammatory cytokines comprise IL-6, IL-10, and/or TNF-α;

ss.) the anti-Gal3 antibody or binding fragment thereof is administered enterally, orally, intranasally, parenterally, intracranially, subcutaneously,

intramuscularly, intradermally, or intravenously, or any combination thereof, optionally intravenously;

tt.) the disorder associated with fibrin activity or dysfunction comprises atherosclerosis, thrombosis, thromboembolism, carotid artery disease, coronary artery disease, peripheral artery disease, myocardial infarction, heart failure, heart attack, hypertension, chronic kidney disease, coagulopathy, or thrombocytopathy;

uu.) the subject is selected as having a disorder associated with fibrin activity or dysfunction or at risk of contracting a disorder associated with fibrin activity or dysfunction prior to the administering step;

vv.) selecting the subject as having the disorder associated with fibrin activity or dysfunction comprises detecting thrombotic biomarkers, optionally fibrinogen, C-reactive protein (CRP), and/or plasminogen activator inhibitor-1 (PAI-1);

ww.) an amelioration of symptoms associated with a disorder associated with fibrin activity or dysfunction is detected after the administering step;

xx.) administration of the anti-Gal3 antibody or binding fragment thereof to the subject prevents neuroinflammation and/or fibrin oligomerization, in the subject;

yy.) administration of the anti-Gal3 antibody or binding fragment thereof to the subject reduces neuroinflammation and/or fibrin oligomerization in the subject;

zz.) the reduction in neuroinflammation and/or the reduction in fibrin oligomerization, in the subject, is by at least 5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, or 95%, or any percentage within a range defined by any two of the aforementioned reductions;

aaa.) the one or more additional therapeutic compositions comprises anti-clotting agents, aspirin, statins, antihypertensives, diuretics, calcium channel blockers, ACE inhibitors, angiotensin II receptor antagonists, adrenergic receptor antagonists, vasodilators, renin inhibitors, aldosterone receptor antagonists, endothelium receptor blockers, or any combination thereof;

bbb.) administering an anti-Gal3 antibody or binding fragment thereof to the subject comprises administration of 5 unit doses of the anti-Gal3 antibody

or binding fragment thereof, wherein each unit dose comprises 1000 mg or about 1000 mg of the anti-Gal3 antibody or binding fragment thereof, wherein the unit doses are administered every 7 days or about 7 days, and wherein each unit dose is administered over the course of 1 hour or about 1 hour;

ccc.) each unit dose is formulated as 1000 mg or about 1000 mg of the anti-Gal3 antibody or binding fragment thereof in 250 mL of sterile saline; or wherein

ddd.) each unit dose is prepared from single-use sealed injectable glass vials comprising 8 mL of 20 mg/mL of the anti-Gal3 antibody or binding fragment thereof.

EXAMPLES

[0397] Some aspects of the embodiments discussed above are disclosed in further detail in the following examples, which are not in any way intended to limit the scope of the present disclosure. Those in the art will appreciate that many other embodiments also fall within the scope of the invention, as it is described herein above and in the claims.

Example 1. Therapeutic efficacy of Gal3 antibody in an intracerebral hemorrhagic stroke model

[0398] Anti-Gal3 antibody treatment (using mTB001 as a representative antibody) was assessed for efficacy and pharmacodynamics in an intracerebral hemorrhage (ICH) model of stroke. Stroke was induced in C57BL/6J mice by stereotactic injection of autologous tail blood. Beginning one week after ICH induction, mice were treated with 8 doses of 10 mg/kg mTB001 or MOPC21 isotype control. Mice that did not receive ICH served as healthy controls. Six weeks after stroke induction, brain pathology was measured with immunohistochemistry (IHC). Anti-Gal3 antibody mTB001 significantly improved locomotor function compared to MOPC21 controls. In the brain, mTB001 reduced levels of microhemorrhages.

[0399] Intracerebral hemorrhage is a potentially fatal stroke subtype that accounts for an in-hospital mortality rate and a disability rate of 40% and 80%, respectively. ICH is responsible for 10-15% of all strokes, and the worldwide incidence of ICH is 2 million cases per year with approximately 120,000 cases per year in the United States. However, the incidence is expected to have doubled by 2050 due to aging and the spreading use of anticoagulants. Notably, there is no effective treatment for ICH, and the pathophysiology of

the disease is poorly defined. Some pathogenic effects of ICH may be attributed to deposition of amyloid β (Aβ) in the vasculature, as discussed herein.

[0400] Gal3 belongs to the family of water-soluble lectins, which are sugar binding proteins. Galectins preferentially bind to β-galactoside derivatives and can crosslink surface glycoproteins by binding galactose residues. Gal3 is the only known member of a family of chimera-type galectins which contains a C-terminal carbohydrate recognition domain (CRD) for sugar binding and an N-terminal non-CRD for self-association. Gal3 has ubiquitous subcellular distribution and functions in the nuclear, cytoplasmic, and extracellular compartments. Increasing body of evidence indicates Gal3 as a crucial player involved in regulation of brain inflammation and AD pathology. However, there exists a knowledge gap in the understanding of their cellular expression and function after ICH.

[0401] Induction of intracerebral hemorrhage: Eighteen 10-weeks old C57BL/6J mice had ICH induced by stereotactic injection of autologous tail blood. Animals were anesthetized with isoflurane, placed on a stereotaxic surgery frame, then their shaved heads were sterilized with 70% ethanol and povidone-iodine prep. ICH was induced by the stereotactic injection of autologous tail blood. Hamilton syringe (25 µL) was mounted onto the injection pump, and the needle (26 gauge) stereotactically directed over the bregma. Next, stereotactic manipulator arms were adjusted to position the needle 0.2 mm anterior and 2 mm laterally to the right. At these coordinates, a small cranial burr hole was made using a variable speed drill with a 1 mm drill bit. The tail of mice was disinfected with 70% ethanol. Central tail artery was punctured with a sterile needle (e.g. 26 gauge) and arterial blood was collected into an un-heparinized capillary tube. Blood was quickly transferred from the capillary tube into the glass barrel of the Hamilton syringe, then the plunger was inserted. The Hamilton syringe containing 30 µL or more of arterial blood was mounted onto the injection pump with inserted needle (with its beveled edge facing the sagittal suture) through the burr hole just until its bevel was no longer visible. From this point, the needle was advanced 3 mm ventrally and 5 µL of autologous blood was injected at a rate of 2 µL/min. After completion of the first injection, the needle was advanced to 0.7 mm further in depth. After 5 minutes, 25 µL of blood was injected into the right striatum. Upon completion of the second injection, the needle was left in position for an additional 10 minutes, before withdrawing it at a rate of 1 mm/min. The burr hole was sealed with bone wax, and the skin was sutured.

[0402] Locomotor test using Rotarod: The Rotarod test was used to assess motor coordination and balance in rodents. Testing was performed on a modified Rotarod apparatus. On the day of testing, mice were acclimated in their home cages in the testing room for at least

15 minutes (acclimation phase). Testing consisted of three trials on a modified Rotarod separated by 15 minutes inter-trial intervals. The Rotarod apparatus is a rotating rod with a 5 cm diameter made of hard plastic material covered by grey rubber foam divided into lanes that are each 5 cm wide. Mice were placed in individual lanes while the rod was rotated at 4 revolutions per minute (rpm). Once all the mice were able to walk forward for a few seconds, the trial was started with the rod accelerating from 4 rpm to 40 rpm over the course of 300 seconds. The latency (time) at which each mouse falls off the rod, the distance travelled before falling and the reason for trial end (falling, jumping, or passive rotation) were recorded.

[0403] Dose groups and drug administration: After one week following ICH induction and based on the pre-dose behavior, animals were randomized into two groups based on the Rotarod locomotor function test. One group (n=9) received 8 doses of mTB001 (804-mIgG2a-LALAPG), another group (n=9) received 8 doses of MOPC21 (MOPC21-mIgG2a-LALAPG) as isotype control antibody, each dose was 10 mg/kg. The antibodies were injected intraperitoneally (i.p.) twice in a week. After treatment, mice again underwent locomotor function test. In this behavior procedure, wild type un-injected C57BL/6J mice were also included.

[0404] Sample collection: Mice were anesthetized with isoflurane, blood was collected by cardiac puncture, and mice were perfused transcardially with cold phosphate-buffer saline (PBS). For the comparison, mice dosed eight times either with mTB001 and MOPC21 (isotype control) antibody along with wild type un-injected mice were sacrificed. Brain tissues were fixed for 48 hours with 4% paraformaldehyde in PBS, pH 7.4 at 4°C and stored in PBS/0.02% sodium azide (NaN_3) at 4°C until use.

[0405] Immunohistochemistry: Fixed brain tissues were sectioned (40 μm) with a vibratome. Sagittal sections were collected in PBS containing 0.02% NaN_3 and stored at 4°C prior to staining. Determination of microhemorrhages was performed by staining for ferric acid using Prussian Blue (5% potassium hexacyanoferrate trihydrate + 5% hydrochloric acid) for 30 minutes. Sections were then rinsed with water and counterstained with Nuclear Fast Red. Slides were cover-slipped using DPX mounting media. To stain for microglia and astrocytes, endogenous peroxidase in tissue was blocked by treating with 3% H_2O_2 in PBS for 10 min at 25°C. Non-specific background staining was blocked by 1 hour incubation in 2.5% horse serum, 0.3% Triton-X 100 (TX) at 25°C. Tissues were incubated with primary antibodies against ionized calcium binding adaptor molecule 1 (Iba1; which stains for microglia) or glial fibrillary acidic protein (GFAP; which stains for astrocytes) overnight at 4°C, rinsed three times with PBS, 0.1% TX, followed by biotinylated secondary antibody (anti-mouse) detection with

an avidin-biotin complex (ABC) peroxidase kit, and visualized with a 3,3'-diaminobenzidine (DAB) substrate kit. After DAB staining, brain tissues were mounted on Superfrost Plus (ThermoFisher) microscope slides and dehydrated using different percentages of alcohols and xylene. Slides were cover-slipped using DPX mounting media. Control experiments omitting either primary or secondary antibody resulted in no staining. Brain tissues were scanned using an Aperio VERSA Brightfield, Fluorescence & FISH Digital Pathology Scanner.

[0406] Statistical Analysis: The behavioral data were analyzed using GraphPad Prism-8. All values were reported as mean ± SEM and significance set at $p < 0.05$. NIH ImageJ software was used to analyze the immunohistochemistry and quantification was done using GraphPad Prism-8.

[0407] Induction of Intracerebral hemorrhage (ICH) leads to locomotor deficit: C57BL/6J mice induced with ICH demonstrated significant deficit in locomotor activity before mTB001 dosing, as evidenced by the significantly shorter latency to fall (**FIG. 21A**) and distance travelled (**FIG. 21B**) in the Rotarod test as compared to age matched healthy control C57BL/6J mice.

[0408] Treatment with mTB001 improves locomotor function test: Based on the locomotor activity test, mice were randomized and divided into two groups (n=9 animals/group) with similar capabilities ("Before Dosing" measurement). mTB001 and MOPC21 antibodies (10 mg/kg) was administered intraperitoneally. Wild-type mice served as controls. **FIG. 22** depicts the exemplary dose regimen used after inducing ICH. Animals were tested for locomotor ability after 4 (**FIG. 23A**), 6 (**FIG. 23B**), and 8 doses. After 8 doses of mTB001 antibody, animals performed significantly better on the Rotarod test, as seen by increased latency before fall (**FIG. 23C**) and distance travelled (**FIG. 23D**). These data demonstrate that treatment with an anti-Gal3 antibody results in significant improvement in locomotor activity in an animal model of stroke.

[0409] Treatment with mTB001 reduces microhemorrhage: An increased incidence of microhemorrhage has been observed associated with ICH. In addition, the accumulation of Aβ in the blood vessel wall increases the risk of intracranial hemorrhage and stroke in the human brain. The effect of mTB001 on microhemorrhages was measured by Prussian Blue staining. Blood accumulation in the brains of mTB001-treated mice (after 8 doses) was reduced (**FIG. 24A**), while no microhemorrhage was observed in healthy control sham mice (**FIG. 24B**). **FIG. 24C** depicts a quantification of microhemorrhage by brain tissue area seen in **FIG. 24A-B**. These data demonstrate that treatment with an anti-Gal3 antibody improves microhemorrhage symptoms in an animal model of stroke.

[0410] Treatment with mTB001 reduces activated microglia: One of the main characteristics of ICH is an enhanced neuroinflammatory response characterized by activation of microglia. The effect of treatment with mTB001 on microglial reactivity was assessed as measured by microglia marker Iba1. **FIG. 25A** depicts representative photomicrographs from brain sections of mTB001 and MOPC21 (isotype control) treated mice along with age matched wild type mice stained with Iba1 antibody. Image analysis of sections from multiple animals demonstrated that activated microglia deposits in mTB001 treated mice were significantly reduced (**$p \leq 0.01$) as compared to isotype control mice (**FIG. 25B**). These data demonstrate that treatment with an anti-Gal3 antibody improves inflammatory symptoms related to microglia activity in an animal model of stroke.

[0411] Treatment with mTB001 reduces activated astrocytes: Astrogliosis or activation of astrocytes is another characteristic feature of neuroinflammation due to ICH. The effect of treatment with mTB001 on astrocyte reactivity was assessed as measured by astrocyte marker GFAP. **FIG. 26A** depicts representative photomicrographs from brain sections of mTB001 and MOPC21 (isotype control) treated mice along with age matched wild type mice stained with GFAP antibody. Image analysis of sections from multiple animals demonstrated that activated astrocyte deposits in mTB001 treated mice were significantly reduced (**$p \leq 0.01$) as compared with isotype control mice (**FIG. 26B**). These data demonstrate that treatment with an anti-Gal3 antibody improves inflammatory symptoms related to astrocyte activity in an animal model of stroke.

[0412] In summary, anti-Gal3 antibody treatment is shown to have beneficial effects towards stroke and symptoms thereof. This is particularly striking, as the treatment is able to have efficacy across the blood-brain barrier.

Example 2. Anti-Gal3 antibodies reduce brain pathology in a traumatic brain injury model

[0413] Anti-Gal3 antibody treatment (using mTB001 as a representative antibody) was assessed for efficacy and pharmacodynamics in a controlled cortical impact (CCI) model of traumatic brain injury (TBI). TBI was induced in C57BL/6J mice using a controlled cortical impactor. Following 48 hours after TBI induction, mice were treated with 10 mg/kg mTB001 or MOPC21 isotype control. Mice that did not receive a cortical impact served as healthy controls. After a further 48 hours, brain pathology was measured with IHC, and plasma biomarkers were tested by ELISA. The exemplary anti-Gal3 antibody mTB001 significantly improved locomotor function compared to MOPC21 controls. In the brain, mTB001 reduced levels of CD68+ cells, activated microglia and astrocytes, reduced evidence of

microhemorrhage, and enhanced levels of neurons. mTB001 also reduced the exploratory biomarker neurofilament-light (NF-L) in the plasma.

[0414] TBI, which can be caused by a blow, bump, or jolt to the head, penetrating head injury, or explosive blast is an injury that disrupts normal brain function. TBI can be divided into two stages: 1) the primary injury due to the initial mechanical trauma; and 2) the secondary and potentially reversible damage, characterized by cell loss, axonal damage, and neuroinflammation. Specifically, there is evidence of blood-brain barrier damage with microhemorrhage, astrocytosis, and perivascular clusters of activated microglia. In some cases, focal accumulations of hyperphosphorylated tau as well as macrophage infiltration is detected in close proximity to regions of axonal injury.

[0415] Health effects associated with TBI can be broadly categorized into cognitive, behavioral/emotional, motor, and somatic symptoms. Without effective repair, long-term consequences can develop even decades after the original injury, such as chronic traumatic encephalopathy (CTE), dementia, and Parkinson's disease, each which is associated with the accumulation of hyperphosphorylated tau and destructive neurofibrillary tangles. Therapeutics that can block and reverse disease progression after the primary injury is incurred may have profound, positive life-long effects on patients and their families.

[0416] Gal3 was elevated in TBI patients, and was associated with symptom severity (Glasgow Coma Scale scores) and levels of inflammation (plasma C-reactive protein). In pre-clinical models of TBI using CCI, expression of Gal3 significantly increased in the cortex, hippocampus, and cerebrospinal fluid (CSF) by 24 hours after TBI induction.

[0417] Mechanistically, Gal3 mainly co-localized with microglia 24 hours after TBI induction and Gal3 could interact with TLR4, a receptor that senses infection and damage and leads to pro-inflammatory activation when triggered. *In vitro* stimulation of microglia with Gal3 skewed them towards a pro-inflammatory M1 phenotype and away from an anti-inflammatory, pro-repair M2 phenotype. When Gal3 levels were reduced by genetic knockout or neutralizing antibodies, neuroinflammation was reduced *in vivo* after CCI or after direct TLR4 stimulation with intranigral LPS injection.

[0418] Herein, the mouse-reactive anti-Gal3 mIG2a-LALA antibody mTB001 was assessed for efficacy in reducing brain pathology and biomarker levels in plasma of a TBI mouse model.

[0419] Study Design: 10-week old C57BL/6J mice had TBI induced with a controlled cortical impactor. After 48 hours, animals were randomized into two groups. One group was dosed intraperitoneally with 10 mg/kg mTB001 and the other group was dosed with MOPC21

isotype control. Three mice that did not receive CCI served as healthy controls. After 48 hours, brains were harvested for IHC and plasma was collected for biomarker detection.

[0420] Controlled Cortical Impact Procedure: Animals were anesthetized with isoflurane, placed on a stereotaxic surgery frame, and then their shaved heads were sterilized with 70% ethanol and betadine. A midline incision was made to expose the skull and a 3.0 mm craniotomy was made over the right parietal bone (central point: -2.0 mm bregma; lateral point: 2.5 mm) using a 0.5 mm diameter burr bit connected to a hand-held dental drill. A bone flap of radius 2 mm to 2.5 mm was carved out of the skull. The contusion was next made using a controlled cortical impactor (Leica) with 3.0 m/s velocity, 100 ms dwell time, and 2.2 mm impact depth at 20° angle. The bone flap was affixed to the skull with bone wax and skin sutured over it.

[0421] Sample Collection: Mice were anesthetized with isoflurane, blood was collected by cardiac puncture, and mice were perfused transcardially with cold PBS. Brain tissues were fixed for 48 hours with 4% paraformaldehyde in PBS, pH 7.4 at 4°C and stored in PBS/0.02% NaN_3 at 4°C until use.

[0422] Immunohistochemistry: Fixed brain tissues were sectioned (40 μm) with a vibratome. Sagittal sections were collected in PBS containing 0.02% NaN_3 from 3 different planes of the brain (about 2.5 mm apart) and stored at 4°C prior to staining. Endogenous peroxidase in tissue was blocked for all stains by treating with 3% H_2O_2 in PBS for 10 minutes at 25°C. Nonspecific background staining was blocked by 1 hour incubation in 2.5% serum, 0.3% Triton-X 100 (TX) at 25°C. Tissues were incubated with primary antibodies against GFAP, Iba1, CD68, and tau protein (AT8 antibody) overnight at 4°C, rinsed three times with PBS + 0.1% TX, followed by biotinylated secondary antibody (anti-mouse) detection with an ABC peroxidase kit, and visualized with a DAB substrate kit. After DAB staining, brain tissues were mounted on Superfrost Plus slides and dehydrated using different percentages of alcohols and xylene. Determination of microhemorrhages was performed by staining for ferric acid using Prussian Blue for 30 minutes. Sections were then rinsed with water and counterstained with Nuclear Fast Red. Slides were cover-slipped using DPX mounting media. Control experiments omitting either primary or secondary antibody resulted in no staining. Brain tissues were scanned using an Aperio VERSA Brightfield, Fluorescence & FISH Digital Pathology Scanner.

[0423] Statistical Analysis: The data were analyzed using GraphPad Prism-8 using one-way ANOVA. All values are reported as mean ± standard deviation and significance set at $p < 0.05$.

[0424] mTB001 treatment reduces pathological changes in the brain after traumatic brain injury: To study changes in brain pathology induced by TBI and whether Gal3 antibodies can reduce these changes, animals that did not receive any CCI were compared to animals that received a CCI and treatment with either mTB001 or MOPC21 isotype control. Antibodies were dosed 48 hours after CCI and pathology was assessed by IHC a further 48 hours after antibody treatment. Comparisons first were made between healthy and MOPC21 isotype controls to assess TBI-induced changes. Comparisons were then made between MOPC21 isotype control and mTB001 dosed groups to assess efficacy of anti-Gal3 antibody for TBI.

[0425] The TBI model exhibited increased levels of activated microglia as detected by Iba1 staining, and treatment with mTB001 significantly reduced this (**FIG. 27B**). Representative stains are shown in **FIG. 27A**.

[0426] The TBI model exhibited increased levels of activated astrocytes as detected by GFAP staining, and treatment with mTB001 significantly reduced this (**FIG. 27D**). Representative stains are shown in **FIG. 27C**.

[0427] The TBI model exhibited increased levels of myeloid populations (e.g., macrophages, microglia) that can be detected by CD68 staining in the brain, and treatment with mTB001 significantly reduced this (**FIG. 27F**). Representative stains are shown in **FIG. 27E**.

[0428] The TBI model exhibited increased levels of hyperphosphorylated tau as detected by staining with antibody AT8, and treatment with mTB001 significantly reduced this (**FIG. 28B**). Representative stains are shown in **FIG. 28A**.

[0429] The TBI model exhibited increased microhemorrhages as detected by Prussian Blue staining, and treatment with mTB001 significantly reduced this (**FIG. 28D**). Representative stains are shown in **FIG. 28C**.

[0430] The exploratory neurological disorder biomarker neurofilament-light (NF-L) was detected in plasma of the TBI model. Treatment with mTB001 reduced NF-L in the plasma of TBI-induced mice after 48 hours of treatment (**FIG. 28E**). Untreated and MOPC21 isotype-treated mice were used as control.

[0431] In summary, anti-Gal3 antibody treatment is shown to have beneficial effects towards traumatic brain injury (and related neurological insults) and symptoms thereof. This is particularly striking, as the treatment is able to have efficacy across the blood-brain barrier.

Example 3. Anti-Gal3 antibodies inhibit fibrin oligomerization

[0432] Thrombosis is a pivotal event in the pathogenesis of diseases such as myocardial infarction, stroke and aneurysms with a 70% to 90% incidence of acute thrombotic

occlusion of the artery supplying the infarcted zone in patients with transmural infarctions. In addition, the development of thrombosis overlying the infarcted area may lead to systemic embolization, and deep venous thrombosis develops in 25% of patients as detected by ^{125}I-fibrinogen scanning. The fibrin deposition that occurs with these thrombotic events is associated with changes in plasma fibrinogen that may be interpreted either as indicative of a preexisting "hypercoagulable state" or as secondary to the local thrombosis.

[0433] Fibrin polymer is an end product of the enzymatic cascade of blood clotting. *In vivo* formation of the polymeric fibrin network, along with platelet adhesion and aggregation, are the key events in salutary stopping of bleeding at the site of injury (hemostasis) as well as in pathological vascular occlusion (thrombosis). Fibrin polymerization comprises a number of consecutive reactions, each affecting the ultimate structure and properties of the fibrin scaffold. These properties determine the development and outcomes of various diseases, such as heart attack, ischemic stroke, cancers, trauma, surgical and obstetrical complications, hereditary and acquired coagulopathies, and thrombocytopathies. In addition to providing a better understanding of the pathogenesis of such disorders, the knowledge of the molecular mechanisms of fibrin formation provides a foundation for new diagnostic tools and therapeutic approaches.

[0434] Rupture of an atherosclerotic plaque causes platelet aggregation and activation of the coagulation cascade with formation of thrombin prompting conversion of fibrinogen to fibrin. As a result, a platelet-rich thrombus entrapped in a cross-linked fibrin network is formed, which may result in arterial occlusion and subsequent organ damage.

[0435] Studies have shown that altered structure of fibrin clots is associated with coronary artery disease (CAD) and myocardial infarction (MI). Furthermore, a compact clot structure is associated with cardiovascular risk factors such as diabetes and smoking. Thrombotic and inflammatory markers including fibrinogen and high-sensitive C-reactive protein (hs-CRP) have independently been associated with increased risk of cardiovascular events. Increased plasma levels of fibrinogen directly modulate fibrin clot properties and compromise fibrinolysis, representing one mechanism explaining the association between fibrinogen levels and cardiovascular disease. In addition, markers of inflammation may affect fibrin clot structure and platelet reactivity during antiplatelet therapy. In the brains of Alzheimer's disease patients, tissue plasminogen activator (tPA)/plasmin fibrinolytic activity is expected to be reduced due to the elevation of plasminogen activator inhibitor-1 (PAI-1) levels in the cerebrospinal fluid of AD patients and the reduction of plasmin activity in AD brains.

[0436] Demonstrated herein, Gal3 can accelerate fibrin oligomerization, and anti-Gal3 antibodies can interfere with this oligomerization, which may have therapeutic benefits.

[0437] To determine if Gal3 can oligomerize fibrin, fibrin protein was incubated with or without Gal3 and samples taken at various time points. Samples were probed on a dot blot with a conformation-specific antibody that binds oligomers. Inclusion of Gal3 rapidly promotes fibrin oligomer formation. To determine if Gal3 antibodies can block this function, various anti-Gal3 antibody clones (and MOPC21-hIgG4 isotype control) were co-incubated with fibrin and Gal3, and oligomer formation assessed on a dot blot.

[0438] **FIG. 29** depicts exemplary anti-Gal3 antibodies tested and assigned numbers (#) used throughout this Example and associated data.

[0439] Study Design: To determine the ability of Gal3 to promote oligomerization, 100 µg/mL Gal3 was added to 100 µg/mL fibrin before incubation. For oligomerization of fibrin using Gal3 as an inducer, samples were spotted for 1-5 hours. Alternatively, samples were also taken at 0, 2, 4, 6, and 24 hours after Gal3 addition to fibrin for analysis on a dot blot. During the screening of antibodies, fibrin with and without Gal3 was incubated for 24 hours prior to addition of antibodies. To determine the ability of Gal3 antibodies to degrade fibrin oligomerization, MOPC21-IgG4 isotype control, TB001, TB006, and other anti-Gal3 antibody clones were added to the fibrin/Gal3 mixture and incubated for 24 hours to a final concentration of 100 µg/mL of antibody. Samples were taken at 24 hours for analysis on a dot blot probed with conformation oligomer specific antibody A11.

[0440] Oligomerization of fibrin: 1 mg of fibrin peptide was resuspended in 90 µL of 100 mM NaOH and incubated for 10 minutes. This solution was then diluted to a final concentration of 0.1 mg/mL by adding 10 mM sodium phosphate buffer, pH 7.4. Gal3 with or without antibodies were added to test their effects. The solution was continuously stirred using a stir bar while incubating at room temperature. At various time points after mixing, samples were taken and probed on a dot blot to detect formation of oligomers using A11.

[0441] Dot blots: 2 µL of sample was pipetted onto a Whatman nitrocellulose membrane at the appropriate time points for dot blot. Dot blot membrane was incubated in 10% non-fat milk in TBS-T for 1 hour at room temperature to block nonspecific binding. The blot was then incubated with primary antibody A11 (rabbit polyclonal oligomer conformation antibody) overnight at 4°C. After three 5-minute washes in TBS-T, the membranes were incubated with the appropriate secondary antibody (goat anti-rabbit IgG H&L (HRP)) for 1 hour at room temperature. Following three 5-minute washes in TBS-T, the membrane was incubated in detection reagents for 1-5 seconds. The dot blot images of the results were

obtained using an imager (Azure Biosystems) and quantified using Image Studio software. Local background to each dot was subtracted from image intensity to correct for any differences at different areas of the blots.

[0442] Statistical analysis: The quantification was done using Licor Image Studio Lite and results were analyzed in GraphPad Prism-8.

[0443] Results: A11 antibody detects conformational oligomeric structures of various amyloid proteins like fibrin. Fibrin oligomerization is promoted by Gal3 incubation compared to controls without Gal3, as evidenced by the increased intensity of the A11-reactive dots. **FIG. 30A-B** show a time course of Gal3 and fibrin incubation over 0-5 hours. **FIG. 31A-B** show a time course of Gal3 and fibrin incubation over 0-24 hours (which corresponds to the duration used in later antibody incubation experiments).

[0444] As seen in **FIG. 32**, Gal3-induced fibrin oligomerization detected by A11 antibody was unaffected by inclusion of MOPC21-hIgG4 isotype control. However, anti-Gal3 antibodies TB001 and TB006 degrade Gal3-induced fibrin oligomerization at tested concentrations of 3, 10, and 100 μg/mL of antibody.

[0445] In addition to TB001 and TB006, various other anti-Gal3 antibody clones were screened for ability to degrade Gal3-induced fibrin oligomers. 100 μg/mL each of fibrin and Gal3 were incubated for 24 hours prior to addition of 100 μg/mL anti-Gal3 antibody clones. The samples were continuously stirred using a stir bar at room temperature. After 24 hours, samples were taken and probed on a dot blot with A11 antibody. **FIG. 33A** shows that Gal3 intrinsically promotes fibrin oligomers. **FIG. 33B** shows a dot blot of fibrin oligomer degradation by different anti-Gal3 antibodies as listed according to number in **FIG. 29**, in duplicate. **FIG. 33C** shows the quantitative profile of degradation of fibrin oligomers by different anti-Gal3 antibodies of **FIG. 33B**.

[0446] As demonstrated here, Gal3 promotes fibrin oligomerization and various anti-Gal3 antibody clones can degrade these Gal3-induced fibrin oligomers, while MOPC21 isotype control had no effect. Accordingly, this suggests that anti-Gal3 antibodies can interfere with molecular mechanisms controlling the development and severity of diseases associated with fibrin activity, such as heart attack, ischemic stroke, cancers, trauma, surgical and obstetrical complications, hereditary and acquired coagulopathies, and thrombocytopathies.

Example 4. Anti-Gal3 antibodies as therapeutics for cerebral amyloid angiopathy

[0447] Cerebral amyloid angiopathy (CAA) consists of the deposition of amyloid β (Aβ) peptide in the walls of small to medium-sized arteries, arterioles, and capillaries in the

cerebral cortex, leptomeninges, and cerebellum. In as many as 15% of patients with spontaneous ICH, the pathogenesis of ICH is attributed to CAA. However, the deposition of amyloid in cerebral vessels is common, and the extent of amyloid deposition is age related. CAA may be confirmed from the autopsy of 10% to 50% of the elderly population, in 80% of patients with Alzheimer's disease and in 50% of patients with ICH. Stroke and Alzheimer's disease are cerebral pathologies with high socioeconomic impact that can occur together and mutually interact. Vascular factors predisposing to cerebrovascular disease have also been specifically associated with development of AD, and acute stroke is known to increase the risk to develop dementia. Despite the apparent association, it remains unknown how acute cerebrovascular disease and development of AD are precisely linked and act on each other. It has been suggested that this interaction is strongly related to vascular deposition of Aβ (i.e., CAA). Furthermore, the blood-brain barrier (BBB), perivascular space, and the glymphatic system, the latter proposedly responsible for the drainage of solutes from the brain parenchyma, may represent key pathophysiological pathways linking stroke, Aβ deposition, and dementia.

[0448] There are many links between hemostasis and cerebrovascular pathology in AD. Aβ can activate platelets, induce microhemorrhages in the brain, and interact with several coagulation factors. Aggregates of Aβ can activate coagulation factor XII (FXII) to initiate blood clotting, and can increase fibrin density and resistance to fibrinolysis. CAA deposits contain coagulation factors, and antiplatelet therapy reduces accumulation of CAA deposits and improves cognitive function in mice. Aβ forms stable complexes with FXIIIa and colocalizes with FXIIIa and fibrin in CAA deposits of AD patients.

[0449] Transgenic mice with human APP751 bearing the E693Q mutation under the murine Thy1 promoter is a model for CAA. This transgenic mouse line bears a mutation that was determined to cause hereditary cerebral hemorrhage with amyloidosis-Dutch type, a rare autosomal dominant disorder characterized by CAA, strokes, and dementia (APPDutch). These mice have an increased Aβ40/Aβ42 ratio, but parenchymal amyloid plaques are not observed. Instead, mice develop extensive vascular Aβ deposition starting at 22 to 24 months of age, and appearing first in leptomeningeal vessels followed by cortical vessels. This leads to smooth muscle cell degeneration, hemorrhages, and neuroinflammation. The mice develop robust microgliosis immediately adjacent to amyloid-laden vessels, and widespread activation of astrocytes in neocortical regions affected by CAA. Female mice have earlier onset of amyloid deposition.

[0450] APPDutch mice are used for *in vivo* study. Mice will undergo behavior tests and compared to age matched control mice. Pre-dose plasma/serum is collected for different

biomarker assays. Dose range therapeutic efficacy of the anti-Gal3 antibodies disclosed herein are conducted. Briefly, different doses of anti-Gal3 antibodies are administered i.p. twice in a week, with a total of 8 doses administered. After dosing, mice will undergo behavior tests. Mice are sacrificed, and blood, CSF, brain, and other organs are collected for quantifying various biomarkers, histology, and biochemical characterization.

[0451] In AD and CAA, Gal3 expression levels are increased. Gal3 intrinsically promotes aggregation of various amyloid proteins like Aβ and non-amyloid proteins like fibrin during the disease stage. Anti-Gal3 antibodies degrade these oligomers in a dose dependent manner in the case of Aβ oligomers, and also degrades fibrin oligomers. Four doses of exemplary anti-Gal3 antibody mTB001 not only significantly reduces the pathological hallmarks of AD but also reduces inflammatory markers such as activated microglia and astrocytes. Improvement of CAA may also be assessed through biomarkers such as ApoE, clusterin, and sushi repeat-containing protein X-linked 1 (SRPX1).

Example 5: Anti-Gal3 antibodies as therapeutics for atherosclerosis

[0452] Atherosclerosis is marked by macrophage accumulation, activation and differentiation into cholesterol-laden "foam cells" within atherosclerotic vascular walls, indicating that atherosclerosis can be considered a chronic inflammatory disease. Gal3 levels are elevated in human atherosclerosis plaques and in preclinical animal models of hypercholesterolemia and stenosis (ApoE-/- mice). Moreover, Gal3 is increased in the unstable parts of patient plaques, and human monocytes treated with Gal3 show increased chemotaxis and activation. Within the plaque, Gal3 is mainly distributed in macrophages and foam cells (rarely in vascular smooth muscle cells), and its expression increases with plaque severity (i.e., extent and inflammation) in human patients and ApoE-/- mice. Atherosclerosis is also associated with and/or may be a cause of thrombosis and thromboembolism, carotid artery disease, coronary artery disease, peripheral artery disease, atherosclerosis-associated heart failure and myocardial infarction, chronic kidney disease, and stroke.

[0453] Gal3 activates secretion of proinflammatory cytokines in myeloid cell lines, and anti-Gal3 antibodies can prevent and/or reduce such effect. The Gal3 inhibitor MCP (modified citrus pectin) inhibits the adhesion of leukocytes to endothelial cells and reduces the size of atherosclerotic lesion areas in ApoE-/- mice.

Example 6: Anti-Gal3 antibodies prevent Gal3-induced inflammatory cytokine expression in monocyte and neutrophil cell lines

[0454] The effect of Gal3 on enhancing cytokine expression in neutrophils and the ability to block this effect by anti-Gal3 antibodies were assessed. HL60 promyeloblast cells (ATCC) were maintained in IMDM with 20% heat-inactivated FBS (Gibco) and 1x Penicillin-Streptomycin (Gibco). HL60 cells were differentiated to Neutrophil-like cells with 1.3% DMSO for 96 hours. Differentiated HL60 cells were washed with FBS-free IMDM media to be used for stimulation at a later time. In 96-well U bottom plates, 50 µL of 4 µM Gal3 (4X, which will result in a 1X (1 µM) final concentration after other component volumes are added) was added to the plates as the highest concentration, followed by a 1:2 serial dilution in FBS-free IMDM media to establish a dose response curve (0, 0.015625, 0.03125, 0.0625, 0.125, 0.25, 0.5, or 1 µM final concentration of Gal3). 50 µL of each Gal3 dilution was then incubated with 50 µL of exemplary anti-Gal3 antibodies or MOPC21 isotype control (at concentrations of 0, 0.0625, 0.125, 0.25, 0.5, 1, 2, or 4 µM final concentration of antibody) for 30 min at 37°C. After that, 0.4 ng/mL of LPS (4X, which will result in a 1X (0.1 ng/mL) final concentration with the other component volumes) was added to every well in the plates and incubated for 30 min at 37°C. Finally, 50 µL of differentiated HL-60 cells (a total of 100k cells) were added to every well in the plates and incubated for 4 hours at 37°C. At the end of the incubation, plates were centrifuged for 5 min at 1000 rpm and supernatant was removed to measure TNF-α, IL-6, and IL-8 by ELISA.

[0455] Tested anti-Gal3 antibodies TB001 and TB006 were shown to have a dose-dependent effect in reducing TNF-α, IL-6, and IL-8 secretion of the HL60 cells during LPS stimulation (**FIG. 34**). MOPC21 isotype control had no effect on cytokine secretion. Some nonspecific cytokine stimulation may be observed due to Fc domains on the antibodies.

[0456] The effect of Gal3 on enhancing cytokine expression in monocytes and the ability to block this effect by anti-Gal3 antibodies was also assessed. THP-1 Monocyte-like cells (ATCC) were maintained in RPMI-1640 media with 10% heat-inactivated FBS and 1X Penicillin-Streptomycin. THP-1 cells were washed once with FBS-free RPMI-1640 media to be used for stimulation at a later time. In 96-well U bottom plates, 50 µL of 4 µM of Gal3 (4X 1 µM) was added to the plates as the highest concentration, followed with a 1:2 serial dilution in FBS-free RPMI-1640 media to establish a dose response curve. 50 µL of 4 µM Gal3 was then incubated with 50 µL of exemplary anti-Gal3 antibodies or MOPC21 isotype control (at concentrations of 0, 0.0625, 0.125, 0.25, 0.5, 1, 2, or 4 µM final concentration of antibody) for 30 min at 37°C. After that, 0.4 ng/mL of LPS (4X 0.1 ng/mL) was added to every well in the plates and incubated for 30 min at 37°C. Finally, 50 µL of THP-1 cells (a total of 100k cells) were added to every well and incubated for 6 or 24 hours at 37°C. At the end of the incubation,

plates were centrifuged for 5 min at 1000 rpm and supernatant was removed to measure TNF-α, IL-6, and IL-8 by ELISA.

[0457] Tested anti-Gal3 antibodies TB001 and TB006 were shown to have a dose-dependent effect in reducing TNF-α, IL-6, and IL-8 secretion of the THP-1 cells during LPS stimulation (**FIG. 35A-C**). MOPC21 isotype control had no effect on cytokine secretion. Some nonspecific cytokine stimulation may be observed due to Fc domains on the antibodies.

[0458] In summary, anti-Gal3 antibody treatment is able to inhibit proinflammatory activity of immune cells such as neutrophils and monocytes.

Example 7: Binning and peptide binding assay of additional exemplary anti-Gal3 antibodies

[0459] A large-scale antibody binning assay was performed on exemplary anti-Gal3 antibodies.

[0460] The epitope binning assay was done in a sandwich format on the high-throughput SPR-based Carterra LSA unit (CarterraBio, Salt Lake City, UT). First, the purified antibodies were diluted to 10 μg/ml concentration in 10 mM NaOAc (pH 5.0) and then were covalently coupled via amine group to HC200M chip activated by EDC and S-NHS to immobilize antibodies to different positions of a 384-spot array. One hundred thirty-eight binning cycles were run on the array of immobilized antibodies. In each cycle, first, human Gal3 (AcroBio GA3-H5129) was injected over the entire array to bind to different antibodies (primary antibody), followed by one antibody (secondary antibody) selected among the panel of 150 anti-GAL3 antibodies tested. At the end of each cycle, the array was regenerated by 10 mM Glycine (pH 2.0) to remove bound antigen and secondary antibody from the array. The data analysis was done using the Epitope software by CarterraBio.

[0461] Binning results are shown in **FIG. 10**. In total, 49 distinct bins were identified for 120 anti-GAL3 antibodies that demonstrate binding to hGAL3 (30 antibodies out of 150 tested did not bind hGAL3 when immobilized on HC200M chip and were thus excluded from further analysis). Antibodies that strongly blocked the association of GAL3 and APP695 belonged to a number of distinct bins defined below. This highlights the utility of these bins as predictors of GAL3 binding activity.

[0462] Clones IMT001 (TB001) and F847C.21H6 exhibited mutual competitive binding for Gal3, but did not prevent binding of the rest of the clones, thus defining bin 1. Clones IMT006 (TB006), 19B5.2E6, 20H5.A3, 23H9.2E4, 2D10.2B2 exhibited mutual competitive binding for Gal3, but did not prevent binding of the rest of the clones, thus defining bin 3. Clones 20D11.2C6 and 15G7.2A7 exhibited mutual competitive binding for Gal3, but

did not prevent binding of the rest of the clones, thus defining bin 5. Clones 3B11.2G2, 13A12.2E5 exhibited mutual competitive binding for Gal3, but did not prevent binding of the rest of the clones, thus defining bin 7. Clones 14H10.2C9, 15F10.2D6, 7D8.2D8, F846TC.14E4, F846TC.7F10, F849C.8D10 exhibited mutual competitive binding for Gal3, but did not prevent binding of the rest of the clones, thus defining bin 8. Clones 12G5.D7 and 849.2D7 exhibited mutual competitive binding for Gal3, but did not prevent binding of the rest of the clones, thus defining bin 10. Clones 24D12.2H9, 6B3.2D3, 849.1D2 exhibited mutual competitive binding for Gal3, but did not prevent binding of the rest of the clones, thus defining bin 11. Clones 13G4.2F8 and 9H2.2H10 exhibited mutual competitive binding for Gal3, but did not prevent binding of the rest of the clones, thus defining bin 12. Clones F846C.1B2, F846C.1F5, F846C.1H12, F846C.2H3, F846TC.16B5 exhibited mutual competitive binding for Gal3, but did not prevent binding of the rest of the clones, thus defining bin 17. In addition, clone 849.5H1 did not compete for binding to Gal3 with other antibodies tested, therefore defining bin 21.

[0463] Antibodies 847.12C4, 847.15D12, 847.15H11, 847.20H7, and 847.27B9 exhibited mutual competitive binding and competed with binding with the commercially available anti-Gal3 antibody B2C10 for hGAL3, but did not prevent binding of the rest of the clones, thus defining bin "B2C10". B2C10 has been epitope mapped to bind to the first 18 amino acids of Gal3. Antibodies 847.10C9, 847.11D6, 847.13E2-mH0mL1, 847.13E2-mH0mL2, 847.16D10, 847.23F11, 847.28D1, and 847.3B3 exhibited mutual competitive binding to the C-terminal carbohydrate-recognition domain (CRD), but did not prevent binding of the rest of the clones, thus defining bin "CRD". Antibodies F846TC.14A2, F847C.10B9, F847C.11B1, F847C.12F12, F847C.4B10, F849C.8H3, 849.8D12, F846C.1H5, 847.14H4, F847C.26F5, 849.2F12, were either not tested ("n/a") or not assigned ("Unassigned") to a bin. Antibodies 846.2B11, 846T.4C9, 847.15F9, 847.21B11, 847.2B8, 847.4D3, 849.4F12, and 849.4B2 were determined to not bind to hGAL3 under the conditions tested.

[0464] Gal3 peptide binding activity of additional exemplary anti-Gal3 antibodies was assessed with the same peptides as described in **FIG. 2** (**SEQ ID NOs: 3-26**). Human Gal3 peptides (LifeTein, custom order) and human Gal3 proteins (R&D Systems, 8259-GA; TrueBinding, QCB200349) were diluted in PBS (Corning, 21-030-CM) to concentrations of at least 100 µg/mL (peptides) or 1 µg/mL (proteins), and added to the wells of several 96-well ELISA plates (Thermo Fisher, 44-2404-21). After incubating the plates at 4°C overnight, the plates were washed three times with PBST (PBS with 0.05% Tween 20 [VWR, 0777]). The plates were then blocked for an hour with 2% BSA (EMD Millipore, 126609) in PBST at room

temperature with gentle rocking. Thereafter, the 2% BSA in PBST was discarded and Gal3-binding antibodies (reformatted hIgG4 [S228P]) were diluted in 2% BSA in PBST to concentrations of 5 µg/mL and added to the wells. The plates were incubated for an hour at room temperature with gentle rocking and then washed three times with PBST. Afterwards, Peroxidase AffiniPure $F(ab')_2$ Fragment Goat Anti-Human IgG (H+L) polyclonal antibody (Jackson ImmunoResearch, 109-036-003), was diluted in 2% BSA in PBST (1:4000) and added to the wells. The plates were incubated for 1 hour at room temperature with gentle rocking and then washed three times with PBST. TMB substrate (Thermo Scientific, 34029) was then added to each well. The reaction was stopped with 1M HCl (JT Baker, 5620-02) and read using a plate reader (Molecular Devices) at absorbance of 450 nm.

[0465] Peptide binding results are depicted in **FIG. 10**. Peptide numbering is based on **FIG. 2**. Binding of Gal3-binding antibodies to the peptide array was observed at multiple locations, with the majority of binding observed in peptides 1-8 and some binding to peptides 13 and 17.

[0466] 13 separate Gal3-binding antibodies (19B5.2E6, 20D11.2C6, 20H5.A3, 23H9.2E4, F846C.1H5, F846TC.14A2, F846TC.7F10, F847C.10B9, F847C.12F12, F847C.26F5, F847C.4B10, 15FG7.2A7, 849.1D2) all bound peptide 1 of Gal3, corresponding to amino acids ADNFSLHDALSGSGNPNPQG (**SEQ ID NO: 3**) of Gal3.

[0467] 7 separate Gal3-binding antibodies (15F10.2D6, 7D8.2D8, F846TC.14E4, F849C.8D10, F849C.8H3, 847.12C4, 847.10C9) bound peptide 2 of Gal3, corresponding to amino acids SGSGNPNPQGWPGAWGNQPA (**SEQ ID NO: 4**) of Gal3.

[0468] 5 separate Gal3-binding antibodies (15F10.2D6, 7D8.2D8, F849C.8D10, 847.12C4, 847.10C9) bound peptide 3 of Gal3, corresponding to amino acids WPGAWGNQPAGAGGYPGASY (**SEQ ID NO: 5**) of Gal3.

[0469] 4 separate Gal3-binding antibodies (13A12.2E5, 15F10.2D6, 3B11.2G2, 847.27B9) bound peptide 4 of Gal3, corresponding to amino acids GAGGYPGASYPGAYPGQAPP (**SEQ ID NO: 6**) of Gal3.

[0470] 4 separate Gal3-binding antibodies (TB001 (IMT001), F846C.1B2, F846C.1H12, F847C.21H6) bound peptide 5 of Gal3, corresponding to amino acids PGAYPGQAPPGAYPGQAPPG (**SEQ ID NO: 7**) of Gal3.

[0471] 15 separate Gal3-binding antibodies (TB001 (IMT001), TB006 (IMT006), 13A12.2E5, 14H10.2C9, 23H9.2E4, 2D10.2B2, 3B11.2G2, F846C.1B2, F846C.1F5, F846C.1H12, F846C.2H3, F846TC.16B5, F847C.21H6, 15FG7.2A7, 847.28D1) bound

peptide 6 of Gal3, corresponding to amino acids GAYPGQAPPGAYPGAPGAYP (**SEQ ID NO: 8**) of Gal3.

[0472] 13 separate Gal3-binding antibodies (14H10.2C9, 19B5.2E6, 20D11.2C6, 20H5.A3, 23H9.2E4, F846C.1B2, F846TC.14A2, F847C.10B9, F847C.12F12, F847C.26F5, 15FG7.2A7, 9H2.2H10, 847.14H4) all bound peptide 7 of Gal3, corresponding to amino acids AYPGAPGAYPGAPAPGVYPG (**SEQ ID NO: 9**) of Gal3.

[0473] 4 separate Gal3-binding antibodies (20D11.2C6, 23H9.2E4, F846TC.14A2, 15G7.2A7) all bound peptide 8 of Gal3, corresponding to amino acids GAPAPGVYPGPPSGPGAYPS (**SEQ ID NO: 10**) of Gal3.

[0474] 2 separate Gal3-binding antibodies (847.12C4, 847.10C9) bound peptide 9 of Gal3, corresponding to amino acids PPSGPGAYPSSGQPSATGAY (**SEQ ID NO: 11**) of Gal3.

[0475] 3 separate Gal3-binding antibodies (15G7.2A7, 847.12C4, 847.10C9) all bound peptide 10 of Gal3, corresponding to amino acids SGQPSATGAYPATGPYGAPA (**SEQ ID NO: 12**) of Gal3.

[0476] 3 separate Gal3-binding antibodies (847.13E2-mH0mL1, 847.13E2-mH0mL2, 847.23F11) all bound peptide 13 of Gal3, corresponding to amino acids LPGGVVPRMLITILGTVKPN (**SEQ ID NO: 15**) of Gal3.

[0477] 13 separate Gal3-binding antibodies (7D8.2D8, F846C.1F5, F846C.1H12, F846C.2H3, F846TC.16B5, F847C.11B1, F849C.8H3, 849.1D2, 847.15D12, 847.13E2-mH0mL1, 847.13E2-mH0mL2, 847.23F11, 847.3B3) all bound peptide 17, corresponding to amino acids RFNENNRRVIVCNTKLDNNW (**SEQ ID NO: 19**) of Gal3.

[0478] 19 separate Gal-3 binding antibodies (849.2D7, 24D12.2H9, 6B3.2D3, 13G4.2F8, 849.5H1, 847.15H11, 847.20H7, 847.11D6, 847.16D10, 849.8D12, 846.2B11, 846T.4C9, 847.15F9, 847.21B11, 847.2B8, 847.4D3, 849.4F12, 849.4B2, 849.2F12) were not found to bind to any of the tested Gal3 peptides under the conditions used in this Example.

[0479] As illustrated in **FIG. 2**, peptides 4, 5, 6, and 7 share repeated amino acid sequences comprised of proline-glycine (PG) and tyrosine-proline-glycine (YPG), indicating a common feature that may explain the ability of Gal3-targeted antibodies to bind to multiple Gal3 peptides. Further, the amino acid sequence glycine-x-tyrosine-proline-glycine (GxYPG), where x may be the amino acids alanine (A), glycine (G), or valine (V), is shared in peptides 4, 6, and 7, each of which possess two such sequences separated by 3 amino acids. Accordingly, the presence of two GxYPG sequences in close apposition is likely predictive of the ability to bind Gal3-targeted antibodies. Additionally, the Grantham distance of alanine, glycine, and

valine is Ala-Val: 64, Ala-Gly: 60, Val-Gly: 109, thereby predicting that amino acids with similarly low Grantham distances may similarly be able to substitute at the variable region, including proline and threonine.

Example 8. Humanized anti-Gal3 antibodies have high affinity for Gal3 of different species

[0480] Cross reactivity of exemplary anti-Gal3 antibodies TB001 and TB006 to human or mouse Gal3 were tested. Kinetics experiments were performed on a Carterra LSA at 25°C. An HC30M chip was immobilized with recombinant Protein A/G. TB001 (IMT001; IMT001-4), TB006 (IMT006; IMT006-5), and a negative control antibody Synagis (10 µg/mL each diluted in HBSTE buffer (HEPES based saline with Tween-20 and EDTA) with 0.5 mg/mL BSA) were captured onto different spots in the 384-spot array. Then, a dilution series of Gal3 (2, 4, 8, 16, 32, 64, and 128 nM) in HBSTE with 0.5 mg/mL BSA was injected to the whole array for 300 seconds to allow association followed by dissociation for 240 seconds. The kinetics constants were calculated by the software NextGenKIT.

[0481] Separately, the affinity kinetics of TB001 and TB006 to cynomolgus Gal3 (cynoGal3) was measured on a Biacore T200 at 25°C. A CM5 chip coated with anti-mouse Fc/anti-human Fc mixture was used to load purified antibody TB001 or TB006 at 10 µg/mL in HBS-EP+ buffer (HEPES based saline with polysorbate 20 and EDTA) with 0.5 mg/mL BSA for 180 seconds, and then a dilution series of His-enterokinase cleavage site (EK)-cynoGal3 (TrueBinding in-house antigen) in HBS-EP+ with 0.5 mg/mL BSA starting from 100 nM, 1:2 dilution for 7 points for 200 seconds, followed by dissociation for 300 seconds. In each cycle, duplicates were made by loading the same antibody to flow cells FC2 and FC4, and then analyte was flowed to all 4 flow cells. The detection was done pairwise, FC2-FC1 and FC4-FC3, to subtract non-specific binding of analyte to the surface. A cycle of 0 nM analyte was run prior to a dilution series of analyte. The 0 nM raw data were subtracted from each non-zero concentration data to minimize machine drifts. The data were analyzed by Biacore Evaluation software version 2.0. The binding affinities were characterized by fitting the kinetic sensograms to a monovalent binding model (1:1 binding).

[0482] Separately, the affinity kinetics of TB001 and TB006 to rat Gal3 was measured on a Biacore T200 at 25°C. A CM5 chip was coated with goat anti-human Fc antibody on all 4 flow cells, and was used to load purified antibodies TB001, TB006, and Synagis (negative control), which all use an hIgG4 backbone. In each sample cycle, duplicates of the same antibody in HBS-EP+ with 0.5 mg/mL BSA at 10 µg/mL were captured to FC2 and FC4 by flowing at 10.0 µL/min for 120 seconds, and then diluted His-EK-ratGal3 in HBS-

EP+ with 0.5 mg/mL BSA was injected to all 4 flow cells at 30.0 µL/min for 180 seconds, followed by dissociation for 240 seconds. A dilution series of His-EK-ratGal3 started from 300 nM, and was 1:3 diluted for 6 points. FC1 and FC3 were used as reference flow cells, and their sensograms were subtracted from FC2 and FC4 respectively to reduce non-specific binding background. Also, an additional sample cycle at 0 nM analyte was run, and its sensogram was subtracted from those of non-zero nM cycles to address machine drifts and bulk shifts. The data were analyzed by Biacore Evaluation software version 2.0. The binding affinities were characterized by fitting the kinetic sensograms to a monovalent binding model (1:1 binding).

[0483] The affinity of Gal3 binding to antibody was determined by acquiring real time Ligand:Analyte binding kinetics data and fitting the data with a 1:1 monovalent binding model. The kinetic evaluation procedure determines association and dissociation constants by fitting the experimental data to a 1:1 interaction model between analyte A and ligand B:

[0484] K_a: A+B $\rightarrow$ AB; and K_d: A+B $\leftarrow$ AB, where K_a is the association rate constant ($M^{-1}s^{-1}$) and the K_d is the dissociation rate constant (s^{-1}).

[0485] The net rate of complex formation during injection is given by:

[0486] $d[AB]/dt = K_a[A][B] - K_d[AB]$

[0487] and the rate of dissociation after the end of the injection is:

[0488] $d[AB]/dt = -K_d[AB]$.

[0489] The affinity KD is the result of K_d divided by K_a.

[0490] Humanized TB001 (IMT001) and TB006 (IMT006a), which were derived from mouse mAbs, both have high affinity for human (IMT001: 3.6 nM, IMT006a: 8.9 nM) and cynomolgus (IMT001: 8.9 nM, IMT006a: 5.1 nM) Gal3 (**FIG. 11B**). IMT001 also has high affinity for mouse Gal3 (IMT001: 2.3 nM, IMT006a: 40000 nM) and rat Gal3 (IMT001: 14 nM, IMT006a: undetected).

Example 9: Anti-Gal3 antibodies for use in the treatment of stroke or cerebral amyloid angiopathy

[0491] Patients present with stroke, cerebral amyloid angiopathy or symptoms thereof. The stroke may be an ischemic stroke, thrombotic stroke, embolic stroke, transient ischemic attack, hemorrhagic stroke, intracerebral hemorrhage, or subarachnoid hemorrhage. The cerebral amyloid angiopathy may be associated with the stroke. One or more anti-Gal3 antibodies or binding fragments thereof disclosed herein are administered to the patients enterally, orally, intranasally, parenterally, intracranially, subcutaneously, intramuscularly, intradermally, or intravenously.

[0492] The anti-Gal3 antibodies or binding fragments thereof are administered as doses in at an amount of 1000 mg (or in the alternative: 0.1, 1, 10, 100, 1000 ng, or 1, 10, 50, 100, 200, 300, 400, 500, 600, 700, 800, 900, 1000 μg, or 1, 10, 100, 200, 300, 400, 500, 600, 700, 800, 900, 1100, 1200, 1300, 1400, 1500, 1600, 1700, 1800, 1900, 2000 mg, or any amount within a range defined by any two of the aforementioned amounts, or any other amount appropriate for optimal efficacy in humans). Multiple doses may be administered as part of a treatment schedule. For example, 5 doses (or in the alternative: 2, 3, 4, 6, 7, 9, 8, 10, 11, 12, 13, 14, 15, or 16 doses) may be administered. The doses are administered every 1 day (or in the alternative: every 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 24, 36, or 48 days or any time within a range defined by any two of the aforementioned times). The doses may be administered for a combined total of 5000 mg (or in the alternative: 1000, 2000, 3000, 4000, 6000, 7000, 8000, 9000, or 10000 mg) to each patient.

[0493] A treatment of the stroke, cerebral amyloid angiopathy, or symptoms thereof is observed in the patients following administration of the anti-Gal3 antibodies or binding fragments thereof. Administration of the anti-Gal3 antibodies or binding fragments may be performed in conjunction with another therapy for stroke or cerebral amyloid angiopathy, for example, thrombolytics, tissue plasminogen activator (tPA), alteplase, reteplase, tenecteplase, desmoteplase, anticoagulants, ACE inhibitors, antihypertensives, nicardipine, or surgery, or any combination thereof.

Example 10: Anti-Gal3 antibodies for use in the treatment of traumatic brain injury

[0494] Patients present with traumatic brain injury or symptoms thereof. One or more anti-Gal3 antibodies or binding fragments thereof disclosed herein are administered to the patients enterally, orally, intranasally, parenterally, intracranially, subcutaneously, intramuscularly, intradermally, or intravenously.

[0495] The anti-Gal3 antibodies or binding fragments thereof are administered as doses in at an amount of 1000 mg (or in the alternative: 0.1, 1, 10, 100, 1000 ng, or 1, 10, 50, 100, 200, 300, 400, 500, 600, 700, 800, 900, 1000 μg, or 1, 10, 100, 200, 300, 400, 500, 600, 700, 800, 900, 1100, 1200, 1300, 1400, 1500, 1600, 1700, 1800, 1900, 2000 mg, or any amount within a range defined by any two of the aforementioned amounts, or any other amount appropriate for optimal efficacy in humans). Multiple doses may be administered as part of a treatment schedule. For example, 5 doses (or in the alternative: 2, 3, 4, 6, 7, 9, 8, 10, 11, 12, 13, 14, 15, or 16 doses) may be administered. The doses are administered every 1 day (or in the alternative: every 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 24, 36, or 48 days or any time within a

range defined by any two of the aforementioned times). The doses may be administered for a combined total of 5000 mg (or in the alternative: 1000, 2000, 3000, 4000, 6000, 7000, 8000, 9000, or 10000 mg) to each patient.

[0496] A treatment of the traumatic brain injury or symptoms thereof is observed in the patients following administration of the anti-Gal3 antibodies or binding fragments thereof. Administration of the anti-Gal3 antibodies or binding fragments may be performed in conjunction with another therapy for TBI, for example, levodopa, bromocriptine, NMDA receptor antagonists, amantadine, memantine, cholinesterase inhibitors, tacrine, rivastigmine, galantamine, donepezil, surgery, or any combination thereof.

Example 11: Anti-Gal3 antibodies for use in the treatment of fibrin disorders

[0497] Patients present with a disorder associated with fibrin oligomerization, or symptoms thereof. For example, the patient may present with or be at risk for one or more of atherosclerosis, thrombosis, thromboembolism, carotid artery disease, coronary artery disease, peripheral artery disease, myocardial infarction, heart failure, heart attack, hypertension, chronic kidney disease, stroke, or other cardiovascular diseases. In some embodiments, the patients may present with atherosclerosis, which may be associated with one or more of these other diseases. One or more anti-Gal3 antibodies or binding fragments thereof disclosed herein are administered to the patients enterally, orally, intranasally, parenterally, intracranially, subcutaneously, intramuscularly, intradermally, or intravenously.

[0498] The anti-Gal3 antibodies or binding fragments thereof are administered as doses in at an amount of 1000 mg (or in the alternative: 0.1, 1, 10, 100, 1000 ng, or 1, 10, 50, 100, 200, 300, 400, 500, 600, 700, 800, 900, 1000 μg, or 1, 10, 100, 200, 300, 400, 500, 600, 700, 800, 900, 1100, 1200, 1300, 1400, 1500, 1600, 1700, 1800, 1900, 2000 mg, or any amount within a range defined by any two of the aforementioned amounts, or any other amount appropriate for optimal efficacy in humans). Multiple doses may be administered as part of a treatment schedule. For example, 5 doses (or in the alternative: 2, 3, 4, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, or 16 doses) may be administered. The doses are administered every 1 day (or in the alternative: every 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 24, 36, or 48 days or any time within a range defined by any two of the aforementioned times). The doses may be administered for a combined total of 5000 mg (or in the alternative: 1000, 2000, 3000, 4000, 6000, 7000, 8000, 9000, or 10000 mg) to each patient.

[0499] A treatment of the disorder associated with fibrin oligomerization or symptoms thereof is observed in the patients following administration of the anti-Gal3

antibodies or binding fragments thereof. Administration of the anti-Gal3 antibodies or binding fragments may be performed in conjunction with another therapy for disorders associated with fibrin oligomerization or cardiovascular diseases, for example, anti-clotting agents (e.g. aspirin), statins, antihypertensives, diuretics, calcium channel blockers, ACE inhibitors, angiotensin II receptor antagonists, adrenergic receptor antagonists, vasodilators, renin inhibitors, aldosterone receptor antagonists, endothelium receptor blockers, or surgery, such as vascular bypass surgery, percutaneous coronary intervention, coronary artery bypass graft, carotid endarterectomy, or angioplasty.

Example 12: Clinical study of efficacy, safety, and pharmacokinetics of TB006 in patients with acute ischemic stroke.

[0500] Stroke is a leading cause of death and disability. In 2018, more than 795,000 people in the US experienced a stroke event and stroke related costs exceed $46 billion. Stroke reduces mobility in more than half of stroke survivors aged 65 and over. About 87% of all strokes are ischemic strokes in which blood flow to the brain is blocked. Nonetheless, IV thrombolysis with tPA and thrombectomy are still the only approved treatments for AIS. Due to limitations in tPA dosing, especially a narrow therapeutic window, only < 5% of hospitalized patients for stroke receive tPA. Researchers have been desperately trying to identify novel treatment strategies beyond recanalization, i.e., neuroprotective and neurorestorative treatments. In the last few decades, more than 1,000 acute stroke treatments have been tested successfully in the preclinical lab, with nearly 100% failure in large clinical trials. Therefore, there is a huge need to develop therapies using different approaches that would be accessible to a greater number of patients for the treatment of acute stroke.

[0501] Activity in stroke research peaked in the mid-1990s to the mid-2000s. The vast majority of experimental drugs developed to treat AIS have been classified as either thrombolytics or neuroprotectants. The former group encompasses compounds that restore blood flow, while the latter term covers drugs that act to preserve neurons. One of the limitations with these approaches, even if patients gain access to them and they are successful, is that neuronal damage is done. After the acute period, stroke survivors face a myriad of challenges, including, but not limited to, hemiparesis and aphasia. While evidence supports the utility of rehabilitation efforts after acute stroke, complete neurological and physical recovery is rarely complete. The profound vacuum in this field is particularly disappointing because evidence suggests that functional recovery is possible. Innovative approaches to enhance the body's endogenous regenerative abilities remain an opportunity for improvement.

[0502] Galectin-3 levels are elevated for up to 2 months following brain ischemia in animals. The primary source of Gal-3 in the acute ischemic brain tissue is the microglia. Galectin-3 expression leads to infiltration of inflammatory cells, and then the production of reactive oxygen species. Reduction or inhibition of Gal-3 contributes to the revascularization of previously ischemic tissue and improvement of post stroke angiogenesis and plays an important role in remyelination and recovery from neuronal loss. Therefore, compounds that inhibit Gal-3 may contribute to neuro-restoration. In addition, the benefits of blocking Gal-3 are evident if the treatment is started 8 days after the stroke event.

[0503] Anti-Gal3 antibodies can be used as therapeutic agents for acute ischemic stroke (AIS) by neutralizing Gal3, which regulates activation of astrocytes and microglia. Activation of these cells, which occurs in stroke, leads to neuronal damage and infiltration of other inflammatory factors compounding the cascade of functional decline. TB006 has been shown in *in vitro* models to reduce activated astrocytes and microglia, and has demonstrated improvement in *in vivo* models of stroke in both locomotor and cognitive functioning. This evidence supports clinical testing in an AIS setting. The preclinical safety profile of TB006 further supports the clinical investigation of TB006.

[0504] This example represents a Phase 2 study in patients with a mild to moderate AIS event that will evaluate the efficacy, safety and tolerability, and pharmacokinetic (PK) profile of TB006, administered once weekly (QW) as an intravenous (IV) infusion over 1 hour. This example will commence after the safety, tolerability, and PK of single TB006 doses up to 5,000 mg have been established in healthy volunteers. The primary efficacy endpoint will be the National Institutes of Health Stroke Scale (NIHSS), and the primary efficacy assessment will be the change from Baseline in the active treatment group versus placebo. Other efficacy measures include the modified Rankin Scale (mRS), Fugl-Meyer Assessment (FMA), and Montreal Cognitive Assessment (MoCA). A variety of assessments, including physical exams, vital signs, electrocardiograms (ECGs), and clinical labs, will be used to assess safety.

[0505] Patients with mild to moderate ischemic stroke are eligible to participate if all eligibility criteria are met and they are able to receive their first dose of treatment within 7 days of the documented stroke event. Patients may be enrolled into the example trial while either in an inpatient facility or following discharge; likewise, patients may receive their 5 weekly doses of drug while in an inpatient facility or following discharge. All patients will be followed up for safety, efficacy, and PK assessments through Day 104 of the example.

[0506] This example will evaluate the efficacy and safety of TB006 in patients with an AIS event with 1 month of treatment. The total example study duration of each patient will

be up to approximately 15 weeks. This example has a parallel-group design with 2 treatment groups: TB006 and placebo. 112 patients are randomized in a 1:1 ratio (56 patients per group) to receive either treatment. Doses will be administered QW for a total of 5 doses (Days 1, 8, 15, 22, 29). The dose of TB006 is 1,000 mg QW (total of 5,000 mg over 1 month). This example will commence after the safety and tolerability of a single 5,000 mg dose has been established in a single ascending dose (SAD) study.

[0507] Patients with an ischemic stroke event, as documented with a computed tomography (CT) scan or magnetic resonance imaging (MRI), with a Baseline NIHSS total score of 7 to 21 (inclusive), are eligible to participate. Patients must be randomized and dosed within 7 days of their known documented AIS event. The last known awake time will be used as the stroke onset time for patients whose stroke occurred during sleep. They may be either hospitalized or have been discharged at Baseline. Despite the 7-day window from time of stroke onset to first dose of administration, every effort should be made to administer the first dose as early as possible. Hospitalized patients may be dosed, monitored and evaluated initially as inpatients; following discharge, patients will be followed on an outpatient basis for dose administration (if any remain), and all follow-up assessments through Day 104. Patients may receive standard of care treatments for ischemic stroke, including the administration of tissue plasminogen activator if they are eligible, throughout the trial.

[0508] All randomized patients will follow the dosing schedule, and efficacy and safety procedures through Day 104, and at early discontinuation (E/D) if necessary. Patients will return to the clinic on dosing days and on follow-up visit days following hospital discharge. If a patient reports adverse events (AEs), they may be required to return to the clinic (if they are outpatients) at discretion for additional assessments. All AEs must be followed to adequate resolution. Efficacy assessments include the NIHSS, mRS, FMA, and MoCA, and are conducted by trained and certified staff. TB006 infusions are administered IV over 1 hour. Doses may be prepared by either hospital or research site pharmacy staff.

[0509] Inclusion Criteria:

[0510] 1) Male and/or female 18 to 85 (inclusive) years of age at the time of signing the informed consent.

[0511] 2) Body mass index (BMI) between 18 and 40 kg/m^2, inclusive.

[0512] 3) Clinical diagnosis of AIS in anterior circulation, supported by acute brain CT or MRI consistent with the clinical diagnosis.

[0513] 4) Able to be randomized and dosed within 7 days of index stroke event. The last known awake time will be used for patients whose stroke occurred during sleep.

[0514] 5) National Institute of Health Stroke Scale total score of 7 to 21, inclusive.

[0515] 6) Participants or their legally authorized representative confirms that prior to index stroke event, no significant impairment in participant's ability to perform Activities of Daily Living (ADL) without assistance.

[0516] 7) Patients may have received standard of care therapy including tPA, thrombectomy, mannitol, hypertonic saline, and other treatments per local guidelines.

[0517] 8) Contraceptive use by men or women should be consistent with local regulations regarding the methods of contraception for those participating in clinical studies.

[0518] a) Male subjects are eligible to participate if they agree to the following from the first day of dosing until at least 90 days after dosing: refrain from donating sperm, PLUS, either: be abstinent from heterosexual intercourse as their preferred and usual lifestyle (abstinent on a long term and persistent basis) and agree to remain abstinent unless partner is not a Woman of Childbearing Potential (WOCBP) OR must agree to use contraception/barrier.

[0519] b) Female subjects are eligible to participate if they are not pregnant or breastfeeding, and at least one of the following condition applies: is not a WOCBP, OR be abstinent from heterosexual intercourse as their preferred and usual lifestyle (abstinent on a long term and persistent basis) and agree to remain abstinent throughout the example study, OR is a WOCBP and using a contraceptive method that is highly effective (with a failure rate of < 1% per year), preferably with low user dependency from Baseline until completion of the example study, and agrees not to donate eggs (ova, oocytes) for the purpose of reproduction during this period. A WOCBP must have a negative highly sensitive pregnancy test (serum) prior to randomization.

[0520] 9) Patients or caregiver or legally authorized representative has the ability to understand the purpose and risks of the example study and provide signed and dated informed consent which includes compliance with the requirements and restrictions. Patients whose caregiver signs the informed consent must provide their assent.

[0521] Exclusion Criteria:

[0522] 1) Evidence of severe stroke on imaging (e.g., sulcal effacement or blurring of gray-white junction in greater than 1/3 of middle cerebral artery [MCA] territory, Alberta Stroke Program Early CT [ASPECT] score of 0 to 4 based on head CT, acute infarct volume on MRI diffusion weighted imaging ≥ 70 mL) based on acute imaging studies performed under the standard of care.

[0523] 2) Lacunar or isolated brainstem or cerebellar stroke based on clinical assessment and available acute imaging studies performed under the standard of care.

[0524] 3) Evidence of seizure at the onset of index stroke.

[0525] 4) Evidence of acute myocardial infarction (MI) at Baseline, including any of the following:

[0526] a) acute ST elevation MI,

[0527] b) acute decompensated heart failure, or New York Heart Association Class III/IV heart failure,

[0528] c) admission for an acute coronary syndrome, MI, cardiac arrest, or non-voluntary coronary intervention (percutaneous coronary intervention or coronary artery surgery) within the past 3 months,

[0529] d) QT interval corrected using Bazett's formula (QTcB) > 520 msec.

[0530] 5) Evidence of acute intracranial or subarachnoid hemorrhage or evidence of active bleeding based on acute brain CT or MRI performed under the standard of care. However, petechial hemorrhages of ≤ 1 cm are not exclusionary.

[0531] 6) Symptoms are considered likely to resolve within the subsequent few hours (e.g. transient ischemic attack [TIA]).

[0532] 7) Known history prior to randomization of clinically significant medical conditions (other than current AIS) or any other reason, including any physical, psychological, or psychiatric condition that in the investigator's opinion would compromise the safety or interfere with the participant's participation in this example.

[0533] 8) Known medical history of repeated episodes of complex migraine. Participants of complex migraine, but with imaging conclusively demonstrating an AIS are still allowed.

[0534] 9) Subjects with, in the opinion of the investigator, a life expectancy of < 3 months not related to current event, or those unlikely to be compliant with example study procedures or follow-up visits.

[0535] 10) Any substances detected in the drug screen dipstick test at Baseline that, in the opinion of the investigator, cannot be adequately explained.

[0536] 11) Female who is pregnant, breastfeeding, or considering becoming pregnant during the example study or within 10 weeks after the last dose of drug.

[0537] 12) Active coronavirus disease (COVID-19) infection.

[0538] 13) Known recipient of any investigational product within 30 days or 5 half-lives of the drug (whichever is longer) prior to the first dose of drug. No current enrollment in another interventional clinical study, including behavioral interventional studies.

[0539] Summary of statistical considerations: Summary statistics will be reported by treatment group for efficacy endpoints (NIHSS total score, MoCA total score) and change from Baseline in each of these efficacy endpoints at each applicable visit. Unadjusted and adjusted mean treatment differences, along with the 95% CI of the change from Baseline in each efficacy endpoint at each applicable visit will also be reported. Adjusted mean treatment difference will be derived by using a mixed-effect model for repeated measures (MMRM) that includes the fixed-effects of treatment, visit (categorical covariate), treatment-by-visit interaction and Baseline score. An unstructured variance-covariance matrix might be used, where appropriate. Appropriate linear contrast will be used to compare the 2 treatment groups.

[0540] Baseline values will be taken as the most recent assessment prior to dosing, reported during screening and up to and including Day 1.

[0541] Primary Endpoint: The primary efficacy measure is the change in neurological function from Baseline in the NIHSS total score through Day 104. The primary analysis will determine whether there is a difference between the active treatment group and the placebo treatment group in mean change from Baseline up to Day 104 in the NIHSS total score, according to the methods noted above. Effect size will also be determined. The NIHSS is performed at Baseline, then at Days 15, 36, 64, and 104 following initial intervention (intervention or safety follow-up period).

[0542] For testing as the change from Baseline on the NIHSS, the adjusted mean treatment differences will be derived by using a MMRM that includes the fixed effects of treatment, visit (categorical covariate), treatment-by-visit interaction, and Baseline score. An unstructured variance-covariance matrix might be used, where appropriate. Appropriate linear contrast will be used to compare the 2 treatment groups.

[0543] Secondary Endpoint: For testing the proportion of patients with clinically significant improvement on the mRS (defined as a 1-point decrease) and NIHSS (defined as a 4-point decrease) on Day 36 (and sustained through Day 104) will be compared using a Mantel-Haenszel test.

[0544] Primary and secondary objectives and endpoints are described in **Table 1**. ADA = anti-drug antibody; AEs = adverse events; AIS = acute ischemic stroke; C_{max} = maximum concentration; C-SSRS = Columbia Suicide Severity Rating Score; C_{trough} = minimum concentration; ECG = electrocardiogram; FMA = Fugl-Meyer Assessment; MoCA = Montreal Cognitive Assessment; mRS = modified Rankin Scale; NIHSS = National Institutes of Health Stroke Scale; PK = pharmacokinetic(s); SAE = serious adverse event; $t_{1/2}$ = time required to reduce by half the plasma concentration of the drug.

Table 1. Objectives and Endpoints for AIS Treatment

Objectives	Endpoints
Primary Objective: To determine the clinical efficacy of TB006 in patients with AIS	• Change in neurological function from Baseline through Day 104 on the NIHSS
Secondary Objective: To determine the clinical efficacy of TB006 in patients with AIS	• The proportion of patients who demonstrate clinically significant improvement on the NIHSS (defined as a 4-point decrease) on Day 36 (and sustained through Day 104) • Change in neurological function from Baseline through Day 36 on the NIHSS • The proportion of patients who demonstrate clinically significant improvement on the mRS (defined as a 1-point decrease) on Day 36 (and sustained through Day 104) • Change in the total score on the FMA on Day 36 and Day 104 • Change in the total score on the MoCA on Day 36 and Day 104
Secondary Objective: To determine the safety and tolerability of TB006	Safety endpoints, including the incidence of AEs and SAEs, clinical laboratory parameters, vital signs, ECGs, C-SSRS, physical and neurological examinations, and ADA until Day 104 after the first TB006 dosing
Secondary Objective: To determine the PK following multiple doses of TB006	PK parameters including, but not limited to, C_{trough}, C_{max}, and $t_{1/2}$.

[0545] For testing the change from Baseline on the FMA total score and the MoCA total score, the adjusted mean treatment differences will be derived by using a MMRM that includes the fixed effects of treatment, visit (categorical covariate), treatment-by-visit interaction, and Baseline score. An unstructured variance-covariance matrix might be used, where appropriate. Appropriate linear contrast will be used to compare the 2 treatment groups. For the immunogenicity assessment, ADA results will be descriptively summarized.

[0546] Safety, PK and Other Data: Safety data will be summarized descriptively, including tables, listings and figures, as appropriate. Unless otherwise stated, descriptive summary statistics for continuous variables will include number (n), mean (i.e., arithmetic mean), standard deviation (SD), minimum, median and maximum. Descriptive statistics for categorical data will include frequency and percentages.

[0547] All AEs will be coded using the most recent version of Medical Dictionary for Regulatory Activities (MedDRA). The incidence of AEs will be summarized by system organ class (SOC) and preferred term (PT). Similarly, summaries will be produced for AEs by severity, serious AEs (SAEs), treatment related AEs, and AEs leading to discontinuation. AEs are collected from the first dose of drug; thus all AEs are considered treatment-emergent AEs.

[0548] The ECG results will be presented by visit, summarizing the continuous measurements based on the average of triplicate values, including QT, QTc, QRS, RR, PR intervals, as well as change from Baseline values, and clinically significant changes in heart rate and rhythm.

[0549] Reported values and change from Baseline values of clinical laboratory data for safety (and the determinations relevant to the normal ranges and appropriate clinically significant or Common Terminology Criteria for Adverse Events (CTCAE) toxicity gradings) will be summarized by laboratory test for each assessment day, using descriptive statistics.

[0550] Vital signs (blood pressure, pulse rate, respiratory rate, and oral temperature) will be summarized by visit showing absolute values, change from Baseline values using descriptive statistics.

[0551] Physical and neurological examinations will be summarized by assessment day showing shift from Baseline.

[0552] The Columbia Suicide Severity Rating Scale (C-SSRS) assessment will be presented in a by-subject listing.

[0553] For continuous PK variables, descriptive summary statistics will, in addition, include geometric mean, geometric SD (GSD), arithmetic coefficients of variation (CV%), and geometric coefficients of variation (GCV%). Plasma TB006 concentrations over time will be presented, showing both individual and mean concentrations. Plasma PK parameters will also be calculated and presented descriptively. Plasma PK parameters of interest will include maximum concentration (C_{max}), minimum concentration (C_{trough}) time at which maximum plasma concentration occurs (T_{max}), area under the concentration-time profile over the dosing interval (tau) at steady state ($AUC_{0\text{-}tau}$), time required to reduce by half the plasma concentration of the drug (t1/2), clearance at steady state (CL_{ss}), and volume in steady state (V_{ss}), as data permit. More details will be outlined in the statistical analysis plan (SAP).

[0554] The subject disposition showing numbers randomized, treated, completed, and discontinued from the example study will be summarized. For those subjects who discontinued the example study prematurely, the reason for discontinuation will be summarized.

[0555] All subject data will be reviewed for the occurrence of protocol deviations. Summaries will be presented showing the numbers of subjects with each class and type of deviation.

[0556] Demographic variables to be summarized will include age, gender, race, ethnicity, height, weight, and BMI.

[0557] Baseline characteristics to be summarized will include medical history.

[0558] Prior and concomitant medications will be summarized showing the number and percentage of subjects taking each medication. Medications will be coded using the World Health Organization Drug Dictionary (WHO DD) preferred name.

[0559] Determination of Sample Size: The sample size estimation is based on the change in neurological function from Baseline through Day 104 in the active treatment group compared with placebo group on the NIHSS total score. A 2.0 point absolute difference between placebo and the active treatment group in the change from Baseline is assumed.

[0560] The example is powered to assure 90% likelihood of identifying an absolute difference of 2.0 points between the active and placebo groups in the change from Baseline in the NIHSS total score. Sample size estimation is based on a repeated measures when the SD is 4.2 and a within correlation between visits is 0.5 for comparing the 2 means at Day 104. The maximum sample size required for randomization is 112 patients (56 per treatment group).

[0561] Benefit Assessment: TB006 is a humanized IgG4 (S228P) type monoclonal antibody that is highly specific and has high affinity to human Gal3. It has demonstrated efficacy in preclinical models of neurodegenerative disorders including stroke, AD, and TBI, and results are consistent with or superior to other compounds that have advanced into late-stage clinical studies. Preclinical data in the acute neurodegenerative models of stroke and TBI indicate a wide treatment window. Thus, there is potential for TB006 to be effective in these disorders. The preclinical safety profile of TB006 supports the further investigation of TB006 in clinical studies.

[0562] Patients will undergo clinical evaluations/assessments associated with example procedures (e.g., safety laboratory tests, vital signs, and ECG measurements, and physical and neurological examinations), which would be a potential benefit for their own health awareness.

[0563] The preclinical data on TB006 to date suggests a wide margin of safety and minimal risk of adverse effects. The risks associated with example procedures such as ECGs and blood draws are also very low. Any potential adverse effects associated with the example study drug and procedures are further minimized by intense safety monitoring and medical

oversight by the investigator and staff. Therefore, the potential risks identified in association with TB006 are justified by the anticipated benefits that may be afforded to patients with AIS if TB006 is successfully developed.

[0564] Justification for Dose: A SAD study established the safety, tolerability, and PK of TB006 doses ranging from 70 to 5,000 mg in healthy volunteers. Exposures (C_{max} and AUC) at the highest dose afforded adequate safety margins from the exposures observed in the definitive GLP 1-month toxicology study. In the ongoing Phase 2 study in patients with Alzheimer's Disease (AD), the same dose level of 1,000 mg QW × 5 doses is being assessed. The exposures (both C_{max} and AUC) from this dosing regimen will be lower than a single 5,000 mg dose, given that the same total dose is administered in divided doses over a month. Therefore, the exposures in the present example confer no additional risk than in previous studies.

[0565] The preclinical efficacy program established the potential of TB006 in several models of acute and chronic neurodegenerative disorders. Although plasma therapeutic concentration ranges have not been established, the data indicate a positive dose-response relationship across these models. Therefore, the highest safe dose that in the range of doses that are being tested in the Phase 1 program will likely afford the greatest probability of success. For these reasons, a dose regimen of 1,000 mg QW, which again is similar to the dose regimen used in the ongoing AD study, is selected as the dose level for this example.

[0566] Example Study Intervention Administered:

[0567] The example study intervention administered is depicted in **Table 2**. AxMP = alternative medicinal product; Gal3 = galectin-3; IB = Investigator's Brochure; IMP = investigational medical product; NA = not applicable; NIMP = non investigational medicinal product; IV = intravenous(ly); QW = once per week.

Table 2. Example study intervention administered

Intervention label	**TB006**	**Placebo**
Intervention Name	Anti-Gal3 antibody (TB006)	Placebo
Intervention description	IV administration of 1,000 mg, QW	IV administration of placebo, QW
Type	Drug	NA
Dose Formulation	Sterile, white, off-white, or light-yellow solution for injection	Placebo will be normal saline, 250 mL
Unit Dose Strength(s)	20 mg/mL in 8 mL vials (160 mg total)	NA
Dosage Level(s)	Prior to administration, the drug product, at a dose of 1,000 mg, is	NA

	diluted in 250 mL of sterile normal saline	
Route of Administration	IV infusion over 1 hour	IV infusion over 1 hour
Use	Experimental	Placebo
IMP and NIMP/AxMP	IMP	NIMP
Sourcing	Provided centrally by the sponsor	Provided centrally by the sponsor
Packaging and Labeling	TB006 will be provided as single-use injectable glass vials sealed with rubber stopper and aluminum plain flip top for sterile vial. Each vial will be labeled as required per country requirement. TB006 can be stored at 2-8°C (36-46°F)	An unblinded pharmacist will prepare the example drug. The placebo is plain saline bag, 250 mL, and will be identical in appearance to the active drug.

[0568] TB006 sterilized drug product is supplied in 8 mL glass vials, sealed with a rubber stopper and an aluminum flip top, with strength of 160 mg (20 mg/mL, 8 mL) TB006 drug product per vial. TB006 drug product can be stored at 2-8°C (36-46°F).

[0569] TB006 drug product should be administered via IV infusion over 60 minutes, after dilution in 0.9% Sodium Chloride Injection, USP (normal saline) to a final volume of 250 mL. The dose formulation should be a sterile, white, off-white, or light-yellow solution.

[0570] For control, a placebo of 250 mL of normal saline will be administered IV QW over 1 hour. An unblinded pharmacist will prepare the example drug. The placebo is a plain saline bag of 250 mL and will be identical in appearance to the active drug.

[0571] An exemplary dose administration and follow up schema for the present example is provided in **FIG. 36**.

[0572] Example Study Intervention Compliance: Patients may be initially dosed as inpatients or at the investigator's clinic. In either case, following discharge, patients will return to the clinic for dose administration (if any remain).

[0573] When participants are dosed, they will receive example study intervention directly from the investigator or designee, under medical supervision. TB006 infusions are administered IV over 1 hour. The date and time of each dose administered will be recorded in the source documents. The dose of example study intervention and participant identification will be confirmed at the time of dosing by a member of the site staff other than the person administering the example study intervention.

[0574] A record of the quantity of TB006 dispensed to and administered by each participant must be maintained and reconciled with study intervention and compliance records.

Intervention start and stop dates, including dates for intervention delays and/or dose reductions will also be recorded.

[0575] Efficacy Assessments:

[0576] The primary efficacy assessment scale(s) selected for this example are the list of scale for the primary efficacy endpoints. Efficacy assessments will be performed at planned timepoints. Every effort should be made to ensure that the protocol required tests and procedures are completed as described. The primary efficacy assessment scales can include the National Institutes of Health Stroke Scale, Modified Rankin Scale, Fugl-Meyer Assessment, and/or the Montreal Cognitive Assessment, as described herein as well as generally known in the art. Other approaches of assessing qualities of stroke patients, including locomotor activity, and behavioral and cognitive ability, may also be employed.

[0577] Safety Assessments:

[0578] Physical examinations: A complete physical examination will include, at a minimum, assessments of the cardiovascular, respiratory, gastrointestinal, and neurological systems. Height (at screening only) and weight will also be measured and recorded. Investigators should pay special attention to clinical signs related to previous serious illnesses.

[0579] Vital signs: Oral temperature, pulse rate, respiratory rate, and blood pressure will be assessed. Blood pressure and pulse measurements will be assessed with a completely automated device. Manual techniques will be used only if an automated device is not available. Blood pressure and pulse measurements should be preceded by at least 5 minutes of rest for the participant in a quiet setting without distractions (e.g., television, cell phones). Vital signs will be taken before blood collection for laboratory tests, if that is scheduled for the same time point.

[0580] Electrocardiograms: 12-lead ECG(s) will be obtained using an ECG machine that automatically calculates the heart rate and measures PR, RR, QRS, QT, and QTc intervals. On non-dosing days, effort should be made to perform 12-lead ECGs time-matched with the pre-dose time point on dosing days. The investigator will review and assess all ECGs as Normal, Abnormal, or Not Evaluable.

[0581] The following clinical safety laboratory samples will be evaluated during the example:

[0582] Hematology: Hemoglobin, hematocrit, RBC count, WBC, platelet count, WBC count with differential (neutrophils, eosinophils, basophils, lymphocytes, and monocytes), % reticulocytes, MCV, MCH, and MCHC.

[0583] Clinical chemistry: albumin, total protein, blood glucose, sodium, potassium, creatinine, AST, ALT, ALP, GGT, total bilirubin, triglyceride, total cholesterol, CPK, LDH, calcium, uric acid, SGOT, total and direct bilirubin, BUN, SGPT, TSH, HbA1c, PT/INR.

[0584] Urinalysis: urine specific gravity, pH, protein, glucose, ketones, urobilinogen, bilirubin, leukocyte esterase, nitrite by dipstick and blood. Microscopic examination (if blood or protein is abnormal).

[0585] Urine alcohol and drug screen.

[0586] Pharmacokinetics: Whole blood samples of approximately 5 mL will be collected for measurement of plasma concentrations of TB006. The timing of sampling may be altered during the course of the example based on newly available data (e.g., to obtain data closer to the time of peak plasma concentrations) to ensure appropriate monitoring. Samples will be used to evaluate the PK of TB006. Each plasma will be divided into 2 aliquots (1 each for PK and a backup). Samples collected for analyses of TB006 (plasma) concentration may also be used to evaluate safety or efficacy aspects related to concerns arising during or after the example study.

[0587] Immunogenicity Assessments: Antibodies to TB006 will be evaluated in plasma samples collected from all participants. Additionally, plasma samples should also be collected at the final visit from participants who discontinued example study intervention or were withdrawn from the example study. Plasma samples will be screened for antibodies binding to TB006 and the titer of confirmed positive samples will be reported. Other analyses may be performed to verify the stability of antibodies to TB006 and/or further characterize the immunogenicity of TB006.

[0588] The detection and characterization of antibodies to TB006 will be performed using a validated assay method by or under the supervision of the sponsor. ADA assessment is performed on blood sample collected for PK assessments; Day 1 assessment is performed on the pre dose sample. All samples collected for detection of antibodies to example study intervention will also be evaluated for TB006 plasma concentration to enable interpretation of the antibody data. Antibodies may be further characterized and/or evaluated for their ability to neutralize the activity of the example study intervention(s). Samples may be stored for a maximum of 15 years (or according to local regulations) following the last participant's last visit for the example study at a facility selected by the sponsor to enable further analysis of immune responses to TB006.

[0589] Statistical Analyses:

[0590] General considerations: Summary statistics will be reported by treatment group for efficacy endpoints (NIHSS total score, mRS, FMA, MoCA total score) and change from Baseline in each of these efficacy endpoints at each applicable visit. Unadjusted and adjusted mean treatment differences, along with the 95% CI of the change from Baseline in each efficacy endpoint at each applicable visit will also be reported. Adjusted mean treatment difference will be derived by using a MMRM that includes the fixed-effects of treatment, visit (categorical covariate), treatment-by-visit interaction, and Baseline score. An unstructured variance covariance matrix might be used, where appropriate. Appropriate linear contrast will be used to compare the 2 treatment groups.

[0591] Baseline values will be taken as the most recent assessment prior to dosing, reported during screening and up to and including Day 1.

[0592] Primary Endpoint(s): The primary efficacy measure is the change in neurological function from Baseline in the NIHSS total score through Day 104. The primary analysis will determine whether there is a difference between the active treatment group and the placebo treatment group in mean change from Baseline at Day 104 in the NIHSS total score, according to the methods noted above. Effect size will also be determined.

[0593] For testing as the change from Baseline on the NIHSS, the adjusted mean treatment differences will be derived by using a MMRM that includes the fixed effects of treatment, visit (categorical covariate), treatment-by-visit interaction, and Baseline score. An unstructured variance-covariance matrix might be used, where appropriate. Appropriate linear contrast will be used to compare the 2 treatment groups.

[0594] Secondary Endpoint(s): For testing the proportion of patients with clinically significant improvement on the mRS (defined as a 1-point decrease) and NIHSS (defined as a 4-point decrease) on Day 36 (and sustained through Day 104) will be compared using a Mantel-Haenszel test.

[0595] For testing the change from Baseline on the FMA total score and the MoCA total score, the adjusted mean treatment differences will be derived by using a MMRM that includes the fixed-effects of treatment, visit (categorical covariate), treatment-by-visit interaction, and Baseline score. An unstructured variance-covariance matrix might be used, where appropriate. Appropriate linear contrast will be used to compare the 2 treatment groups. For the immunogenicity assessment, ADA results will be descriptively summarized.

Example 13: Treatment of acute ischemic stroke with an anti-Gal3 antibody

[0596] A patient presents with acute ischemic stroke (AIS). An anti-Gal3 antibody or binding fragment thereof as described herein, such as TB006, is administered to the patient, ideally within 7 days of the incidence of the stroke event. The patient is administered with 5 unit doses of 1000 mg or about 1000 mg of the anti-Gal3 antibody or binding fragment thereof per each unit dose. The unit doses are administered to the patient every 7 days or about 7 days (i.e. administering the full course of 5 unit doses will take approximately 30 days from the time of first dose). The unit doses are each prepared as 250 mL solutions of saline containing the 1000 mg or about 1000 mg of antibody or binding fragment thereof, and are administered over the course of 1 hour or about 1 hour.

[0597] Following the full course of administration, the patient is monitored for improvements related to the stroke or symptoms thereof, such as locomotor activity, and behavioral and cognitive ability. The patient can be assessed starting 7 days following the last dose administration, and can also be assessed subsequently approximately every month if needed (e.g. after 7, 35, and 75 days after the last dose administration). The patient is assessed by standardized approaches used for diagnosing stroke, such as the NIHSS, mRS, FMA, or MoCA, or any combination thereof. If the NIHSS is used, the patient is considered to have an amelioration of the stroke if the patient exhibits at least a 4 point decrease on the NIHSS. If the mRS is used, the patient is considered to have an amelioration of the stroke if the patient exhibits at least a 1 point decrease on the mRS. If the FMA is used, the patient is considered to have an amelioration of the stroke if the patient exhibits at least a 1 point increase on the FMA. If the MoCA is used, the patient is considered to have an amelioration of the stroke if the patient exhibits at least a 1 point increase on the MoCA. Additional and/or alternative approaches may also be used, such as neuroimaging, CT, MRI, and/or detecting stroke biomarkers such as S100B, GFAP, NSE, and/or MMP9.

[0598] In at least some of the previously described embodiments, one or more elements used in an embodiment can interchangeably be used in another embodiment unless such a replacement is not technically feasible. It will be appreciated by those skilled in the art that various other omissions, additions and modifications may be made to the methods and structures described above without departing from the scope of the claimed subject matter. All such modifications and changes are intended to fall within the scope of the subject matter, as defined by the appended claims.

[0599] With respect to the use of substantially any plural and/or singular terms herein, those having skill in the art can translate from the plural to the singular and/or from the singular

to the plural as is appropriate to the context and/or application. The various singular/plural permutations may be expressly set forth herein for sake of clarity.

[0600] It will be understood by those within the art that, in general, terms used herein, and especially in the appended claims (e.g., bodies of the appended claims) are generally intended as "open" terms (e.g., the term "including" should be interpreted as "including but not limited to," the term "having" should be interpreted as "having at least," the term "includes" should be interpreted as "includes but is not limited to," etc.). It will be further understood by those within the art that if a specific number of an introduced claim recitation is intended, such an intent will be explicitly recited in the claim, and in the absence of such recitation no such intent is present. For example, as an aid to understanding, the following appended claims may contain usage of the introductory phrases "at least one" and "one or more" to introduce claim recitations. However, the use of such phrases should not be construed to imply that the introduction of a claim recitation by the indefinite articles "a" or "an" limits any particular claim containing such introduced claim recitation to embodiments containing only one such recitation, even when the same claim includes the introductory phrases "one or more" or "at least one" and indefinite articles such as "a" or "an" (e.g., "a" and/or "an" should be interpreted to mean "at least one" or "one or more"); the same holds true for the use of definite articles used to introduce claim recitations. In addition, even if a specific number of an introduced claim recitation is explicitly recited, those skilled in the art will recognize that such recitation should be interpreted to mean at least the recited number (e.g., the bare recitation of "two recitations," without other modifiers, means at least two recitations, or two or more recitations). Furthermore, in those instances where a convention analogous to "at least one of A, B, and C, etc." is used, in general such a construction is intended in the sense one having skill in the art would understand the convention (e.g., "a system having at least one of A, B, and C" would include but not be limited to systems that have A alone, B alone, C alone, A and B together, A and C together, B and C together, and/or A, B, and C together, etc.). In those instances where a convention analogous to "at least one of A, B, or C, etc." is used, in general such a construction is intended in the sense one having skill in the art would understand the convention (e.g., " a system having at least one of A, B, or C" would include but not be limited to systems that have A alone, B alone, C alone, A and B together, A and C together, B and C together, and/or A, B, and C together, etc.). It will be further understood by those within the art that virtually any disjunctive word and/or phrase presenting two or more alternative terms, whether in the description, claims, or drawings, should be understood to contemplate the possibilities

of including one of the terms, either of the terms, or both terms. For example, the phrase "A or B" will be understood to include the possibilities of "A" or "B" or "A and B."

[0601] In addition, where features or aspects of the disclosure are described in terms of Markush groups, those skilled in the art will recognize that the disclosure is also thereby described in terms of any individual member or subgroup of members of the Markush group.

[0602] As will be understood by one skilled in the art, for any and all purposes, such as in terms of providing a written description, all ranges disclosed herein also encompass any and all possible sub-ranges and combinations of sub-ranges thereof. Any listed range can be easily recognized as sufficiently describing and enabling the same range being broken down into at least equal halves, thirds, quarters, fifths, tenths, etc. As a non-limiting example, each range discussed herein can be readily broken down into a lower third, middle third and upper third, etc. As will also be understood by one skilled in the art all language such as "up to," "at least," "greater than," "less than," and the like include the number recited and refer to ranges which can be subsequently broken down into sub-ranges as discussed above. Finally, as will be understood by one skilled in the art, a range includes each individual member. Thus, for example, a group having 1-3 articles refers to groups having 1, 2, or 3 articles. Similarly, a group having 1-5 articles refers to groups having 1, 2, 3, 4, or 5 articles, and so forth.

[0603] While various aspects and embodiments have been disclosed herein, other aspects and embodiments will be apparent to those skilled in the art. The various aspects and embodiments disclosed herein are for purposes of illustration and are not intended to be limiting, with the true scope and spirit being indicated by the following claims.

[0604] A Sequence Listing in electronic format is submitted herewith. Some of the sequences provided in the Sequence Listing may be designated as Artificial Sequences by virtue of being non-naturally occurring fragments or portions of other sequences, including naturally occurring sequences. Some of the sequences provided in the Sequence Listing may be designated as Artificial Sequences by virtue of being combinations of sequences from different origins, such as humanized antibody sequences.

[0605] All references cited herein, including but not limited to published and unpublished applications, patents, and literature references, are incorporated herein by reference in their entirety and are hereby made a part of this specification. To the extent publications and patents or patent applications incorporated by reference contradict the disclosure contained in the specification, the specification is intended to supersede and/or take precedence over any such contradictory material.

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WHAT IS CLAIMED IS:

1. A method for inhibiting, reducing, preventing, and/or treating stroke in a subject in need thereof, comprising administering an anti-Gal3 antibody or binding fragment thereof to the subject, thereby inhibiting, reducing, preventing, and/or treating the stroke.

2. The method of claim 1, further comprising selecting the subject as having the stroke or at risk of contracting the stroke prior to the administering step.

3. The method of claim 2, wherein selecting the subject as having the stroke or at risk of contracting the stroke comprises assessing the subject according to the National Institutes of Health Stroke Scale (NIHSS), modified Rankin Scale (mRS), Fugl-Meyer Assessment (FMA), Montreal Cognitive Assessment (MoCA), neuroimaging, optionally CT or MRI, and/or detecting stroke biomarkers, optionally S100 calcium binding protein B (S100B), glial fibrillary acidic protein (GFAP), neuron-specific enolase (NSE), and/or matrix metalloproteinase-9 (MMP9).

4. The method of any one of claims 1-3, further comprising detecting an amelioration of symptoms associated with the stroke after the administering step.

5. The method of claim 4, wherein detecting an amelioration of symptoms associated with the stroke after the administering step comprises detecting an improvement by the subject according to the NIHSS, mRS, FMA, or MoCA.

6. The method of claim 5, wherein:

a) the improvement by the subject according to the NIHSS comprises at least a 4 point decrease on the NIHSS;

b) the improvement by the subject according to the mRS comprises at least a 1 point decrease on the mRS;

c) the improvement by the subject according to the FMA comprises at least a 1 point increase on the FMA; and/or

d) the improvement by the subject according to the MoCA comprises at least a 1 point increase on the MoCA;

after the administering step, optionally as assessed 7, 35, and/or 75 days after the administering step.

7. The method of any one of claims 1-6, wherein the stroke is an ischemic stroke, thrombotic stroke, embolic stroke, transient ischemic attack, hemorrhagic stroke, intracerebral hemorrhage, or subarachnoid hemorrhage.

8. The method of any one of claims 1-7, wherein the stroke is intracerebral hemorrhage (ICH), optionally wherein the ICH is associated with deposition of amyloid aggregates and/or cerebral amyloid angiopathy (CAA).

9. The method of any one of claims 1-8, wherein administration of the anti-Gal3 antibody or binding fragment thereof to the subject prevents the stroke.

10. The method of any one of claims 1-9, wherein administration of the anti-Gal3 antibody or binding fragment thereof prevents loss of locomotor dysfunction, prevents incidence of microhemorrhage, prevents elevation of levels of activated microglia, prevents elevation of levels of activated astrocytes, prevents elevation of circulating proinflammatory immune cells, prevents elevation of circulating proinflammatory cytokines, or any combination thereof, in the subject.

11. The method of any one of claims 1-10, wherein administration of the anti-Gal3 antibody or binding fragment thereof to the subject treats the stroke.

12. The method of any one of claims 1-11, wherein administration of the anti-Gal3 antibody or binding fragment thereof reduces locomotor dysfunction, reduces microhemorrhage, reduces levels of activated microglia, reduces levels of activated astrocytes, reduces levels of circulating proinflammatory immune cells, reduces levels of circulating proinflammatory cytokines, or any combination thereof, in the subject.

13. The method of claim 12, wherein the reduction in locomotor dysfunction, reduction in microhemorrhage, reduction in levels of activated microglia, reduction in levels of activated astrocytes, reduction in levels of circulating proinflammatory cytokines, or any combination thereof, in the subject, is by at least 5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, or 95%, or any percentage within a range defined by any two of the aforementioned reductions.

14. The method of claim 12 or 13, wherein the reduction in locomotor dysfunction in the subject is by at least 50%.

15. The method of any one of claims 12-14, wherein the reduction in locomotor dysfunction is assessed by the Fugl-Meyer Assessment (FMA), Motor Assessment Scale (MAS), and/or the Chedoke-McMaster Stroke Assessment (CMSA).

16. The method of any one of claims 12-15, wherein the reduction in microhemorrhage in the subject is by at least 50%.

17. The method of any one of claims 12-16, wherein the reduction in microhemorrhage is assessed by neuroimaging, MRI, and/or Prussian blue staining.

18. The method of any one of claims 12-17, wherein the reduction in levels of activated microglia in the subject is by at least 20%.

19. The method of any one of claims 12-18, wherein the reduction in levels of activated microglia is assessed by detection of microglia activation markers, optionally ionized calcium-binding adaptor molecule 1 (Iba1), monocyte chemoattractant protein-1 (MCP-1), chitinase-3-like protein 1 (YKL-40), and/or soluble CD14 (sCD14), optionally from the cerebrospinal fluid of the subject.

20. The method of any one of claims 12-19, wherein the reduction in levels of activated astrocytes in the subject is by at least 30%.

21. The method of any one of claims 12-20, wherein the reduction in levels of activated astrocytes is assessed by detection of astrocyte activation markers, optionally GFAP and/or S100B, optionally from the cerebrospinal fluid of the subject.

22. The method of any one of claims 12-21, wherein the proinflammatory immune cells comprise NK cells, monocytes, and/or lymphocytes.

23. The method of any one of claims 12-22, wherein the proinflammatory cytokines comprise IL-6, TNF-α, and/or IL1β.

24. The method of any one of claims 1-23, wherein administering an anti-Gal3 antibody or binding fragment thereof to the subject comprises administration of one or more unit doses of the anti-Gal3 antibody or binding fragment thereof, optionally 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10 unit doses.

25. The method of claim 24, wherein the one or more unit doses comprise 50, 60, 70, 80, 90, 100, 200, 300, 400, 500, 600, 700, 800, 900, 1000, 1100, 1200, 1300, 1400, 1500, 1600, 1700, 1800, 1900, 2000, 2500, 3000, 3500, 4000, 4500 or 5000 mg of the anti-Gal3 antibody or binding fragment thereof per unit dose, or any amount per unit dose within a range defined by any two of the aforementioned amounts per unit dose.

26. The method of claim 24 or 25, wherein the one or more unit doses comprise 1, 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, 100, 105, 110, 115, 120, 125, 130, 135, 140, 145, or 150 mg/kg weight of the subject, or any amount per unit dose within a range defined by any two of the aforementioned amounts per unit dose.

27. The method of any one of claims 24-26, wherein the one or more unit doses are administered every 1, 2, 3, 4, 5, 6, or 7 days, or 1, 2, 3, or 4 weeks, or any interval within a range defined by any two of the aforementioned intervals.

28. The method of any one of claims 1-27, wherein the anti-Gal3 antibody or binding fragment thereof is administered enterally, orally, intranasally, parenterally, intracranially, subcutaneously, intramuscularly, intradermally, or intravenously, or any combination thereof, optionally intravenously.

29. The method of any one of claims 1-28, wherein the anti-Gal3 antibody or binding fragment thereof comprises one or more of: TB001, TB006, 12G5.D7, 13A12.2E5, 14H10.2C9, 15F10.2D6, 19B5.2E6, 20D11.2C6, 20H5.A3, 23H9.2E4, 2D10.2B2, 3B11.2G2, 7D8.2D8, mIMT001, 4A11.2B5, 4A11.H1L1, 4A11.H4L2, 4G2.2G6, 6B3.2D3, 6H6.2D6, 9H2.2H10, 13G4.2F8, 13H12.2F8, 15G7.2A7, 19D9.2E5, 23B10.2B12, 24D12.2H9, F846C.1B2, F846C.1F5, F846C.1H12, F846C.1H5, F846C.2H3, F846TC.14A2, F846TC.14E4, F846TC.16B5, F846TC.7F10, F847C.10B9, F847C.11B1, F847C.12F12, F847C.26F5, F847C.4B10, F849C.8D10, F849C.8H3, 846.2B11, 846.4D5, 846T.1H2, 847.14H4, 846.2D4, 846.2F11, 846T.10B1, 846T.2E3, 846T.4C9, 846T.4E11, 846T.4F5, 846T.8D1, 847.10C9, 847.11D6, 847.15D12, 847.15F9, 847.15H11, 847.20H7, 847.21B11, 847.27B9, 847.28D1, 847.2B8, 847.3B3, 849.1D2, 849.2D7, 849.2F12, 849.4B2, 849.4F12, 849.4F2, 849.5C2, 849.8D12, F847C.21H6, 849.5H1, 847.23F11, 847.16D10, 847.13E2-mH0mL1, 847.13E2-mH0mL2, 847.12C4, 847.4D3, 2D10-VH0-VL0, 2D10-hVH4-HVL1, 2D10-hVH4-HVL2, 2D10-hVH4-HVL3, 2D10-hVH4-HVL4, 2D10-hVH3-HVL1, 2D10-hVH3-HVL2, 2D10-hVH3-HVL3, 2D10-hVH3-HVL4, 20H5.A3-VH3VL1, 20H5.A3-VH3VL3, 20H5.A3-VH4VL1, 20H5.A3-VH5VL1, 20H5.A3-VH5VL3, 20H5.A3-VH6VL1, 20H5.A3-VH6VL3, or binding fragment thereof.

30. The method of any one of claims 1-29, wherein the anti-Gal3 antibody or binding fragment thereof comprises one or more of: TB001, TB006, F846C.1F5, F846TC.16B5, 14H10.2C9, 15G7.2A7, 20H5.A3, 19D9.2E5, 19B5.2E6, or F847C.21H6.

31. The method of any one of claims 1-30, wherein the anti-Gal3 antibody or binding fragment thereof comprises TB006.

32. The method of any one of claims 1-31, wherein the anti-Gal3 antibody or binding fragment thereof is administered with one or more additional therapeutic compositions.

33. The method of claim 32, wherein the stroke is ischemic stroke, thrombotic stroke, embolic stroke, or transient ischemic attack, and the one or more additional therapeutic compositions comprise thrombolytics, tissue plasminogen activator (tPA), alteplase, reteplase, tenecteplase, desmoteplase, anticoagulants, ACE inhibitors, antihypertensives, nicardipine, or any combination thereof.

34. The method of claim 32, wherein the stroke is hemorrhagic stroke, intracerebral hemorrhage, or subarachnoid hemorrhage, and the one or more additional therapeutic compositions comprise antihypertensives, or nicardipine, or any combination thereof.

35. A method for inhibiting, reducing, preventing, and/or treating traumatic brain injury (TBI) in a subject in need thereof, comprising administering an anti-Gal3 antibody or binding fragment thereof to the subject, thereby inhibiting, reducing, preventing, and/or treating the TBI.

36. The method of claim 35, further comprising selecting the subject as having the TBI or at risk of contracting the TBI prior to the administering step.

37. The method of claim 36, wherein selecting the subject as having the TBI comprises assessing the subject for level of consciousness, memory loss, and/or the Glasgow Coma Scale, neuroimaging, optionally CT or MRI and/or detecting TBI biomarkers, optionally GFAP and/or ubiquitin carboxy-terminal hydrolase L1 (UCH-L1).

38. The method of any one of claims 35-37, further comprising detecting an amelioration of symptoms associated with the TBI after the administering step.

39. The method of any one of claims 35-38, wherein the TBI is associated with a concussion, edema, diffuse axonal injury, spinal cord injury, coma, neuroinflammation, microhemorrhage, astrocytosis, activated microglia, and/or hematoma.

40. The method of any one of claims 35-39, wherein administration of the anti-Gal3 antibody or binding fragment thereof to the subject prevents the TBI, concussion, edema, diffuse axonal injury, spinal cord injury, coma, neuroinflammation, microhemorrhage, astrocytosis, activated microglia, and/or hematoma.

41. The method of any one of claims 35-40, wherein administration of the anti-Gal3 antibody or binding fragment thereof prevents elevation of levels of activated microglia, prevents elevation of levels of activated astrocytes, prevents elevation of levels of macrophages, prevents elevation of levels of hyperphosphorylated Tau, prevents incidence of microhemorrhage, prevents neuroinflammation, prevents elevation of levels of circulating proinflammatory cytokines, or any combination thereof, in the subject.

42. The method of any one of claims 35-41, wherein administration of the anti-Gal3 antibody or binding fragment thereof to the subject treats the TBI, concussion, edema, diffuse axonal injury, spinal cord injury, coma, neuroinflammation, microhemorrhage, astrocytosis, activated microglia, and/or hematoma.

43. The method of any one of claims 35-42, wherein administration of the anti-Gal3 antibody or binding fragment thereof improves the level of consciousness, memory loss, and/or

the Glasgow Coma Scale of the patient; and/or reduces levels of activated microglia, reduces levels of activated astrocytes, reduces levels of macrophages, reduces levels of hyperphosphorylated Tau, reduces microhemorrhage, reduces neuroinflammation, reduces levels of circulating proinflammatory cytokines or any combination thereof, in the subject.

44. The method of claim 43, wherein the reduction in levels of activated microglia, reduction in levels of activated astrocytes, reduction in levels of macrophages, reduction in levels of hyperphosphorylated Tau, reduction in microhemorrhage, reduction in neuroinflammation, reduction in levels of circulating proinflammatory cytokines, or any combination thereof, in the subject, is by at least 5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, or 95%, or any percentage within a range defined by any two of the aforementioned reductions.

45. The method of claim 43 or 44, wherein the reduction in levels of activated microglia in the subject is by at least 70%.

46. The method of any one of claims 43-45, wherein the reduction in levels of activated microglia is assessed by detection of microglia activation markers, optionally ionized calcium-binding adaptor molecule 1 (Iba1), monocyte chemoattractant protein-1 (MCP-1), chitinase-3-like protein 1 (YKL-40), and/or soluble CD14 (sCD14), optionally from the cerebrospinal fluid of the subject.

47. The method of any one of claims 43-46, wherein the reduction in levels of activated astrocytes in the subject is by at least 90%.

48. The method of any one of claims 43-47, wherein the reduction in levels of activated astrocytes is assessed by detection of astrocyte activation markers, optionally GFAP, optionally from the cerebrospinal fluid of the subject.

49. The method of any one of claims 43-48, wherein the reduction in levels of macrophages in the subject is by at least 70%.

50. The method of any one of claims 43-49, wherein the reduction in levels of macrophages is assessed by detection of macrophage activation markers, optionally CD68, optionally from the cerebrospinal fluid of the subject.

51. The method of any one of claims 43-50, wherein the reduction in levels of hyperphosphorylated Tau in the subject is by at least 80%.

52. The method of any one of claims 43-51, wherein the reduction in levels of microhemorrhage in the subject is by at least 80%.

53. The method of any one of claims 43-52, wherein the reduction in levels of microhemorrhage is assessed by neuroimaging, MRI, and/or Prussian blue staining.

54. The method of any one of claims 43-53, wherein the reduction in neuroinflammation in the subject is by at least 70%.

55. The method of any one of claims 43-54, wherein the proinflammatory cytokines comprise IL-6, IL-10, and/or TNF-α.

56. The method of any one of claims 35-55, wherein the anti-Gal3 antibody or binding fragment thereof is administered enterally, orally, intranasally, parenterally, intracranially, subcutaneously, intramuscularly, intradermally, or intravenously, or any combination thereof, optionally intravenously.

57. The method of any one of claims 35-56, wherein administering an anti-Gal3 antibody or binding fragment thereof to the subject comprises administration of one or more unit doses of the anti-Gal3 antibody or binding fragment thereof, optionally 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10 unit doses.

58. The method of claim 57, wherein the one or more unit doses comprise 50, 60, 70, 80, 90, 100, 200, 300, 400, 500, 600, 700, 800, 900, 1000, 1100, 1200, 1300, 1400, 1500, 1600, 1700, 1800, 1900, 2000, 2500, 3000, 3500, 4000, 4500 or 5000 mg of the anti-Gal3 antibody or binding fragment thereof per unit dose, or any amount per unit dose within a range defined by any two of the aforementioned amounts per unit dose.

59. The method of claim 57 or 58, wherein the one or more unit doses comprise 1, 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, 100, 105, 110, 115, 120, 125, 130, 135, 140, 145, or 150 mg/kg weight of the subject, or any amount per unit dose within a range defined by any two of the aforementioned amounts per unit dose.

60. The method of any one of claims 57-59, wherein the one or more unit doses are administered every 1, 2, 3, 4, 5, 6, or 7 days, or 1, 2, 3, or 4 weeks, or any interval within a range defined by any two of the aforementioned intervals.

61. The method of any one of claims 35-60, wherein the anti-Gal3 antibody or binding fragment thereof comprises one or more of: TB001, TB006, 12G5.D7, 13A12.2E5, 14H10.2C9, 15F10.2D6, 19B5.2E6, 20D11.2C6, 20H5.A3, 23H9.2E4, 2D10.2B2, 3B11.2G2, 7D8.2D8, mIMT001, 4A11.2B5, 4A11.H1L1, 4A11.H4L2, 4G2.2G6, 6B3.2D3, 6H6.2D6, 9H2.2H10, 13G4.2F8, 13H12.2F8, 15G7.2A7, 19D9.2E5, 23B10.2B12, 24D12.2H9, F846C.1B2, F846C.1F5, F846C.1H12, F846C.1H5, F846C.2H3, F846TC.14A2, F846TC.14E4, F846TC.16B5, F846TC.7F10, F847C.10B9, F847C.11B1, F847C.12F12, F847C.26F5, F847C.4B10, F849C.8D10, F849C.8H3, 846.2B11, 846.4D5, 846T.1H2, 847.14H4, 846.2D4, 846.2F11, 846T.10B1, 846T.2E3, 846T.4C9, 846T.4E11, 846T.4F5,

846T.8D1, 847.10C9, 847.11D6, 847.15D12, 847.15F9, 847.15H11, 847.20H7, 847.21B11, 847.27B9, 847.28D1, 847.2B8, 847.3B3, 849.1D2, 849.2D7, 849.2F12, 849.4B2, 849.4F12, 849.4F2, 849.5C2, 849.8D12, F847C.21H6, 849.5H1, 847.23F11, 847.16D10, 847.13E2-mH0mL1, 847.13E2-mH0mL2, 847.12C4, 847.4D3, 2D10-VH0-VL0, 2D10-hVH4-HVL1, 2D10-hVH4-HVL2, 2D10-hVH4-HVL3, 2D10-hVH4-HVL4, 2D10-hVH3-HVL1, 2D10-hVH3-HVL2, 2D10-hVH3-HVL3, 2D10-hVH3-HVL4, 20H5.A3-VH3VL1, 20H5.A3-VH3VL3, 20H5.A3-VH4VL1, 20H5.A3-VH5VL1, 20H5.A3-VH5VL3, 20H5.A3-VH6VL1, 20H5.A3-VH6VL3, or binding fragment thereof.

62. The method of any one of claims 35-61, wherein the anti-Gal3 antibody or binding fragment thereof comprises one or more of: TB001, TB006, F846C.1F5, F846TC.16B5, 14H10.2C9, 15G7.2A7, 20H5.A3, 19D9.2E5, 19B5.2E6, or F847C.21H6.

63. The method of any one of claims 35-62, wherein the anti-Gal3 antibody or binding fragment thereof comprises TB006.

64. The method of any one of claims 35-63, wherein the anti-Gal3 antibody or binding fragment thereof is administered with one or more additional therapeutic compositions.

65. The method of claim 64, wherein the one or more additional therapeutic compositions comprise levodopa, bromocriptine, NMDA receptor antagonists, amantadine, memantine, cholinesterase inhibitors, tacrine, rivastigmine, galantamine, donepezil, or any combination thereof.

66. A method for inhibiting, reducing, preventing, and/or treating a disorder associated with fibrin activity or dysfunction in a subject in need thereof, comprising administering an anti-Gal3 antibody or binding fragment thereof to the subject, thereby inhibiting, reducing, preventing, and/or treating the disorder associated with fibrin activity or dysfunction.

67. The method of claim 66, wherein the disorder associated with fibrin activity or dysfunction comprises atherosclerosis, thrombosis, thromboembolism, carotid artery disease, coronary artery disease, peripheral artery disease, myocardial infarction, heart failure, heart attack, hypertension, chronic kidney disease, coagulopathy, or thrombocytopathy.

68. The method of claim 67, further comprising selecting the subject as having the disorder associated with fibrin activity or dysfunction or at risk of contracting the disorder associated with fibrin activity or dysfunction prior to the administering step.

69. The method of claim 68, wherein selecting the subject as having the disorder associated with fibrin activity or dysfunction comprises detecting thrombotic biomarkers, optionally fibrinogen, C-reactive protein (CRP), and/or plasminogen activator inhibitor-1 (PAI-1).

70. The method of any one of claims 66-69, further comprising detecting an amelioration of symptoms associated with the disorder associated with fibrin activity or dysfunction after the administering step.

71. The method of any one of claims 66-70, wherein administration of the anti-Gal3 antibody or binding fragment thereof to the subject prevents neuroinflammation and/or fibrin oligomerization, in the subject.

72. The method of any one of claims 66-71, wherein administration of the anti-Gal3 antibody or binding fragment thereof to the subject reduces neuroinflammation and/or fibrin oligomerization in the subject.

73. The method of claim 72, wherein the reduction in neuroinflammation and/or the reduction in fibrin oligomerization, in the subject, is by at least 5%, 10%, 20%, 30%, 40%, 50%, 60%, 70%, 80%, 90%, or 95%, or any percentage within a range defined by any two of the aforementioned reductions.

74. The method of any one of claims 66-73, wherein the anti-Gal3 antibody or binding fragment thereof is administered enterally, orally, intranasally, parenterally, intracranially, subcutaneously, intramuscularly, intradermally, or intravenously, or any combination thereof, optionally intravenously.

75. The method of any one of claims 66-74, wherein administering an anti-Gal3 antibody or binding fragment thereof to the subject comprises administration of one or more unit doses of the anti-Gal3 antibody or binding fragment thereof, optionally 1, 2, 3, 4, 5, 6, 7, 8, 9, or 10 unit doses.

76. The method of claim 75, wherein the one or more unit doses comprise 50, 60, 70, 80, 90, 100, 200, 300, 400, 500, 600, 700, 800, 900, 1000, 1100, 1200, 1300, 1400, 1500, 1600, 1700, 1800, 1900, 2000, 2500, 3000, 3500, 4000, 4500 or 5000 mg of the anti-Gal3 antibody or binding fragment thereof per unit dose, or any amount per unit dose within a range defined by any two of the aforementioned amounts per unit dose

77. The method of claim 75 or 76, wherein the one or more unit doses comprise 1, 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 95, 100, 105, 110, 115, 120, 125, 130, 135, 140, 145, or 150 mg/kg weight of the subject, or any amount per unit dose within a range defined by any two of the aforementioned amounts per unit dose.

78. The method of any one of claims 75-77, wherein the one or more unit doses are administered every 1, 2, 3, 4, 5, 6, or 7 days, or 1, 2, 3, or 4 weeks, or any interval within a range defined by any two of the aforementioned intervals.

79. The method of any one of claims 66-78, wherein the anti-Gal3 antibody or binding fragment thereof comprises one or more of: TB001, TB006, 12G5.D7, 13A12.2E5, 14H10.2C9, 15F10.2D6, 19B5.2E6, 20D11.2C6, 20H5.A3, 23H9.2E4, 2D10.2B2, 3B11.2G2, 7D8.2D8, mIMT001, 4A11.2B5, 4A11.H1L1, 4A11.H4L2, 4G2.2G6, 6B3.2D3, 6H6.2D6, 9H2.2H10, 13G4.2F8, 13H12.2F8, 15G7.2A7, 19D9.2E5, 23B10.2B12, 24D12.2H9, F846C.1B2, F846C.1F5, F846C.1H12, F846C.1H5, F846C.2H3, F846TC.14A2, F846TC.14E4, F846TC.16B5, F846TC.7F10, F847C.10B9, F847C.11B1, F847C.12F12, F847C.26F5, F847C.4B10, F849C.8D10, F849C.8H3, 846.2B11, 846.4D5, 846T.1H2, 847.14H4, 846.2D4, 846.2F11, 846T.10B1, 846T.2E3, 846T.4C9, 846T.4E11, 846T.4F5, 846T.8D1, 847.10C9, 847.11D6, 847.15D12, 847.15F9, 847.15H11, 847.20H7, 847.21B11, 847.27B9, 847.28D1, 847.2B8, 847.3B3, 849.1D2, 849.2D7, 849.2F12, 849.4B2, 849.4F12, 849.4F2, 849.5C2, 849.8D12, F847C.21H6, 849.5H1, 847.23F11, 847.16D10, 847.13E2-mH0mL1, 847.13E2-mH0mL2, 847.12C4, 847.4D3, 2D10-VH0-VL0, 2D10-hVH4-HVL1, 2D10-hVH4-HVL2, 2D10-hVH4-HVL3, 2D10-hVH4-HVL4, 2D10-hVH3-HVL1, 2D10-hVH3-HVL2, 2D10-hVH3-HVL3, 2D10-hVH3-HVL4, 20H5.A3-VH3VL1, 20H5.A3-VH3VL3, 20H5.A3-VH4VL1, 20H5.A3-VH5VL1, 20H5.A3-VH5VL3, 20H5.A3-VH6VL1, 20H5.A3-VH6VL3, or binding fragment thereof

80. The method of any one of claims 66-79, wherein the anti-Gal3 antibody or binding fragment thereof comprises one or more of: TB001, TB006, F846C.1F5, F846TC.16B5, 14H10.2C9, 15G7.2A7, 20H5.A3, 19D9.2E5, 19B5.2E6, or F847C.21H6.

81. The method of any one of claims 66-80, wherein the anti-Gal3 antibody or binding fragment thereof comprises TB006.

82. The method of any one of claims 66-81, wherein the anti-Gal3 antibody or binding fragment thereof is administered with one or more additional therapeutic compositions.

83. The method of claim 82, wherein the one or more additional therapeutic compositions comprises anti-clotting agents, aspirin, statins, antihypertensives, diuretics, calcium channel blockers, ACE inhibitors, angiotensin II receptor antagonists, adrenergic receptor antagonists, vasodilators, renin inhibitors, aldosterone receptor antagonists, endothelium receptor blockers, or any combination thereof.

84. The method of any one of claims 1-83, wherein administering an anti-Gal3 antibody or binding fragment thereof to the subject comprises administration of 5 unit doses of the anti-Gal3 antibody or binding fragment thereof, wherein each unit dose comprises 1000 mg or about 1000 mg of the anti-Gal3 antibody or binding fragment thereof, wherein the unit doses

are administered every 7 days or about 7 days, and wherein each unit dose is administered over the course of 1 hour or about 1 hour.

85. A method comprising administering 5 unit doses of an anti-Gal3 antibody or binding fragment thereof, wherein each unit dose comprise 1000 mg or about 1000 mg of the anti-Gal3 antibody or binding fragment thereof, wherein the unit doses are administered every 7 days or about 7 days, and wherein each unit dose is administered over the course of 1 hour or about 1hour.

86. The method of claim 84 or 85, wherein the anti-Gal3 antibody or binding fragment thereof is TB006 or a binding fragment thereof.

87. The method of any one of claims 84-86, wherein each unit dose is formulated as 1000 mg or about 1000 mg of the anti-Gal3 antibody or binding fragment thereof in 250 mL of sterile saline.

88. The method of any one of claims 84-87, wherein each unit dose is prepared from single-use sealed injectable glass vials comprising 8 mL of 20 mg/mL of the anti-Gal3 antibody or binding fragment thereof.

89. The method of any one of claims 84-88, wherein the anti-Gal3 antibody or binding fragment thereof is administered intravenously.

90. A single-use sealed injectable glass vial comprising 8 mL of 20 mg/mL of an anti-Gal antibody or binding fragment thereof, optionally wherein the anti-Gal3 antibody or binding fragment thereof is TB006 or a binding fragment thereof.

91. An IV infusion bag comprising 1000 mg or about 1000 mg of an anti-Gal3 antibody or binding fragment thereof dissolved in 250 mL or about 250 mL of saline, optionally wherein the anti-Gal3 antibody or binding fragment thereof is TB006 or a binding fragment thereof.

Amino acid sequence of Gal3 and target proteins

PROTEIN	SEQ ID NO	SEQUENCE
Human galectin-3 Isoform 1 (homo sapiens) NCBI Ref. No.: NP_002297.2	1	MADNFSLHDALSGSGNPNPQGWPGAWGNQPAGAGGYPGASYPGAYPGQA PPGAYPGQAPPGAYPGAPGAYPGAPAPGVYPGPPSGPGAYPSSGQPSATGA YPATGPYGAPAGPLIVPYNLPLPGGVVPRMLITILGTVKPNANRIALDFQRG NDVAFHFNPRFNENNRRVIVCNTKLDNNWGREERQSVFPFESGKPFKIQVL VEPDHFKVAVNDAHLLQYNHRVKKLNEISKLGISGDIDLTSASYTMI
Human galectin-3 Isoform 3 (homo sapiens) NCBI Ref. No.: NP_001344607.1	2	MHSKTPCGCFKPWKMADNFSLHDALSGSGNPNPQGWPGAWGNQPAGAGG YPGASYPGAYPGQAPPGAYPGQAPPGAYPGAPGAYPGAPAPGVYPGPPSGP GAYPSSGQPSATGAYPATGPYGAPAGPLIVPYNLPLPGGVVPRMLITILGTV KPNANRIALDFQRGNDVAFHFNPRFNENNRRVIVCNTKLDNNWGREERQS VFPFESGKPFKIQVLVEPDHFKVAVNDAHLLQYNHRVKKLNEISKLGISGDI DLTSASYTMI

FIG. 1

Gal3 peptides

SEQ ID NO:	Peptide No.	Amino acid sequence
3	1	ADNFSLHDALSGSGNPNPQG
4	2	SGSGNPNPQGWPGAWGNQPA
5	3	WPGAWGNQPAGAGGYPGASY
6	4	GAGGYPGASYPGAYPGQAPP
7	5	PGAYPGQAPPGAYPGQAPPG
8	6	GAYPGQAPPGAYPGAPGAYP
9	7	AYPGAPGAYPGAPAPGVYPG
10	8	GAPAPGVYPGPPSGPGAYPS
11	9	PPSGPGAYPSSGQPSATGAY
12	10	SGQPSATGAYPATGPYGAPA
13	11	PATGPYGAPAGPLIVPYNLP
14	12	GPLIVPYNLPLPGGVVPRML
15	13	LPGGVVPRMLITILGTVKPN
16	14	ITILGTVKPNANRIALDFQR
17	15	ANRIALDFQRGNDVAFHFNP
18	16	GNDVAFHFNPRFNENNRRVI
19	17	RFNENNRRVIVCNTKLDNNW
20	18	VCNTKLDNNWGREERQSVFP
21	19	GREERQSVFPFESGKPFKIQ
22	20	FESGKPFKIQVLVEPDHFKV
23	21	VLVEPDHFKVAVNDAHLLQY
24	22	AVNDAHLLQYNHRVKKLNEI
25	23	NHRVKKLNEISKLGISGDID
26	24	SKLGISGDIDLTSASYTMI

```
peptide_4  ----GAGGYPGASYPGAYPGQAPP-- 20
peptide_6  ------GAYPGQAPPGAYPGAPGAYP 20
peptide_7  AYPGAPGAYPGAPAPGVYPG------ 20
                 *.***   **.***
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FIG. 2

Variable heavy chain complementarity-determining region 1 (V_H-CDR1) sequences of anti-Gal3 antibodies

	SEQUENCE	SEQ ID NO:		SEQUENCE	SEQ ID NO:
V_H_CDR1_1	GYTFTNY	27	V_H_CDR1_23	GFSLSTFGMG	49
V_H_CDR1_2	GFSLTSY	28	V_H_CDR1_24	GYTFTSYD	50
V_H_CDR1_3	GYTFTNYW	29	V_H_CDR1_25	GFTFSNYW	51
V_H_CDR1_4	GYTFTNYG	30	V_H_CDR1_26	GYTFTSYV	52
V_H_CDR1_5	GYSFTNY	31	V_H_CDR1_27	GYSFTNYI	53
V_H_CDR1_6	GYTFTDY	32	V_H_CDR1_28	GYTFRSYD	54
V_H_CDR1_7	GYKFKTY	33	V_H_CDR1_29	GFTFSNFW	55
V_H_CDR1_8	GYTFTTY	34	V_H_CDR1_30	EYAFNNYM	56
V_H_CDR1_9	GFAFSSY	35	V_H_CDR1_31	GYSFTGYT	57
V_H_CDR1_10	GYTFTDF	36	V_H_CDR1_32	GFSLINYG	58
V_H_CDR1_11	GYAFTTY	37	V_H_CDR1_33	GYTFNNYW	59
V_H_CDR1_12	GFTFSSY	38	V_H_CDR1_34	GFSLSSYG	60
V_H_CDR1_13	GFSLTSYG	39	V_H_CDR1_35	GYSFTNYW	61
V_H_CDR1_14	GYTFTSY	40	V_H_CDR1_36	GYSFTSYW	62
V_H_CDR1_15	GYTFSDY	41	V_H_CDR1_37	GYSITSGYY	63
V_H_CDR1_16	GYTFTNFG	42	V_H_CDR1_38	GFNIKDYY	64
V_H_CDR1_17	GFTFSSYA	43	V_H_CDR1_39	RYTFTDYN	65
V_H_CDR1_18	GFSLSTSGMG	44	V_H_CDR1_40	GYTFTIFG	66
V_H_CDR1_19	GFTFSNYG	45	V_H_CDR1_41	GYTFTSSW	67
V_H_CDR1_20	GYIFTNYG	46	V_H_CDR1_42	GYTFTGYW	68
V_H_CDR1_21	GNTFTDHN	47	V_H_CDR1_43	GYSFTDYN	69
V_H_CDR1_22	GYTFTSYW	48	V_H_CDR1_44	GFSLTIYG	70

FIG. 3A

Variable heavy chain complementarity-determining region 2 (V_H-CDR2) sequences of anti-Gal3 antibodies

	SEQUENCE	SEQ ID NO:		SEQUENCE	SEQ ID NO:
V_H_CDR2_1	NTNTGE	71	V_H_CDR2_22	IYPGSSSI	92
V_H_CDR2_2	IYPGSGNT	72	V_H_CDR2_23	IYPGDGST	93
V_H_CDR2_3	IYPGTGNT	73	V_H_CDR2_24	IRLKSNNYAT	94
V_H_CDR2_4	INTYSGVP	74	V_H_CDR2_25	INTNTGES	95
V_H_CDR2_5	ISDGGVYT	75	V_H_CDR2_26	LRLKSNNYAT	96
V_H_CDR2_6	INPKNGGI	76	V_H_CDR2_27	INPYNDGT	97
V_H_CDR2_7	VNTYSGVP	77	V_H_CDR2_28	IFPGEGIS	98
V_H_CDR2_8	IYPGSNDT	78	V_H_CDR2_29	IFPGDGTT	99
V_H_CDR2_9	ISDGGIYT	79	V_H_CDR2_30	INPGSGAT	100
V_H_CDR2_10	INTHSGVP	80	V_H_CDR2_31	INPYNGGT	101
V_H_CDR2_11	IWSGGST	81	V_H_CDR2_32	FLPGDGSS	102
V_H_CDR2_12	IDPSDSET	82	V_H_CDR2_33	IWAGGST	103
V_H_CDR2_13	IHPNSGST	83	V_H_CDR2_34	INTNTGEP	104
V_H_CDR2_14	INPNNGGT	84	V_H_CDR2_35	ISYDGRN	105
V_H_CDR2_15	IYPVSVNT	85	V_H_CDR2_36	IYPEDDET	106
V_H_CDR2_16	INTYTGEP	86	V_H_CDR2_37	IYPNNGGT	107
V_H_CDR2_17	ISSGGDT	87	V_H_CDR2_38	VNTYTGEP	108
V_H_CDR2_18	IWWDDDK	88	V_H_CDR2_39	IDPYNDAT	109
V_H_CDR2_19	ISSGGSYT	89	V_H_CDR2_40	VAWDDKK	110
V_H_CDR2_20	IYPYNGGT	90	V_H_CDR2_41	ISSGDSP	111
V_H_CDR2_21	ISSGGST	91	V_H_CDR2_42	IYPGSQDT	801

FIG. 3B

Variable heavy chain complementarity-determining region 3 (V_H-CDR3) sequences of anti-Gal3 antibodies

	SEQUENCE	SEQ ID NO:		SEQUENCE	SEQ ID NO:
V_H_CDR3_1	APYDNFFAY	112	V_H_CDR3_31	TRHYGFPYWYFDV	142
V_H_CDR3_2	STAPGGFDV	113	V_H_CDR3_32	QPGGVTGTLTT	143
V_H_CDR3_3	ARFAYYYGSGGYFDY	114	V_H_CDR3_33	ARYPMDY	144
V_H_CDR3_4	ARDGNYGDPMDY	115	V_H_CDR3_34	ARLLFYYAMDY	145
V_H_CDR3_5	STPYEYDGAY	116	V_H_CDR3_35	AREATAGAMDY	146
V_H_CDR3_6	VRDGGY	117	V_H_CDR3_36	AREGAGSWFAY	147
V_H_CDR3_7	ARGPYAMDY	118	V_H_CDR3_37	TYNDLGY	148
V_H_CDR3_8	TSGYGFPY	119	V_H_CDR3_38	ARKDDYYGSSPYALDY	149
V_H_CDR3_9	ANYFGCSGWFFDV	120	V_H_CDR3_39	VRDDYDSDY	150
V_H_CDR3_10	TRDGNDGDAMDN	121	V_H_CDR3_40	ARIYYYGRGYAMDY	151
V_H_CDR3_11	AKGPYDYDLGWFAY	122	V_H_CDR3_41	ARGDYYYGTRGPMDY	152
V_H_CDR3_12	ARHGYYDY	123	V_H_CDR3_42	ARWGAMDY	153
V_H_CDR3_13	TRWGIYYYARDY	124	V_H_CDR3_43	ARDRASLLRPGAMDY	154
V_H_CDR3_14	AVPYEYDGAY	125	V_H_CDR3_44	ARLDYDYDEDY	155
V_H_CDR3_15	ATPYEYDGAY	126	V_H_CDR3_45	ASPPSGYDYDVFAS	156
V_H_CDR3_16	AYLDY	127	V_H_CDR3_46	ASPPSGYDYDVFAY	157
V_H_CDR3_17	AKSPDGYDVAWFGY	128	V_H_CDR3_47	AKPPYDYDGAWFAY	158
V_H_CDR3_18	ARWGGYAGDYYAMDF	129	V_H_CDR3_48	ATGRPDY	159
V_H_CDR3_19	ARWGGYDGDYYAMDY	130	V_H_CDR3_49	AKGRPDY	160
V_H_CDR3_20	ARWGGYAGDYYAMDY	131	V_H_CDR3_50	AGYDFLWYFDV	161
V_H_CDR3_21	ASYGNSLFDY	132	V_H_CDR3_51	ARSGGYYVWFAY	162
V_H_CDR3_22	VRYTMDY	133	V_H_CDR3_52	ARSYYDGSYDAMDY	163
V_H_CDR3_23	ARNLYDGSYGYYAMDY	134	V_H_CDR3_53	ARGWFAY	164
V_H_CDR3_24	ARHAHYYGVSPYYFDY	135	V_H_CDR3_54	AKPPHDYDQAWFAY	165
V_H_CDR3_25	AKFGNYVGAMDY	136	V_H_CDR3_55	VNSNYESGY	166
V_H_CDR3_26	ARGEYDYLAWFAY	137	V_H_CDR3_56	ANSNYASGS	167
V_H_CDR3_27	TRFTTVVEMDY	138	V_H_CDR3_57	ARWGRYEYYAMDY	168
V_H_CDR3_28	ARWGY	139	V_H_CDR3_58	TMTGGPINY	169
V_H_CDR3_29	ARIDYGDYVGFAY	140	V_H_CDR3_59	ANYFGSSGWFFDV	802
V_H_CDR3_30	AREAASNAMDY	141			

FIG. 3C

Light chain complementarity-determining region 1 (V_L-CDR1) of anti-Gal3 antibodies

	SEQUENCE	SEQ ID NO:		SEQUENCE	SEQ ID NO:
V_L-CDR1_1	RSSKSLLYKDGKTYLN	170	V_L-CDR1_27	IDIDDD	196
V_L-CDR1_2	KSLLHSDGITY	171	V_L-CDR1_28	QDIVHSSGNTY	197
V_L-CDR1_3	QGINSN	172	V_L-CDR1_29	KSLLYSNGITY	198
V_L-CDR1_4	QSLLYTNGKTY	173	V_L-CDR1_30	KSVSTSGYSY	199
V_L-CDR1_5	QSLFDSDGKTY	174	V_L-CDR1_31	ESVDSYGNSF	200
V_L-CDR1_6	QSIVHNNGNTY	175	V_L-CDR1_32	QSLLYSNGKTY	201
V_L-CDR1_7	QGINNY	176	V_L-CDR1_33	QGISSN	202
V_L-CDR1_8	QNIYIW	177	V_L-CDR1_34	KSVSTSGYSC	203
V_L-CDR1_9	QDISNY	178	V_L-CDR1_35	QSLLYSDGKTY	204
V_L-CDR1_10	QSIVHSNGNTY	179	V_L-CDR1_36	ESVENHVNSF	205
V_L-CDR1_11	QSLLYTDGKTY	180	V_L-CDR1_37	SSVTY	206
V_L-CDR1_12	QSVSND	181	V_L-CDR1_38	ESLDNSGISF	207
V_L-CDR1_13	QGISNY	182	V_L-CDR1_39	QDVSTT	208
V_L-CDR1_14	QDVSTA	183	V_L-CDR1_40	QNVGIN	209
V_L-CDR1_15	QNVGTN	184	V_L-CDR1_41	QSLLDSDGKTY	210
V_L-CDR1_16	QSLFHSDGKTY	185	V_L-CDR1_42	GNIHNY	211
V_L-CDR1_17	QNINIW	186	V_L-CDR1_43	QSVSSD	212
V_L-CDR1_18	QSLLHSDGKTY	187	V_L-CDR1_44	QSLLYINGKTY	213
V_L-CDR1_19	QDVRTA	188	V_L-CDR1_45	RSLLHSNGYTY	214
V_L-CDR1_20	QSVLYSSNQKNY	189	V_L-CDR1_46	RSLLDSDGKTY	215
V_L-CDR1_21	QSVLYSSSQKNY	190	V_L-CDR1_47	QDVSSV	216
V_L-CDR1_22	QSLVHNSGNTY	191	V_L-CDR1_48	QIINNN	217
V_L-CDR1_23	TGAVTTSNY	192	V_L-CDR1_49	KSVTTSAYSY	218
V_L-CDR1_24	KSLLHTNGITF	193	V_L-CDR1_50	QSLLDRDGKTY	219
V_L-CDR1_25	QSLLNSSNQKNY	194	V_L-CDR1_51	QSVSNE	220
V_L-CDR1_26	QNINVW	195			

FIG. 4A

Light chain complementarity-determining region 2 (V_L-CDR2) of anti-Gal3 antibodies

	SEQUENCE	SEQ ID NO:		SEQUENCE	SEQ ID NO:
V_L-CDR2_1	LMSTHAS	**221**	**V_L-CDR2_15**	EGN	**235**
V_L-CDR2_2	RMS	**222**	**V_L-CDR2_16**	GTN	**236**
V_L-CDR2_3	HAT	**223**	**V_L-CDR2_17**	LAS	**237**
V_L-CDR2_4	LLS	**224**	**V_L-CDR2_18**	LVC	**238**
V_L-CDR2_5	LVS	**225**	**V_L-CDR2_19**	HGT	**239**
V_L-CDR2_6	KVS	**226**	**V_L-CDR2_20**	YGT	**240**
V_L-CDR2_7	YAS	**227**	**V_L-CDR2_21**	RAS	**241**
V_L-CDR2_8	KAS	**228**	**V_L-CDR2_22**	ATS	**242**
V_L-CDR2_9	YTS	**229**	**V_L-CDR2_23**	AAS	**243**
V_L-CDR2_10	WAS	**230**	**V_L-CDR2_24**	SAS	**244**
V_L-CDR2_11	GAS	**231**	**V_L-CDR2_25**	NVK	**245**
V_L-CDR2_12	GIN	**232**	**V_L-CDR2_26**	SAK	**246**
V_L-CDR2_13	QMS	**233**	**V_L-CDR2_27**	QAS	**247**
V_L-CDR2_14	FAS	**234**			

FIG. 4B

Light chain complementarity-determining region 3 (V_L-CDR3) of anti-Gal3 antibodies

	SEQUENCE	SEQ ID NO:		SEQUENCE	SEQ ID NO:
V_L-CDR3_1	QQLVDYPLT	248	V_L-CDR3_26	QQNNEDPWT	273
V_L-CDR3_2	AQMLEFPLT	249	V_L-CDR3_27	VQGTHFPQT	274
V_L-CDR3_3	VQYAQFPPT	250	V_L-CDR3_28	VQYDQFPWT	275
V_L-CDR3_4	LQSTHFPLT	251	V_L-CDR3_29	HHSTELPYT	276
V_L-CDR3_5	WQGTHFPLT	252	V_L-CDR3_30	VQGTHLPT	277
V_L-CDR3_6	FQGSHVPLT	253	V_L-CDR3_31	QQNNEVPYT	278
V_L-CDR3_7	QQYSQVPYT	254	V_L-CDR3_32	QQWSSNPLT	279
V_L-CDR3_8	LQGQSYPLT	255	V_L-CDR3_33	QHSKEVPWT	280
V_L-CDR3_9	QQYSKLPYT	256	V_L-CDR3_34	QQHYSPPFT	281
V_L-CDR3_10	AQMIEFPLT	257	V_L-CDR3_35	QQYNSYPYT	282
V_L-CDR3_11	QQDYTSPYT	258	V_L-CDR3_36	WQGTHFPFT	283
V_L-CDR3_12	QQYSELPYT	259	V_L-CDR3_37	QHFWSIFPT	284
V_L-CDR3_13	QQHYTTPLT	260	V_L-CDR3_38	QHFWSLFPT	285
V_L-CDR3_14	EQYSNFPLT	261	V_L-CDR3_39	QHNYISPFT	286
V_L-CDR3_15	QQYSSYPWT	262	V_L-CDR3_40	QQHYNTPYT	287
V_L-CDR3_16	HQYLSSLT	263	V_L-CDR3_41	LQSTHFPQT	288
V_L-CDR3_17	SQSTHVPPT	264	V_L-CDR3_42	MQHLEYPYT	289
V_L-CDR3_18	ALWYSNHWV	265	V_L-CDR3_43	QQYSKLPRT	290
V_L-CDR3_19	AQNLELPWT	266	V_L-CDR3_44	WQGTHFPQT	291
V_L-CDR3_20	QQHYSTPYT	267	V_L-CDR3_45	QQGQSSPFT	292
V_L-CDR3_21	QQGQSYPYT	268	V_L-CDR3_46	QQTNSWPLT	293
V_L-CDR3_22	LQSDNKPLT	269	V_L-CDR3_47	QHNRELPPT	294
V_L-CDR3_23	ALWYSNHLV	270	V_L-CDR3_48	WQGTHFPT	295
V_L-CDR3_24	FQGSHVPPT	271	V_L-CDR3_49	QQHYSSPWT	296
V_L-CDR3_25	QHSRELPLT	272			

FIG. 4C

Heavy chain variable region (V_H) sequences of anti-Gal3 antibodies

	SEQUENCE	SEQ ID NO:
V_H-1	QVQLVQSGSELKKPGASVKVSCKASGYTFTNYGMNWVRQAPGQGLKWMGW INTNTGEPTYVEEFTGRFVFSLETSVSTAYLQISSLKAEDTAVYFCAPYDNFFAY WGQGTTVTVSS	297
V_H-2	QVQLVQSGAEVKKPGASVKVSCKASGYSFTNYYMHWVRQAPGQRLEWMG WIYPGSGNTNYNEKFQGRVTITADTSASTAYMELSSLRSEDTAVYYCSTAPGG FDVWGQGTTVTVSS	298
V_H-3	QVQLKQSGAELVRPGASVKLSCKASGYTFTDYYINWVKQRPGQGLEWIARIY PGTGNTDYNEKFKGRATLTAEKSSSTAYMQLSSLTSEDSAVYFCARFAYYYGS GGYFDYWGHGTTLTVSS	299
V_H-4	QIQLVQSGPELKKPGETVKISCKTSGYKFKTYVMSWVKQAPGKALKWMGWI NTYSGVPTYADDFKGRFAFSLETSASTAYLEIINLKNEDTATYFCARDGNYGD PMDYWGQGTSVTVSS	300
V_H-5	QIQLVQSGPELKKPGETVKISCKASGYTFTTYGMGWVKQAPGKDLKWMGWI NTYSGVPTYADDFKGRFAFSLETSASTAYLQISNLKNEDTATYFCSTPYEYDG AYWGQGTLVTVSA	301
V_H-6	EVQLVESGGGLVKPGGSLKLSCAASGFAFSSYAMSWVRQTPEKRLEWVATIS DGGVYTYYTDHVKGRFTISRDNAEDNLYLQMSHLKSEDTAMYYCVRDGGY WGQGTTLTVSS	302
V_H-7	QIQLVQSGPELKKPGETVKISCKASGYTFTTYAMSWVKQAPGKGLKWMGWIN TYSGVPTYADDLKGRFAFSLETSASTAYLQINNLKNEDTATYFCARGPYAMD YWGQGTSVTVSS	303
V_H-8	EVQLQQSGPELVKPGASVKISCKASGYTFTDFYINWVKQSHGKSLEWIGDINP KNGGINYNPKFKIKATLTVDKSSSTSYMDLRGLTSEDSAVYYCTSGYGFPYWG QGTLVTVSA	304
V_H-9	QIQLVQSGPELKKPGESVKISCKASGYAFTTYGMSWVQQAPGKGLKWMGWV NTYSGVPTCADDFKGRFAFSLETSASTAYLQINNLRNEDTATYFCARGPYAMD YWGQGTSVTVSS	305
V_H-10	QVQLQQSGPELVKPGASVKISCKASGYTFTDYYINWVKQRPGQGLEWIGWIYP GSNDTKYNEKFKGKATLTVDTSSSTAYMQLGSLTSEDSAVYFCANYFGCSGW FFDVWGTGTTVTVSS	306
V_H-11	EVQLVESGGGLVKPGGSLKLSCAASGFTFSSYAMSWVRQTPEKRLEWVATISD GGIYTYYPDNVKGRFTISRDNAKNNLFLQMSHLKSEDTAMYYCVRDGGYWG QGTTLTVSS	307
V_H-12	QIQLVQSGPELKKPGETVKISCKASGYTFTNYGMNWVKQAPGKGLKWMGWI NTNTGEPTYVEEFKGRFAFSLETSASTAYLQINNLKNEDTATYFCAPYDNFFAY WGQGTLVTVSA	308
V_H-13	QVQLQQSGPELVKPGASVKISCKASGYSFTNYYIHWVKQRPGQGLEWIGWIYP GSGNTNYNEKFKGKATLTADTSSSTTNMQLSSLTSEDSAVYYCSTAPGGFDV WGSGTTVTVSS	309
V_H-14	QVQLVQSGAEVKKPGASVKVSCKASGYSFTNYYMHWVRQAPGQGLEWMG WIYPGSGNTNYNEKFQGRVTMTADTSISTAYMELSRLRSDDTAVYYCSTAPG GFDVWGQGTTVTVSS	310

FIG. 5

	SEQUENCE	SEQ ID NO:
V_H-15	QVQLVQSGAEVKKPGASVKVSCKASGYSFTNYYIHWVRQAPGQRLEWMGWI YPGSGNTNYNEKFQGRVTLTADTSASTTYMELSSLRSEDTAVYYCSTAPGGFD VWGQGTTVTVSS	311
V_H-16	QIQLVQSGPDLKKPGETVKISCKASGYTFTTYVMSWVKQAPGKDLKWMGWI NTHSGVPTYADDFKGRFDFSLETSANTAFLQINNLKNEDTATYFCTRDGNDGD AMDNWGQGTSVTVSS	312
V_H-17	QVQLKQSGPGLVQPSQSLSITCTVSGFSLTSYGVHWVRQPPGKGLEWLGVIWS GGSTDYNAAFISRLSISKDNSKSQVFFKMNSLQADDTAIYYCAKGPYDYDLGW FAYWGQGTLVTVSA	313
V_H-18	QIQLVQSGPELKKPGETVKISCKASGYTFTTYGMSWVKQAPGKGLKWMAWIN TYSGVPTYADDFKGRFAFSLETSASTAYLQINNLTNEDTATYFCARGPYAMDY WGQGTSVTVSS	314
V_H-19	QVQLQQPGAELVGPGSSVKLSCKASGYTFTNYWIHWVKQRPLQGLEWIGNID PSDSETHYNQKFKDKATLTVDKSSSTAYMQLSSLTSEDSAVYYCARHGYYDY WGQGTTLTVSS	315
V_H-20	QVQLQQPGAELVKPGASVKLSCKASGYTFTSYWMHWVKQRPGQGLEWIGMI HPNSGSTDYNEKFKNKATLNVDKSSSTAYIQLSSLTSEDSAVYYCTRWGIYYY ARDYWGQGTTLTVSS	316
V_H-21	QIQLVQSGPELKKPGETVKISCKASGYTFTTYGMSWVKQAPGKGLKWMGWIN TYSGVPTYADDFKGRFAFSLETSASTAYLQINNLKNEDTATYFCAVPYEYDGA YWGQGTLVTVSA	317
V_H-22	EVQLQQSGPELVKPGASVKISCKASGYTFTDYYMNWVKQSHGKSLEWIGDIN PNNGGTNYNQKFKGKATLTVDKSSSTAYMELRSLTSEDSAVYYCTSGYGFPY WGQGTLVTVSA	318
V_H-23	QIQLVQSGPELKKPGETVKISCKASGYTFTTYGMGWVKQAPGKGLKWMGWI NTYSGVPTYADDFKGRFAFSLETSTSTAYLQINNLKNEDMATYFCATPYEYDG AYWGQGTLVTVSA	319
V_H-24	QVQLQQSGPELVKPGDSVKISCKAAGYTFSDYYINWVKQRPGQGLEWIGWIY PVSVNTKYNEKFKGKATLTVDTSSSTAYMQLSSLTSEDSGVYFCAYLDYWGQ GTLVTVSA	320
V_H-25	QVQLKQSGPGLVQPSQSLSITCTVSGFSLTSYGVHWVRQAPGKGLEWLGVIWS GGSTDYNAAFMSRLSISKDNSKSQVFFKMNSLQADDTAIYYCAKSPDGYDVA WFGYWGQGTLVTVSA	321
V_H-26	QIQLVQSGPELKKPGETVKISCKASGYTFTNYGMNWVKQAPGKGLKWMGWI NTYTGEPSYADDFKGRFAFSLETSASTAYLQINNLKNEDMATYFCARWGGYA GDYYAMDFWGQGTSVTVSS	322
V_H-27	QIQLVQSGPELKKPGETVKISCKASGYTFTNYGMNWVKQAPGKGLKWMGWI NTYTGEPSYADDFKGRFAFSLETSASTAYLQINNLKNEDMATYFCARWGGYD GDYYAMDYWGQGTSVTVSS	323
V_H-28	QIQLVQSGPELKKPGETVKISCKASGYTFTNFGMNWVKQAPGKGLKWMGWI NTYTGEPSYADDFKGRFAFSLETSASTAYLQINNLKNEDIATYFCARWGGYAG DYYAMDYWGQGTSVTVSS	324
V_H-29	EVQLLESGGGLVKPGGSLKLSCAASGFTFSSYAMSWVRQTPEKRLEWVASISS GGDTYYPDSVKGRFTISRDNARNILYLQMSSLRSEDTAMYYCASYGNSLFDY WGQGTTLTVSS	325

FIG. 5 cont.

	SEQUENCE	SEQ ID NO:
V_H-30	QIQLVQSGPELKKPGETVKISCKASGYTFTNYGMNWVKQAPGKGLKWMGWI NTYTGEPTYAGDLKGRFAFSLETSASTAYLQINNLKNEDTATYFCVRYTMDY WGQGTSVTVSS	326
V_H-31	QVTLKESGPGILQPSQTLSLTCSFSGFSLSTSGMGVGWIRQPSGKGLEWLAHIW WDDDKYYNTALKSGLTISKDASKNQVFLKIASMDTADTATYYCARNLYDGS YGYYAMDYWGQGTSVTVSS	327
V_H-32	QIQLVQSGPELKKPGETVKISCKASGYTFTNYGMNWVKQAPGKGLKWMGWI NTYTGEPAYADDFKGRFAFSLETSASTAYLQINNLKNEDMATYFCARWGGYD GDYYAMDYWGQGTSVTVSS	328
V_H-33	EVQLVESGGDLVKPGGSLKLSCAASGFTFSNYGLSWIRQTPDKRLEWVATISS GGSYTYYPDSVKGRFTISRDSAKNTLYLQMSSLKSEDTAMYYCARHAHYYGV SPYYFDYWGQGTCLTVSS	329
V_H-34	QIQLVQSGPEVKKPGETVKISCKASGYIFTNYGMNWVKQAPGKGLKWMGWI NTYTGEPTYTDDFKGRFAFSLETSASTAYLQINNLKNEDTATYFCAKFGNYVG AMDYWGQGTSVTVSS	330
V_H-35	EVQLQQSGPELVKPGASVKISCKASGNTFTDHNMHWVKQSHGKSLEWIGYIY PYNGGTGYNQKFKSKATLTVDNSSSTVYMELRSLTSEDSAVYYCARGEYDYL AWFAYWGQGTLVTVSA	331
V_H-36	QIQLVQSGPELKKPGETVKISCKASGYTFTNYGMNWVKQAPGKGLKWMGWI NTYTGEPTYVDDFKGRFAFSLETSASTAYLRINNLKNEDTATYFCAKFGNYVG AMDYWGQGTSVTVSS	332
V_H-37	EVQLVETGGGLVKPGGSLKLSCAASGFTFSSYAMSWVRQTPEKRLEWVASISS GGSTYYPDSVKGRFTISRDNARNILYLQMSSLRSEDTAMYYCTRFTTVVEMDY WGQGTSVTVSS	333
V_H-38	QVQLQQTGAELVKPGASVKLSCKASGYTFTSYWINWVKQRPGQGLEWIGNIY PGSSSIYYSEKFKSKATLTVDTSSSTAYMQLSSLTSDDSAVYYCARWGYWGQ GTTLTVSS	334
V_H-39	QVTLKESGPGILQPSQTLSLTCSFSGFSLSTFGMGVGWIRQPSGKGLEWLAHIW WDDDKHYNPALKSRLTISKDTSKNQVFLRIANVDTADNATYYCARIDYGDYV GFAYWGQGTLVTVSA	335
V_H-40	QVQLQQSGPELVRPGALVKISCKASGYTFTSYDINWVKQRPGQGLEWIGWIYP GDGSTKYNEKFKGKATLTADKSSSTAYMQLSSLTSENSAVYFCAREAASNAM DYWGQGTSVTVSS	336
V_H-41	EVKLEESGGGLVQPGGSMKLSCVASGFTFSNYWMNWVRQSPEKGLEWVAEI RLKSNNYATHYAESVKGRFTISRDDSKSSVYLQMNNLRAEDTGIYYCTRHYGF PYWYFDVWGAGTTVTVSS	337
V_H-42	QIQLVQSGPELKKPGETVKISCKASGYTFTNYGMNWVKQAPGKGLKWMGWI NTNTGEPTYAEEFKGRFAFSLETSASTAYLQINNLKNEDTATYFCATGGGNWD FDYWGQGTTLTVSS	338
V_H-43	QIQLVQSGPELTKPGETVKISCKASGYTFTDYGMNWVRQAPGETLKWMGWIN TYTGEPTYADDFKGRFAFSLESSASTAYLQINNLKNEDVATYFCARYPMDYW GQGTSVTVSS	339

FIG. 5 cont.

	SEQUENCE	SEQ ID NO:
V_H-44	EVKLEESGGGLVQPGGSMKLSCVASGFTFSNYWMNWVRQSPEKGLEWVAEL RLKSNNYATHYAESVKGRFTISRDDSKSSVYLQMNNLRAEDTGIYYCTRHYGF PYWYFDVWGAGTTVTVSS	340
V_H-45	EVQLQQSGPELVKPGASVKMSCKASGYTFTSYVMHWVKQKPGQGLEWIGYI NPYNDGTKYNEKFKGKATLTSDKSSSTAYMELSSLTSEDSAVYYCARLLFYY AMDYWGQGTSVTVSS	341
V_H-46	QVQLQQSGPELVRPGALVKISCKASGYTFTSYDINWVKQRPGQGLEWIGWIYP GDGSTKYNEKFKGKATLTADKSSSTVYMQLSSLTSENSAVYFCAREAASNAM DYWGQGTSVTVSS	342
V_H-47	QVQLQQSGPELVKPGALVKISCKASGYTFTSYDINWVKQRPGQGLEWIGWIYP GDGSTKYNEKFKGKAALTADKSSSTAYMQLSSLTSENSAVYFCAREAASNAM DYWGQGTSVTVSS	343
V_H-48	EVQLQQSGPELVKPGASVKMSCKASGYSFTNYIMHWVKQKPGQGLEWIGYIN PYNDGTKYNEKFKGKATLTSDKSSSTAYMELSSLTSEDSAVYYCARLLFYYA MDYWGQGTSVTVSS	344
V_H-49	QVQLQQSGAELVKPGASVKLSCKASGYTFRSYDINWVRQRPEQGLEWIGWIFP GEGISKYNEKFKGKATLTTDKLSSTAYMQLSSLTSEDSAVYFCAREATAGAM DYWGQGTSVTVSS	345
V_H-50	EVKLLESGGGLVQPGGSMKLSCVASGFTFSNFWMNWVRQSPEKGLEWVAEIR LKSNNYATHYAESVKGRFTISRDDSKSSVYLQMNNLRAEDTGIYYCTRHYGFP YWYFDVWGAGTTVTVSS	346
V_H-51	QIQLQQSGAELVKPGASVKLSCKASGYTFTSYDICWVRQRPEQGLEWIGWIFP GDGTTKYTENFKGKATLTTDKSSSTAYMHLSRLTSEDSAVYFCAREGAGSWF AYWGQGTLVTVSA	347
V_H-52	EVQLQQSGAELVRPGTSVKVSCKASEYAFNNYMMEWVKQRPGQGLEWIGVI NPGSGATNYNENFKDKATLTADKSSTTAYMQLSSLTSDDSAVYFCTYNDLGY WGQGTLVTVSA	348
V_H-53	EVKLQQSGPELMKPGTSMKISCKASGYSFTGYTMNWVKQSHGKNLEWIGLIN PYNGGTNYNQKFRGKATLSVDKSSNTAYMELLSLTSEDSAVYYCARKDDYY GSSPYALDYWGQGTSVTVSS	349
V_H-54	QVQLQQSGAELMKPGASVKISCKATGYTFTNYWIEWVKQRPGHGLEWIGEFL PGDGSSHYNEKFKGKATFTSDTSSNTAYIHLTSLTSEDSAVYYCVRDDYDSDY WAQGTTLTVSS	350
V_H-55	QVQMKQSGPGLVQPSQSLSITCTVSGFSLINYGVHWVRQSPGKGLEWLGVIWS GGSTDYNAAFISRLSISKDNSKSQVFFKMNSLQADDTAIYYCARIYYYGRGYA MDYWGQGTSVTVSS	351
V_H-56	EVQLQQSGAEVVKPGAPVKLSCKASGYTFNNYWLNWVKQRPGRGLEWIGRI DPSDSETHYNQKFKDKATLTVDMSSSTAYIQLSSLTSEDSAVYYCARGDYYYG TRGPMDYWGQGTSVTVSS	352
V_H-57	QVQLQQSGAELVRPGASVNLSCKASGYTFTNYWMNWVKQRPGQGLEWVGM IDPSDSETHYNQMFKDKATLTIDKSSSIAYMQLSSLTSEDSAVYYCARWGAMD YWGQGTSVTVSS	353

FIG. 5 cont.

	SEQUENCE	SEQ ID NO:
V_H-58	QVQLKQSGPGLVAPSQSLSITCTVSGFSLTSYGVHWVRQPPGKGLEWLGIIWA GGSTNYNPALMSRLSISKDKSKSQVFLKMNSLKTDDTAMYYCARDRASLLRP GAMDYWGQGTSVTVSS	354
V_H-59	QIQLVQSGPELKKPGETVKISCKASGYTFTNYGMNWVKQAPGKGLKWMGWI NTNTGEPTYAEEFKGRFAFSLETSASTAYLQINYLKNEDTATFFCARLDYDYD EDYWGQGTTLTVSS	355
V_H-60	QVQLVETGPGLVAPSQSLSITCTVSGFSLTSYGVHWIRQSPGKGLEWLGTIWA GGSTDYNSPLMSRLSISKDNSKNQVFLKMNSLQIDDTAIYYCASPPSGYDYDV FASWGQGTLVTVSA	356
V_H-61	QVQLKQSGPGLVQPSQSLSITCTVSGFSLINYGVHWVRQSPGKGLEWLGVIWS GGSTDYNAAFISRLSISKDNSKSQVFFKMNSLQADDTAIYYCARIYYYGRGYA MDYWGQGTSVTVSS	357
V_H-62	QVQLKESGPGLVAPSQSLSITCTVSGFSLTSYGVHWIRQPPGKGLEWLGGIWA GGSTDYNSPLMSRLSITKDNSKSQVFLKMNSLQSDDTAMYYCASPPSGYDYD VFAYWGQGTLVTVSA	358
V_H-63	QVQLKESGPVLVAPSQSLSITCTVSGFSLSSYGVHWVRQPPGKGLEWLGVIWA GGSTDYDSALMSRLSISKDNSKSQVFLKMDSLQTDDTAMYYCAKPPYDYDGA WFAYWGQGTLVTVSA	359
V_H-64	QVQLQQSGPQLVRPGASVKISCKASGYSFTNYWMHWVKQRPGQGLEWIGMI DPSDSETRLNQKFKDKATLTVDKSSSTAYMQLSSPTSEDSAVYYCATGRPDY WGQGTTLTVSS	360
V_H-65	QVQLQQSGPQLVRPGASVKISCKASGYSFTSYWMHWVKQRPGQGLEWIGMID PSDSETRLNQKFKDKATLTVDKSSSTAYMQLSSPTSEDSIVYYCAKGRPDYWG QGTTLTVSS	361
V_H-66	DGKLQESGPGLVKPSQSLSLTCSVTGYSITSGYYWNWIRQFPGNKLEWMGHIS YDGRNNYNPSLKNRISITRDTSKNQFFLKLNSVTTEDTATYYCAGYDFLWYFD VWGTGTTVTVSS	362
V_H-67	QVQLKESGPGILQPSQTLSLTCSFSGFSLSTFGMGVGWIRQPSGKGLEWLAHIW WDDDKHYNPALKSRLTISKDTSKNQVFLRIANVDTADNATYYCARIDYGDYV GFAYWGQGTLVTVSA	363
V_H-68	DGQLQESGPGLVKPSQSLSLTCSVTGYSITSGYYWNWIRQFPGNKLEWMGHIS YDGRNNYNPSLKNRISITRDTSKNQFFLKLNSVTTEDTATYYCAGYDFLWYFD VWGTGTTVTVSS	364
V_H-69	EVQLQQSGAELVKSGASVKLSCTASGFNIKDYYMHWVKQRTEQGLEWIGRIY PEDDETKYAPKFQGKATITADTSSNTAYLQLSSLTSEDTAVYYCARSGGYYV WFAYWGQGTLVTVSA	365
V_H-70	EVQLQQSGPELVKPGSSVKISCKASRYTFTDYNMDWVKQSHGKRLEWIGYIYP NNGGTGYNQKFKGKATLTVDKSSSTAYMELRSLTSEDSAVYYCARSYYDGSY DAMDYWGQGTSVTVSS	366
V_H-71	QIQLVQSGPELKKPGETVKISCKASGYTFTIFGMNWVKQAPGKGLKWMGWV NTYTGEPTYADDFKGRFAFSLETSASTAYLQINNLKNEDTATYFCARGWFAY WGQGTLVTVSA	367

FIG. 5 cont.

	SEQUENCE	SEQ ID NO:
V_H-72	QVQLKESGPVLVAPSQSLSITCTVSGFSLTSYGIHWVRQPPGKGLEWLGVIWA GGSTNYNSALMSRLSISKDNSKSQVFLKMNSLQIDDTAMYYCAKPPHDYDQA WFAYWGQGTLITVSA	368
V_H-73	QVQLQQSGAELVRPGASVKLSCKASGYTFTSSWMNWVKQRPGQGLDWIGMI DPSDSETHYNQMFKDKATLTVDKSSNTAYMQLSRLTSEDSAVYYCVNSNYES GYWGQGTTLTVSS	369
V_H-74	QVQLQQSGAELVRPGASVKLSCKASGYTFTGYWLNWVKQRPGQGLEWIGMI DPSDSETHYNQVFKDKATMTVDRSSSTAYMQLSGLTSEDSAVYYCANSNYAS GSWGQGTTLTVSS	370
V_H-75	EVQLQQSGPELVKPGASVKVSCKASGYSFTDYNMYWVMQSHGKSLEWIGYI DPYNDATSYSQKFTGKATLTVDKSSSTAFMHLNSLTSEDSAVYYCARWGRYE YYAMDYWGQGTSVTVSS	371
V_H-76	QVQLKESGPDLVQPSQTLSLTCTVSGFSLTIYGVHWVRQPPGKGLEWVGTVA WDDKKYYNSPLQSRLSISRDTSKNQVFLKLSSLQTEDTAMYYCTMTGGPINY WGPGTSVTVSS	372
V_H-77	EVQLVESGGGLVKPGGSLKLSCAASGFTFSSYAMSWVRQTPEKRLEWVASISS GDSPYYPDSVKGRFTISRDNARNILYLQMSSLRSEDTAMYYCTRFTTVVEMDY WGQGTSVTVSS	373
V_H-78	QVQLKQSGPELVKPGDSVKISCKAAGYTFSDYYINWVKQRPGQGLEWIGWIY PVSVNTKYNEKFKGKATLTVDTSSSTAYMQLSSLTSEDSGVYFCAYLDYWGQ GTLVTVSA	940
V_H-79	QVQLQQSGPELVKPGASVKISCKASGYTFTDYYINWVKQRPGQGLEWIGWIYP GSQDTKYNEKFKGKATLTVDTSSSTAYMQLGSLTSEDSAVYFCANYFGSSGW FFDVWGTGTTVTVSS	803

FIG. 5 cont.

	SEQUENCE	SEQ ID NO:
V_H-80	QVQLVQSGAEVKKPGASVKVSCKASGYTFTDYYINWVRQAPGQRLEWMGWI YPGSQDTKYNEKFQGRVTLTVDTSASTAYMELSSLRSEDTAVYFCANYFGSSG WFFDVWGQGTMVTVSS	806
V_H-81	QVQLVQSGAEVKKPGASVKVSCKASGYTFTDYYINWVRQAPGQRLEWMGWI YPGSQDTKYNEKFQGRVTLTVDTSASTAYMELSSLRSEDTAVYFCANYFGSSG WFFDVWGQGTMVTVSS	807
V_H-82	QVQLVQSGAEVKKPGASVKVSCKASGYTFTDYYINWVRQAPGQRLEWMGWI YPGSQDTKYNEKFQGRVTLTVDTSASTAYMELSSLRSEDTAVYFCANYFGSSG WFFDVWGQGTMVTVSS	808
V_H-83	QVQLVQSGAEVKKPGASVKVSCKASGYTFTDYYINWVRQAPGQRLEWMGWI YPGSQDTKYNEKFQGRVTLTVDTSASTAYMELSSLRSEDTAVYFCANYFGSSG WFFDVWGQGTMVTVSS	809
V_H-84	QVQLVQSGAEVKKPGASVKVSCKASGYTFTDYYINWVRQAPGQRLEWMGWI YPGSQDTKYSQKFQGRVTITVDTSASTAYMELSSLRSEDTAVYYCANYFGSSG WFFDVWGQGTMVTVSS	810
V_H-85	QVQLVQSGAEVKKPGASVKVSCKASGYTFTDYYINWVRQAPGQRLEWMGWI YPGSQDTKYSQKFQGRVTITVDTSASTAYMELSSLRSEDTAVYYCANYFGSSG WFFDVWGQGTMVTVSS	811
V_H-86	QVQLVQSGAEVKKPGASVKVSCKASGYTFTDYYINWVRQAPGQRLEWMGWI YPGSQDTKYSQKFQGRVTITVDTSASTAYMELSSLRSEDTAVYYCANYFGSSG WFFDVWGQGTMVTVSS	812
V_H-87	QVQLVQSGAEVKKPGASVKVSCKASGYTFTDYYINWVRQAPGQRLEWMGWI YPGSQDTKYSQKFQGRVTITVDTSASTAYMELSSLRSEDTAVYYCANYFGSSG WFFDVWGQGTMVTVSS	813
V_H-88	QIQLVQSGSELKKPGASVKVSCKASGYAFTTYGMSWVRQAPGQGLEWMGW VNTYSGVPTYADDFTGRFVFSLETSVSTAYLQISSLKAEDTAVYFCARGPYAM DYWGQGTLVTVSS	814
V_H-89	QIQLVQSGSELKKPGASVKVSCKASGYAFTTYGMSWVRQAPGQGLEWMGW VNTYSGVPTYADDFTGRFVFSLETSVSTAYLQISSLKAEDTAVYFCARGPYAM DYWGQGTLVTVSS	815
V_H-90	QIQLVQSGSELKKPGASVKVSCKASGYAFTTYGMSWVRQAPGQGLEWMGW VNTYSGVPTSADDFTGRFVFSLETSVSTAYLQISSLKAEDTAVYFCARGPYAM DYWGQGTLVTVSS	816
V_H-91	QVQLVQSGFELKKPGASVKISCKASGYAFTTYGMSWVRQAPGQGLEWMGW VNTYSGVPTYAQAFTGRFVFSLDTSVSTAYLQISSLKAEDTAVYYCARGPYAM DYWGQGTLVTVSS	817
V_H-92	QVQLVQSGFELKKPGASVKISCKASGYAFTTYGMSWVRQAPGQGLEWMGW VNTYSGVPTYAQAFTGRFVFSLDTSVSTAYLQISSLKAEDTAVYYCARGPYAM DYWGQGTLVTVSS	818
V_H-93	QVQLVQSGFELKKPGASVKISCKASGYAFTTYGMSWVRQAPGQGLEWMGW VNTYSGVPTSAQAFTGRFVFSLDTSVSTAYLQISSLKAEDTAVYYCARGPYAM DYWGQGTLVTVSS	819
V_H-94	QVQLVQSGFELKKPGASVKISCKASGYAFTTYGMSWVRQAPGQGLEWMGW VNTYSGVPTSAQAFTGRFVFSLDTSVSTAYLQISSLKAEDTAVYYCARGPYAM DYWGQGTLVTVSS	820

FIG. 5 cont.

Light chain variable region (V_L) sequences of anti-Gal3 antibodies

	SEQUENCE	SEQ ID NO:
V_L-1	DIVLTQSPLSLPVTPGEPASISCRSSKSLLYKDGKTYLNWFLQKPGQSPQLLIYLMS THASGVPDRFSGSGSGTDFTLKISRVEAEDVGVYYCQQLVDYPLTFGGGTKLEIK	374
V_L-2	DIVMTQTPLSLSVTPGQPASISCKSSKSLLHSDGITYLYWYLQKPGQSPQLLIYRMS NLASGVPDRFSGSGSGTDFTLKISRVEAEDVGVYYCAQMLEFPLTFGQGTKLEIK	375
V_L-3	DILMTQSPSSMSVSLGDTVSITCHASQGINSNMGWLQQKPGKSFKGLIYHATNLE DGVPSRFSGSGSGADYSLTISSLESEDFADYYCVQYAQFPPTFGSGTKLEIK	376
V_L-4	DVVMTQTPLTLSVAIGQPASISCKSSQSLLYTNGKTYLNWLLQRPGQSPKRLIYLL SKLDSGVPDRFSASGSGTDFTLKISRVEAEDLGVYYCLQSTHFPLTFGAGTKLEM K	377
V_L-5	DVVMTQTPLTLSVTIGQPASISCKSSQSLFDSDGKTYLNWLLQRPGQSPKRLIYLV SKLDSGVPDRFTGSGSGTDFTLKISRVEAEDLGVYYCWQGTHFPLTFGAGTKLEM K	378
V_L-6	DVLMTQTPLSLPVSLGDQASISCRSSQSIVHNNGNTYLEWYLQKPGQSPKLLIYKV SNRFSGVPDRFSGSGSGTDFTLKISRVEAEDLGVYYCFQGSHVPLTFGGGTKLELK	379
V_L-7	DIQMTQTTSSLSASLGDRVTISCSASQGINNYLNWYQQKPDGTVKLLIYYASSLHS GVPSRFSGSGSGTDYSLTISNLEPEDIATYYCQQYSQVPYTFGSGTKLEIK	380
V_L-8	DIQMNQSPSSLSASLGDTITITCRASQNIYIWLSWYQQKPGNIPKLLIYKASNLHTG VPSRFSGSGSGTDFTLTISTLQPEDIATYFCLQGQSYPLTFGAGTKLEMK	381
V_L-9	DIQMTQTTSSLSASLGDRVTINCSASQDISNYLNWYQQKPDGTVKLLIYYTSSLLS GVPSRFSGSGSGTDYSLTISNLEPEDIATYFCQQYSKLPYTFGSGTHLEIK	382
V_L-10	DIVMTQAAFSNPVTLGTSASISCRSSKSLLHSDGITYLYWYLQRPGQSPQLLIYRM SNLASGVPDRFSGSGSGTDFTLRISRVEAEDVGVYYCAQMIEFPLTFGAGTILELK	383
V_L-11	DVVMTQTPLTLSVAIGQPASISCKSSQSLLYTNGKTYLNWLLQRPGQSPKRLIYLV SKLDSGVPDRFSGSGSGTDFTLKISRVEAEDLGVYYCLQSTHFPLTFGAGTKLELK	384
V_L-12	DVLMTQTPLSLPVSLGDQASISCRSSQSIVHSNGNTYLEWYLQKPGQSPKLLIYKV SNRFSGVPDRFSGSGSGTDFTLKISRVEAEDLGVYYCFQGSHVPLTFGAGTKLELK	385
V_L-13	DIVITQDELSNPVTSGESVSISCRSSKSLLYKDGKTYLNWFLQRPGQSPQLLIYLMS THASGVSDRFSGSGSGTDFTLEISRVKAEDVGVYYCQQLVDYPLTFGAGTKLELK	386
V_L-14	DIVMTQAAFSNPVTLGTSASISCRSSKSLLHSDGITYLYWYLQRPGQSPQLLIYRM SNLASGVPDRFSGSGSGTDFTLRISRVEAEDVGVYYCAQMLEFPLTFGAGTKLEL K	387
V_L-15	DIVMTQSPLSLPVTPGEPASISCRSSKSLLHSDGITYLYWYLQKPGQSPQLLIYRMS NLASGVPDRFSGSGSGTDFTLKISRVEAEDVGVYYCAQMLEFPLTFGQGTKLEIK	388
V_L-16	DVVMTQTPLTLSVTIGQPASISCKSSQSLLYTDGKTYLSWFLQRPGQSPKRLIYLV SKLDSGVPDRFSGSGSGTDFTLKISRVEAEDLGVYYCLQSTHFPLTFGAGTKLEVK R	389

FIG. 6

	SEQUENCE	SEQ ID NO:
V_L-17	SIVMTQTPKFLLVSAGDRVTITCKASQSVSNDVAWYQQKPGQSPKLLIYYASNRY TGVPDRFTGSGYGTDFTFTISTVQAEDLAVYFCQQDYTSPYTFGGGTKLEIKR	390
V_L-18	DIQMTQTTSSLSASLGDRVTISCSASQGISNYLNWYQQKPDGTVKLLIYYTSSLHS GVPSRFSGSGSGTDYSLTISNLEPEDIATYYCQQYSELPYTFGSGTKLEIKR	391
V_L-19	DIVMTQSHKFMSTSVGDRVSITCKASQDVSTAVAWYQQKPGQSPKLLIYWASTR HTGVPDRFTGSGSGTDYTLTISSVQAEDLALYYCQQHYTTPLTFGAGTKLELKR	392
V_L-20	DIVMTQSQKFMSTSVGERVSITCKASQNVGTNVAWYQQKAGQSLELLIYGASNR HTGVPDRFTGSGSGTDFTLTITNVQSEDMTNYFCEQYSNFPLTFGAGTKLELKR	393
V_L-21	DVVMTQTPLTLSVTIGQPASISCKSSQSLFHSDGKTYLNWLLQRPGQSPKRLIYLV SKLDSGVPDRFTGSGSGTDFTPKISRVEDEDLGVYYCWQGTHFPLTFGAGTKLEM KR	394
V_L-22	DIQMNQSPSSLSASLGDTISITCRASQNINIWLSWYQQKPGNIPQLLIYKASNLHTG VPSRFSGSGSGTDFTLTISSLQPEDIATYYCLQGQSYPLTFGAGTKLVMKR	395
V_L-23	DVVMTQTPLTLSVTIGQPASISCKSSQSLLHSDGKTYLNWLLQRPGQPPKRLMYL VSTLDSGVPDRFTGSGSGTDFTLKISRVEAEDLGVYYCWQGTHFPLTFGAGTKPE R	396
V_L-24	DIVMTQAAFSNPVTLGTSASISCRSSKSLLHSDGITYFYWYLQRPGQSPQLLIYRM SNLASGVPDRFSGSGSGTDFTLRISRVEAEDVGVYYCAQMLEFPLTFGAGTKLER	397
V_L-25	DIVMTQSHKFMSTSVGDRVSITCKASQDVRTAVAWYQQKPGQSPKLLIYWASTR HTGVPDRFTGSGSGTDFTLTLSNVQSEDLADYFCQQYSSYPWTFGGGTKLEIKR	398
V_L-26	NIWLTQSPSSLAVSAGEMVTMTCKSSQSVLYSSNQKNYLAWYQQKPGQSPKLLI YWASTRESGVPDRFTGSGSGTDFSLTISSVQAEDLAVYYCHQYLSSLTFGAGTKL ELK	399
V_L-27	NIMMTQSPSSLAVSAGEKVTMSCKSSQSVLYSSNQKNYLAWYQQKPGQSPKLLI YWASTRESGVPDRFTGSGSGTDFTLTISSVQPEDLAVYYCHQYLSSLTFGAGTKL ELK	400
V_L-28	NIMMTQSPSSLAVSAGQKVTMSCKSSQSVLYSSSQKNYLAWYQQKPGQSPKLLI YWASTRESGVPDRFSGSGSGTDFTLTISSVQPEDLAVYYCHQYLSSLTFGAGTKLE LK	401
V_L-29	DVVMTQTPLSLPVSLGDQASISCRSSQSLVHNSGNTYLHWYLQRPGQSPNLLIYK VSNRFSGVPDRFSGSGSGTDFTLKISRVAAEDLGVYFCSQSTHVPPTFGGGTKLEI K	402
V_L-30	QAVVTQESALTTSPGETVTLTCRSSTGAVTTSNYANWVQEKPDHLFTGLIGGINN RVPGVPARFSGSLIGDKAALTITGAQTEDEAIYFCALWYSNHWVFGGGTKLTVL	403
V_L-31	DIVMTQAAFSNPVTLGTSASISCRSSKSLLHTNGITFLYWYLQKPGQSPQPLIYQM SNLASGVPDRFSSSGSGTDFTLRISRVEAEDVGVYYCAQNLELPWTFGGGTKLEIN	404
V_L-32	NIMMTQSPSSLAVSAGEKVTMSCKSSQSVLYSSNQKNYLAWYQQKPGQSPKLLI YWASTRESGVPDRFTGSGSGTDFTLTISSVQAEDLAVYYCHQYLSSLTFGAGTKL ELK	405

FIG. 6 cont.

	SEQUENCE	SEQ ID NO:
V_L-33	DIVMTQSPSSLAMSVGQKVTMSCKSSQSLLNSSNQKNYLAWYQQKPGQSPKL LVYFASTRESGVPDRFIGSGSGTDFTLTISSVQAEDLADYFCQQHYSTPYTFGG GAKLEIK	406
V_L-34	DIRMTQSPSSLSASLGDTITITCHASQNINVWLSWYQQKPGNIPKLLIYKASNLH TGVPSRFSGSGSGTGFTLTISSLQPEDIATYYCQQGQSYPYTFGGGTKLELK	407
V_L-35	EIVLTQSPASLSVTTGEKVTIRCITSIDIDDDMNWYQQKPGEPPKLLISEGNTLRP GVPSRFSSSGYGTDFVFTIENTLSEDVADYYCLQSDNKPLTFGAGTKLELK	408
V_L-36	DIQVIQSPSSLSASLGDTITITCHASQNINVWLSWYQQKPGNIPKLLIYKASNLH TGVPSRFSGSGSGTGFTLTISSLQPEDIATYYCQQGQSYPYTFGGGTKLELK	409
V_L-37	EIKMNQSPSSLSASLGDTITITCHASQNINVWLSWYQQKPGNIPKLLIYKASNLH TGVPSRFSGSGSGTGFTLTISSLQPEDIATYYCQQGQSYPYTFGGGTKLELK	410
V_L-38	QAVVTQESALTTSPGETVTLTCRSSTGAVTTSNYANWVQEKPDHLFTGLIGGT NNRAPGVPARFSGSLIGDKAALTITGAQTEDEAIYFCALWYSNHLVFGGGTKL TVL	411
V_L-39	DVLMTQTPLSLPVSLGDQASISCRSSQDIVHSSGNTYLEWYLQKPGQSLKLLIY KVSNRFSGVPDRFSASGSGTDFTLKISRVEAEDLGVYYCFQGSHVPPTFGSGTK LEIK	412
V_L-40	DIGMRQAAFSNPVTLGTSASISCRSSKSLLYSNGITYLYWFLQKPGQSPQLLIYQ MSNLASGVPDRFSSSGSGTDFTLRISRVEADDVGVYYCAQNLELPWTFGGGTK LEIK	413
V_L-41	DIVLTQSPASLGVSLGQRATISCRASKSVSTSGYSYMHWYQQKPGQPPKLLIYL ASILESGVPARFSGSGSGTDFTLNIHPVEEEDAAIYYCQHSRELPLTFGAGTKLE LK	414
V_L-42	NIVLTQSPASLAVSLGQRATISCRASESVDSYGNSFMHWYQQKPGQPPKLLIYL ASNLESGVPARFSGSGSRTDFTLTIDPVEADDAATYYCQQNNEDPWTFGGGTK LEIK	415
V_L-43	DVVMTQTPLTLSVTIGQPASISCKSSQSLLYSNGKTYLNWLLQRPGQSPKRLIY LVSKLDSGVPDRFTGSGSGTDFTLKISRVEAEDLGVYYCVQGTHFPQTFGGGT KLEIK	416
V_L-44	DILMTQSPSSMSVSLGDTVSITCHASQGINSNIGWLQQKPGKSFKGLIYHGTNL EDGVPSRFSGSGSGADYSLTISSLESEDFADYYCVQYDQFPWTFGGGTKLEIK	417
V_L-45	DIVMSQSPASLGVSLGQRATISCRASKSVSTSGYSYMHWYQQKPGQPPKLLIY LASILESGVPARFSGSGSGTDFTLNIHPVEEEDAAIYYCQHSRELPLTFGAGTKL ELK	418
V_L-46	DIVLTQSPASLAVSLGQRATISCRASKSVSTSGYSYMHWYQQKPGQPPKLLIYL ASILESGVPARFSGSGSGTDFTLNIHPVEEEDAATYYCQHSRELPLTFGAGTKLE LK	419
V_L-47	DILMTQTPSSMSVSLGDTVSITCHASQGISSNIGWLQQKPRKSFKGLIYYGTNLE DGVPSRFSGSGSGADYSLTISSLESEDFADYYCVQYDQFPWTFGGGTKLEIK	420
V_L-48	DIVLTQSPASLAVSLGQRATISCRASKSVSTSGYSCMHWYQQKPGQPPKLLIYL ASNLESGVPARFSGGGSGTDFTLSIHPVEEEDAATYYCHHSTELPYTFGGGTKL EVE	421

FIG. 6 cont.

	SEQUENCE	SEQ ID NO:
V_L-49	DIVLTQSPASLAVSLGQRATISCRASESVDSYGNSFMHWYQQKPGQPPKLLIYL ASNLESGVPARFSGSGSRTDFTLTIDPVEADDAATYYCQQNNEDPWTFGGGTK LEIK	422
V_L-50	DVVMTQTPLTLSVTIGQPASISCKSSQSLLYSDGKTYLNWLLQRPGQSPKRLIY LVSQLDSGVPDRFTGSGSGTDFTLKISRVEADDLGVYYCCVQGTHLPTFGGGTK LEIK	423
V_L-51	DIVMTQSPASLAVSLGQRATISCRASESVENHVNSFMHWFQQKPGQPPKLLIY RASNLQSGIPARFSGSGSRTDFTLTINPVEADDVATYYCQQNNEVPYTFGGGT KLEIK	424
V_L-52	QIVLSQSPAILSASPGEKVTMTCRASSSVTYMYWYQQKPGSSPQPWIYATSNL ASGVPARFSGSGSGTSYSLTISRVEAEDAATYYCQQWSSNPLTFGAGTKLELK	425
V_L-53	DIVLTQSPASLAVSLGQRATISCRASESLDNSGISFMNWFQQRPGQPPKLLIYAA SNLESGVPARFSGSGSGTDFSLNIHPMEEDDAAMYFCQHSKEVPWTFGGGTKL EIK	426
V_L-54	DIVMTQSHKIMSTSVGDRVSITCKASQDVSTTVAWFQQKPGQSPKLLLYWAST RHTGVPDRFTGSGSGTDYTLTISSVQAEDLALYYCQQHYSPPFTFGSGTKLEIK	427
V_L-55	DIVMTQSQKFMSTSVGDRVSVTCKASQNVGINVAWYQQKPGQSPKALIYSAS YRYSGVPDRFTGSGSGTDFTLTISNVQSEDLAEYFCQQYNSYPYTFGGGTKLE MK	428
V_L-56	DVVMTQTPLTLSVTLGQPASISCRSSQSLLDSDGKTYLNWLLQRPGQSPKRLIY LVSRLDSGVPDRFTGSGSGTDFTLKISRVEAEDLGVYYCWQGTHFPFTFGGGT KLEIK	429
V_L-57	DIRMTQSPASLSASVGETVTITCRASGNIHNYLAWYHQKQGKSPQLLVYNVKT LADGVPSRFSGSGSGTQFSLKINSLQPEDFGTYYCQHFWSIFPTFGGGTKLEIK	430
V_L-58	QILLSQSPAILSASPGEKVTMTCRASSSVTYMYWYQQKPGSSPQPWIYATSNLA SGVPARFSGSGSGTSYSLTISRVEAEDAATYYCQQWSSNPLTFGAGTKLELK	431
V_L-59	DILMTQSPASLSASVGETVTITCRASGNIHNYLAWYQQKQGKSPQLLVYSAKT LADGVPSRFSGSGSGTQFSLKIDSLQPEDFGTYYCQHFWSLFPTFGGGTKLEIK	432
V_L-60	DVVMTQTPKFLLVSAGDRVTITCKASQSVSSDVAWYQQKPGQSPKLLIYFASN RYTGVPDRFTGSGYGTDFTFTISTVQAEDLAVYFCQHNYISPFTFGGGTKLEIK	433
V_L-61	DIVMTQSHKFMSTSVGDRVSITCKASQDVSTAVAWYQQKPGQSPKLLIYWAS TRHTGVPDRFTGSGSGTDYTLTISSVQAEDLALYYCQQHYSTPYTFGGGTKLEI K	434
V_L-62	DIAMTQSHKFMSTSVGDRVSITCKASQDVSTAVAWYQQKPGQSPKLLIYWAS TRHTGVPDRFTGSGSGTDYTLTISSVQAEDLALYYCQQHYNTPYTFGGGTKLE IK	435
V_L-63	DVGMTQTPLILSVTIGQPASISCKSSQSLLYINGKTYLNWLLQRPGQSPKRLIYL VSKLDSGVPNRFSGSGSGTDFTLKISRVEAEDLGVYYCLQSTHFPQTFGGGTKL EIK	436

FIG. 6 cont.

	SEQUENCE	SEQ ID NO:
V_L-64	DILLTQSPSSMSVSLGDTVSITCHASQGINSNIGWLQQKPGKSFKGLIYHGTNLE DGVPSRFSGSGSGADYSLTISSLESEDFADYYCVQYDQFPWTFGGGTKLEIK	437
V_L-65	DIVMTQAAPSVPVTPGESVSISCRSSRSLLHSNGYTYLYWFLQRPGQSPRLLIYR MSNLASGVPDRFSGSGSGTAFTLRISRVEAEDVGVYYCMQHLEYPYTFGGGT KLEIK	438
V_L-66	DIQMTQTTSSLSASLGDRVTISCSASQGISNYLNWYQQKPDGTVKLLIYYTSSL HSGVPSRFSGSGSGTDYSLTISNLEPEDIATYYCQQYSKLPRTFGGGTKLEIN	439
V_L-67	DVVMTQTPLTLSVTIGQPASISCKSSRSLLDSDGKTYLNWLLQRPGQSPKRLIY LVSKLDSGVPDRFTGSGSGTDFTLKISRVEAEDLGVYYCWQGTHFPQTFGGGT KLEIN	440
V_L-68	DIQMNQSPSSLSASLGDTITITCHASQNINVWLSWYQQKPGNIPKLLIYQASNL HTGVPSRFSGRGSGTGFTLTISSLQPEDIATYYCQQGQSSPFTFGSGTKLEIK	441
V_L-69	DILMTQSHKFMSTSVGDRVSITCKASQDVSSVVVWYQQKPGQSPKQLIYWAS TRHTGVPDRFTGSGSGTDYTLTISSVQAEDLALYYCQQHYSTPYTFGGGTKLEI K	442
V_L-70	QAVVTQESALTTSPGETVTLTCRSSTGAVTTSNYANWDQEKPDHLFTGLIGGT NNRAPGVPARFSGSLIGDKAALTITGAQTEDEAIYFCALWYSNHLVFGGGTKV TVL	443
V_L-71	DIVMTQSPASLPVSLGQRATISCRASKSVTTSAYSYIHWYQQRPGQPPKLLIYL ASNLESGVPARFSGSGSGTDFTLNIHPVEEEDAATYYCQHNRELPPTFGGGTKL EIN	444
V_L-72	DIVLTQSPATLSVTPGDSVSFSCRASQIINNNLHWYQQKSHESPRLLIRYTSQSIS GIPSRFSGSGSGTDFTLSINNVETEDFGMYFCQQTNSWPLTFGAGTKLELK	445
V_L-73	DVVMTQTPLTLSVTIEQTASISCKSSQSLLDRDGKTYLNWLLQRPGQSPKRLIY LVSKLDSGVPDRFTGSGSGTDFTLKISRVEAEDLGVYYCWQGTHFPTFGGGTK LEIK	446
V_L-74	DVVMTQTPKFLPITAEDRVTITCKASQSVSNEVAWYQQKPGQSPKLLIYYASN RYTGVPDRFTGSGSGTDFTFTIRSVQLEDLAVYFCQQHYSSPWTFGGGTKLEIK	447
V_L-75	DVVMTQTPLTLSVTIGQPASISCKSSQSLFHSDGKTYLNWLLQRPGQSPKRLIY LVSKLDSGVPDRFTGSGSGTDFTLKISRVEAEDLGVYYCWQGTHFPLTFGAGT KLEMK	941
V_L-76	DVVMTQTPLTLSVTIGQPASISCKSSQSLLHSDGKTYLNWLLQRPGQPPKRLM YLVSTLDSGVPDRFTGSGSGTDFTLKISRVEAEDLGVYYCWQGTHFPLTFGAG TKPELK	942
V_L-77	DIVMTQAAFSNPVTLGTSASISCRSSKSLLHSDGITYFYWYLQRPGQSPQLLIYR MSNLASGVPDRFSGSGSGTDFTLRISRVEAEDVGVYYCAQMLEFPLTFGAGTK LERA	943

FIG. 6 cont.

	SEQUENCE	SEQ ID NO:
V_L-78	DIVMTQSPLSLPVTPGEPASISCRSSKSLLHSDGITYLYWYLQKPGQSPQLLIYR MSNRASGVPDRFSGSGSGTDFTLKISRVEAEDVGVYYCAQMIEFPLTFGQGTK LEIK	821
V_L-79	DIVMTQSPLSLPVTPGEPASISCRSSKSLLHSDGITYLYWYLQKPGQSPQLLIYR MSNLASGVPDRFSGSGSGTDFTLKISRVEAEDVGVYYCAQMIEFPLTFGQGTK LEIK	822
V_L-80	DVVMTQSPLSLPVTLGQPASISCRSSKSLLHSDGITYLYWYQQRPGQSPRLLIY RMSNRDSGVPDRFSGSGSGTDFTLKISRVEAEDVGVYYCAQMIEFPLTFGQGT KLEIK	823
V_L-81	DIVMTQSPLSLPVTLGQPASISCRSSKSLLHSDGITYLYWYQQRPGQSPQLLIYR MSNLDSGVPDRFSGSGSGTDFTLKISRVEAEDVGVYYCAQMIEFPLTFGQGTK LEIK	824
V_L-82	DIVMTQSPLSLPVTPGEPASISCRSSKSLLHSDGITYLYWYLQKPGQSPQLLIYR MSNRASGVPDRFSGSGSGTDFTLKISRVEAEDVGVYYCAQMIEFPLTFGQGTK LEIK	825
V_L-83	DIVMTQSPLSLPVTPGEPASISCRSSKSLLHSDGITYLYWYLQKPGQSPQLLIYR MSNLASGVPDRFSGSGSGTDFTLKISRVEAEDVGVYYCAQMIEFPLTFGQGTK LEIK	826
V_L-84	DVVMTQSPLSLPVTLGQPASISCRSSKSLLHSDGITYLYWYQQRPGQSPRLLIY RMSNRDSGVPDRFSGSGSGTDFTLKISRVEAEDVGVYYCAQMIEFPLTFGQGT KLEIK	827
V_L-85	DIVMTQSPLSLPVTLGQPASISCRSSKSLLHSDGITYLYWYQQRPGQSPQLLIYR MSNLDSGVPDRFSGSGSGTDFTLKISRVEAEDVGVYYCAQMIEFPLTFGQGTK LEIK	828
V_L-86	DIQMTQSPSSLSASVGDRVTITCQASQDISNYLNWYQQKPGKAPKLLIYYTSSL LTGVPSRFSGSGSGTDYTFTISSLQPEDIATYYCQQYSKLPYTFGQGTKLEIK	829
V_L-87	DIQMTQSPSSLSASVGDRVTITCRASQDISNYLNWYQQKPGKAPKLLIYYTSSL LSGVPSRFSGSGSGTDYTLTISSLQPEDFATYYCQQYSKLPYTFGQGTKLEIK	830
V_L-88	DIQMTQSPSSLSASVGDRVTITCQASQDISNYLNWYQQKPGKAPKLLIYYTSSL LTGVPSRFSGSGSGTDYTFTISSLQPEDIATYYCQQYSKLPYTFGQGTKLEIK	831
V_L-89	DIQMTQSPSSLSASVGDRVTITCQASQDISNYLNWYQQKPGKAPKLLIYYTSSL LTGVPSRFSGSGSGTDYTFTISSLQPEDIATYYCQQYSKLPYTFGQGTKLEIK	832
V_L-90	DIQMTQSPSSLSASVGDRVTITCRASQDISNYLNWYQQKPGKAPKLLIYYTSSL LSGVPSRFSGSGSGTDYTLTISSLQPEDFATYYCQQYSKLPYTFGQGTKLEIK	833
V_L-91	DIQMTQSPSSLSASVGDRVTITCQASQDISNYLNWYQQKPGKAPKLLIYYTSSL LTGVPSRFSGSGSGTDYTFTISSLQPEDIATYYCQQYSKLPYTFGQGTKLEIK	834
V_L-92	DIQMTQSPSSLSASVGDRVTITCRASQDISNYLNWYQQKPGKAPKLLIYYTSSL LSGVPSRFSGSGSGTDYTLTISSLQPEDFATYYCQQYSKLPYTFGQGTKLEIK	835

FIG. 6 cont.

Exemplary CDR combinations and their association with various exemplary anti-Gal3 antibodies

Antibody name	VH CDRs	VL CDRs
TB001 (IMT001; IMT001-4)	SEQ ID NO: 27, 71, 112	SEQ ID NO: 170, 221, 248
TB006 (4A11.H3L1; IMT006; IMT006a)	SEQ ID NO: 31, 72, 113	SEQ ID NO: 171, 222, 249
12G5.D7	SEQ ID NO: 32, 73, 114	SEQ ID NO: 172, 223, 250
13A12.2E5	SEQ ID NO: 33, 74, 115	SEQ ID NO: 173, 224, 251
14H10.2C9	SEQ ID NO: 34, 74, 116	SEQ ID NO: 174, 225, 252
15F10.2D6	SEQ ID NO: 35, 75, 117	SEQ ID NO: 175, 226, 253
19B5.2E6	SEQ ID NO: 34, 74, 118	SEQ ID NO: 176, 227, 254
20D11.2C6	SEQ ID NO: 36, 76, 119	SEQ ID NO: 177, 228, 255
20H5.A3	SEQ ID NO: 37, 77, 118	SEQ ID NO: 178, 229, 256
23H9.2E4	SEQ ID NO: 34, 74, 118	SEQ ID NO: 176, 227, 254
2D10.2B2	SEQ ID NO: 32, 78, 120	SEQ ID NO: 171, 222, 257
3B11.2G2	SEQ ID NO: 33, 74, 115	SEQ ID NO: 173, 225, 251
7D8.2D8	SEQ ID NO: 38, 79, 117	SEQ ID NO: 179, 226, 253
mTB001 (mIMT001)	SEQ ID NO: 27, 71, 112	SEQ ID NO: 170, 221, 248
4A11.2B5	SEQ ID NO: 31, 72, 113	SEQ ID NO: 171, 222, 249
4A11.H1L1 (IMT006b)	SEQ ID NO: 31, 72, 113	SEQ ID NO: 171, 222, 249
4A11.H4L2 (IMT006c)	SEQ ID NO: 31, 72, 113	SEQ ID NO: 171, 222, 249
4G2.2G6	SEQ ID NO: 34, 80, 121	SEQ ID NO: 180, 225, 251
6B3.2D3	SEQ ID NO: 28, 81, 122	SEQ ID NO: 181, 227, 258
6H6.2D6	SEQ ID NO: 34, 74, 118	SEQ ID NO: 182, 229, 259
9H2.2H10	SEQ ID NO: 27, 82, 123	SEQ ID NO: 183, 230, 260
13G4.2F8	SEQ ID NO: 40, 83, 124	SEQ ID NO: 184, 231, 261
13H12.2F8	SEQ ID NO: 34, 74, 125	SEQ ID NO: 185, 225, 252
15G7.2A7	SEQ ID NO: 32, 84, 119	SEQ ID NO: 186, 228, 255
19D9.2E5	SEQ ID NO: 34, 74, 126	SEQ ID NO: 187, 225, 252
23B10.2B12	SEQ ID NO: 41, 85, 127	SEQ ID NO: 171, 222, 249
24D12.2H9	SEQ ID NO: 28, 81, 128	SEQ ID NO: 188, 230, 262
F846C.1B2	SEQ ID NO: 30, 86, 129	SEQ ID NO: 189, 230, 263
F846C.1F5	SEQ ID NO: 30, 86, 130	SEQ ID NO: 189, 230, 263
F846C.1H12	SEQ ID NO: 42, 86, 131	SEQ ID NO: 190, 230, 263

FIG. 7

Antibody name	VH CDRs	VL CDRs
F846C.1H5	SEQ ID NO: 43, 87, 132	SEQ ID NO: 191, 226, 264
F846C.2H3	SEQ ID NO: 30, 86, 130	SEQ ID NO: 189, 230, 263
F846TC.14A2	SEQ ID NO: 30, 86, 133	SEQ ID NO: 192, 232, 265
F846TC.14E4	SEQ ID NO: 44, 88, 134	SEQ ID NO: 193, 233, 266
F846TC.16B5	SEQ ID NO: 30, 86, 130	SEQ ID NO: 189, 230, 263
F846TC.7F10	SEQ ID NO: 45, 89, 135	SEQ ID NO: 194, 234, 267
F847C.10B9	SEQ ID NO: 46, 86, 136	SEQ ID NO: 195, 228, 268
F847C.11B1	SEQ ID NO: 47, 90, 137	SEQ ID NO: 196, 235, 269
F847C.12F12	SEQ ID NO: 30, 86, 136	SEQ ID NO: 195, 228, 268
F847C.26F5	SEQ ID NO: 46, 86, 136	SEQ ID NO: 195, 228, 268
F847C.4B10	SEQ ID NO: 43, 91, 138	SEQ ID NO: 192, 236, 270
F849C.8D10	SEQ ID NO: 48, 92, 139	SEQ ID NO: 197, 226, 271
F849C.8H3	SEQ ID NO: 49, 88, 140	SEQ ID NO: 198, 233, 266
846.2B11	SEQ ID NO: 50, 93, 141	SEQ ID NO: 199, 237, 272
846.4D5	SEQ ID NO: 51, 94, 142	SEQ ID NO: 200, 237, 273
846T.1H2	SEQ ID NO: 30, 95, 143	SEQ ID NO: 201, 238, 274
847.14H4	SEQ ID NO: 32, 86, 144	SEQ ID NO: 192, 236, 270
846.2D4	SEQ ID NO: 51, 96, 142	SEQ ID NO: 200, 237, 273
846.2F11	SEQ ID NO: 52, 97, 145	SEQ ID NO: 172, 239, 275
846T.10B1	SEQ ID NO: 50, 93, 141	SEQ ID NO: 199, 237, 272
846T.2E3	SEQ ID NO: 50, 93, 141	SEQ ID NO: 199, 237, 272
846T.4C9	SEQ ID NO: 53, 97, 145	SEQ ID NO: 202, 240, 275
846T.4E11	SEQ ID NO: 54, 98, 146	SEQ ID NO: 203, 237, 276
846T.4F5	SEQ ID NO: 55, 94, 142	SEQ ID NO: 200, 237, 273
846T.8D1	SEQ ID NO: 50, 99, 147	SEQ ID NO: 199, 237, 272
847.10C9	SEQ ID NO: 56, 100, 148	SEQ ID NO: 204, 225, 277
847.11D6	SEQ ID NO: 57, 101, 149	SEQ ID NO: 205, 241, 278
847.15D12	SEQ ID NO: 29, 102, 150	SEQ ID NO: 192, 236, 270
847.15F9	SEQ ID NO: 58, 81, 151	SEQ ID NO: 206, 242, 279
847.15H11	SEQ ID NO: 59, 82, 152	SEQ ID NO: 207, 243, 280

FIG. 7 cont.

Antibody name	VH CDRs	VL CDRs
847.20H7	SEQ ID NO: 29, 82, 153	SEQ ID NO: 208, 230, 281
847.21B11	SEQ ID NO: 39, 103, 154	SEQ ID NO: 209, 244, 282
847.27B9	SEQ ID NO: 30, 104, 155	SEQ ID NO: 210, 225, 283
847.28D1	SEQ ID NO: 39, 103, 156	SEQ ID NO: 211, 245, 284
847.2B8	SEQ ID NO: 58, 81, 151	SEQ ID NO: 206, 242, 279
847.3B3	SEQ ID NO: 39, 103, 157	SEQ ID NO: 211, 246, 285
849.1D2	SEQ ID NO: 60, 103, 158	SEQ ID NO: 212, 234, 286
849.2D7	SEQ ID NO: 61, 82, 159	SEQ ID NO: 183, 230, 267
849.2F12	SEQ ID NO: 62, 82, 160	SEQ ID NO: 183, 230, 287
849.4B2	SEQ ID NO: 63, 105, 161	SEQ ID NO: 213, 225, 288
849.4F12	SEQ ID NO: 49, 88, 140	SEQ ID NO: 172, 239, 275
849.4F2	SEQ ID NO: 63, 105, 161	SEQ ID NO: 213, 225, 288
849.5C2	SEQ ID NO: 64, 106, 162	SEQ ID NO: 214, 222, 289
849.8D12	SEQ ID NO: 65, 107, 163	SEQ ID NO: 182, 229, 290
F847C.21H6	SEQ ID NO: 66, 108, 164	SEQ ID NO: 215, 225, 291
849.5H1	SEQ ID NO: 39, 103, 165	SEQ ID NO: 195, 247, 292
847.23F11	SEQ ID NO: 67, 82, 166	SEQ ID NO: 216, 230, 267
847.16D10	SEQ ID NO: 68, 82, 167	SEQ ID NO: 192, 236, 270
847.13E2-mH0mL1	SEQ ID NO: 69, 109, 168	SEQ ID NO: 217, 229, 293
847.13E2-mH0mL2	SEQ ID NO: 69, 109, 168	SEQ ID NO: 218, 237, 294
847.12C4	SEQ ID NO: 70, 110, 169	SEQ ID NO: 219, 225, 295
847.4D3	SEQ ID NO: 43, 111, 138	SEQ ID NO: 220, 227, 296
2D10-VH0-VL0	SEQ ID NO: 32, 826, 827	SEQ ID NO: 171, 222, 257
2D10-hVH4-HVL1	SEQ ID NO: 32, 826, 827	SEQ ID NO: 171, 222, 257
2D10-hVH4-HVL2	SEQ ID NO: 32, 826, 827	SEQ ID NO: 171, 222, 257
2D10-hVH4-HVL3	SEQ ID NO: 32, 826, 827	SEQ ID NO: 171, 222, 257
2D10-hVH4-HVL4	SEQ ID NO: 32, 826, 827	SEQ ID NO: 171, 222, 257
2D10-hVH3-HVL1	SEQ ID NO: 32, 826, 827	SEQ ID NO: 171, 222, 257
2D10-hVH3-HVL2	SEQ ID NO: 32, 826, 827	SEQ ID NO: 171, 222, 257
2D10-hVH3-HVL3	SEQ ID NO: 32, 826, 827	SEQ ID NO: 171, 222, 257
2D10-hVH3-HVL4	SEQ ID NO: 32, 826, 827	SEQ ID NO: 171, 222, 257
20H5.A3-VH3VL1	SEQ ID NO: 32, 826, 827	SEQ ID NO: 171, 222, 257
20H5.A3-VH3VL3	SEQ ID NO: 32, 826, 827	SEQ ID NO: 171, 222, 257
20H5.A3-VH4VL1	SEQ ID NO: 32, 826, 827	SEQ ID NO: 171, 222, 257
20H5.A3-VH5VL1	SEQ ID NO: 32, 826, 827	SEQ ID NO: 171, 222, 257
20H5.A3-VH5VL3	SEQ ID NO: 32, 826, 827	SEQ ID NO: 171, 222, 257
20H5.A3-VH6VL1	SEQ ID NO: 32, 826, 827	SEQ ID NO: 171, 222, 257
20H5.A3-VH6VL3	SEQ ID NO: 32, 826, 827	SEQ ID NO: 171, 222, 257

FIG. 7 cont.

Exemplary heavy chain variable region and light chain variable region combinations and their association with various exemplary anti-Gal3 antibodies

Antibody name	VH Sequence	VL Sequence
TB001 (IMT001; IMT001-4)	297	374
TB006 (4A11.H3L1; IMT006; IMT006a)	298	375
12G5.D7	299	376
13A12.2E5	300	377
14H10.2C9	301	378
15F10.2D6	302	379
19B5.2E6	303	380
20D11.2C6	304	381
20H5.A3	305	382
23H9.2E4	303	380
2D10.2B2	306	383
3B11.2G2	300	384
7D8.2D8	307	385
mTB001 (mIMT001)	308	386
4A11.2B5	309	387
4A11.H1L1 (IMT006b)	310	375
4A11.H4L2 (IMT006c)	311	388
4G2.2G6	312	389
6B3.2D3	313	390
6H6.2D6	314	391
9H2.2H10	315	392
13G4.2F8	316	393
13H12.2F8	317	394
15G7.2A7	318	395
19D9.2E5	319	396
23B10.2B12	320	397
24D12.2H9	321	398
F846C.1B2	322	399
F846C.1F5	323	400
F846C.1H12	324	401

FIG. 8

Antibody name	VH Sequence	VL Sequence
F846C.1H5	325	402
F846C.2H3	323	400
F846TC.14A2	326	403
F846TC.14E4	327	404
F846TC.16B5	328	405
F846TC.7F10	329	406
F847C.10B9	330	407
F847C.11B1	331	408
F847C.12F12	332	409
F847C.26F5	330	410
F847C.4B10	333	411
F849C.8D10	334	412
F849C.8H3	335	413
846.2B11	336	414
846.4D5	337	415
846T.1H2	338	416
847.14H4	339	411
846.2D4	340	415
846.2F11	341	417
846T.10B1	342	418
846T.2E3	343	419
846T.4C9	344	420
846T.4E11	345	421
846T.4F5	346	422
846T.8D1	347	419
847.10C9	348	423
847.11D6	349	424
847.15D12	350	411
847.15F9	351	425
847.15H11	352	426

FIG. 8 cont.

Antibody name	VH Sequence	VL Sequence
847.20H7	353	427
847.21B11	354	428
847.27B9	355	429
847.28D1	356	430
847.2B8	357	431
847.3B3	358	432
849.1D2	359	433
849.2D7	360	434
849.2F12	361	435
849.4B2	362	436
849.4F12	363	437
849.4F2	364	436
849.5C2	365	438
849.8D12	366	439
F847C.21H6	367	440
849.5H1	368	441
847.23F11	369	442
847.16D10	370	443
847.13E2-mH0mL1	371	444
847.13E2-mH0mL2	371	445
847.12C4	372	446
847.4D3	373	447
2D10-VH0-VL0	828	383
2D10-hVH4-HVL1	806	821
2D10-hVH4-HVL2	807	822
2D10-hVH4-HVL3	808	823
2D10-hVH4-HVL4	809	824
2D10-hVH3-HVL1	810	825
2D10-hVH3-HVL2	811	826
2D10-hVH3-HVL3	812	827
2D10-hVH3-HVL4	813	828
20H5.A3-VH3VL1	814	829
20H5.A3-VH3VL3	815	830
20H5.A3-VH4VL1	816	831
20H5.A3-VH5VL1	817	832
20H5.A3-VH5VL3	818	833
20H5.A3-VH6VL1	819	834
20H5.A3-VH6VL3	820	835

FIG. 8 cont.

Heavy chain and light chain sequences of exemplary anti-Gal3 antibodies

Antibody name	Heavy chain sequence	SEQ ID NO:	Light chain sequence	SEQ ID NO:
TB001 (IMT001; IMT001-4)	QVQLVQSGSELKKPGASVKVSCKASGYTFTNY GMNWVRQAPGQGLKWMGWINTNTGEPTYVEE FTGRFVFSLETSVSTAYLQISSLKAEDTAVYFCA PYDNFFAYWGQGTTVTVSSASTKGPSVFPLAPC SRSTSESTAALGCLVKDYFPEPVTVSWNSGALT SGVHTFPAVLQSSGLYSLSSVVTVPSSSLGTKTY TCNVDHKPSNTKVDKRVESKYGPPCPPCPAPEF LGGPSVFLFPPKPKDTLMISRTPEVTCVVVDVSQ EDPEVQFNWYVDGVEVHNAKTKPREEQFNSTY RVVSVLTVLHQDWLNGKEYKCKVSNKGLPSSI EKTISKAKGQPREPQVYTLPPSQEEMTKNQVSL TCLVKGFYPSDIAVEWESNGQPENNYKTTPPVL DSDGSFFLYSRLTVDKSRWQEGNVFSCSVMHE ALHNHYTQKSLSLSLG	**448**	DIVLTQSPLSLPVTPGEP ASISCRSSKSLLYKDGK TYLNWFLQKPGQSPQL LIYLMSTHASGVPDRFS GSGSGTDFTLKISRVEA EDVGVYYCQQLVDYPL TFGGGTKLEIKRTVAAP SVFIFPPSDEQLKSGTAS VVCLLNNFYPREAKVQ WKVDNALQSGNSQESV TEQDSKDSTYSLSSTLT LSKADYEKHKVYACEV THQGLSSPVTKSFNRGE C	**495**
TB006 (4A11.H3L1; IMT006; IMT006a)	QVQLVQSGAEVKKPGASVKVSCKASGYSFTNY YMHWVRQAPGQRLEWMGWIYPGSGNTNYNE KFQGRVTITADTSASTAYMELSSLRSEDTAVYY CSTAPGGFDVWGQGTTVTVSSASTKGPSVFPLA PCSRSTSESTAALGCLVKDYFPEPVTVSWNSGA LTSGVHTFPAVLQSSGLYSLSSVVTVPSSSLGTK TYTCNVDHKPSNTKVDKRVESKYGPPCPPCPAP EFLGGPSVFLFPPKPKDTLMISRTPEVTCVVVDV SQEDPEVQFNWYVDGVEVHNAKTKPREEQFNS TYRVVSVLTVLHQDWLNGKEYKCKVSNKGLPS SIEKTISKAKGQPREPQVYTLPPSQEEMTKNQVS LTCLVKGFYPSDIAVEWESNGQPENNYKTTPPV LDSDGSFFLYSRLTVDKSRWQEGNVFSCSVMH EALHNHYTQKSLSLSLG	**449**	DIVMTQTPLSLSVTPGQ PASISCKSSKSLLHSDGI TYLYWYLQKPGQSPQL LIYRMSNLASGVPDRFS GSGSGTDFTLKISRVEA EDVGVYYCAQMLEFPL TFGQGTKLEIKRTVAAP SVFIFPPSDEQLKSGTAS VVCLLNNFYPREAKVQ WKVDNALQSGNSQESV TEQDSKDSTYSLSSTLT LSKADYEKHKVYACEV THQGLSSPVTKSFNRGE C	**496**
12G5.D7	QVQLKQSGAELVRPGASVKLSCKASGYTFTDY YINWVKQRPGQGLEWIARIYPGTGNTDYNEKF KGRATLTAEKSSSTAYMQLSSLTSEDSAVYFCA RFAYYYGSGGYFDYWGHGTTLTVSSAKTTPPS VYPLAPVCGDTTGSSVTLGCLVKGYFPEPVTLT WNSGSLSSGVHTFPAVLQSDLYTLSSSVTVTSST WPSQSITCNVAHPASSTKVDKKIEPRGPTIKPCP PCKCPAPNAAGGPSVFIFPPKIKDVLMISLSPIVT CVVVDVSEDDPDVQISWFVNNVEVHTAQTQTH REDYNSTLRVVSALPIQHQDWMSGKEFKCKVN NKDLGAPIERTISKPKGSVRAPQVYVLPPPEEEM TKKQVTLTCMVTDFMPEDIYVEWTNNGKTELN YKNTEPVLDSDGSYFMYSKLRVEKKNWVERNS YSCSVVHEGLHNHHTTKSFSRTPGK	**450**	DILMTQSPSSMSVSLGD TVSITCHASQGINSNMG WLQQKPGKSFKGLIYH ATNLEDGVPSRFSGSGS GADYSLTISSLESEDFA DYYCVQYAQFPPTFGS GTKLEIKRADVAPTVSI FPPSSEQLTSGGASVVC FLNNFYPKDINVKWKI DGSERQNGVLNSWTDQ DSKDSTYSMSSTLTLTK DEYERHNSYTCEATHK TSTSPIVKSFNRNEC	**497**

FIG. 9

Antibody name	Heavy chain sequence	SEQ ID NO:	Light chain sequence	SEQ ID NO:
13A12.2E5	QIQLVQSGPELKKPGETVKISCKTSGYKFKTYVM SWVKQAPGKALKWMGWINTYSGVPTYADDFK GRFAFSLETSASTAYLEIINLKNEDTATYFCARDG NYGDPMDYWGQGTSVTVSSAKTTPPSVYPLAPV CGDTTGSSVTLGCLVKGYFPEPVTLTWNSGSLSS GVHTFPAVLQSDLYTLSSSVTVTSSTWPSQSITCN VAHPASSTKVDKKIEPRGPTIKPCPPCKCPAPNAA GGPSVFIFPPKIKDVLMISLSPIVTCVVVDVSEDDP DVQISWFVNNVEVHTAQTQTHREDYNSTLRVVS ALPIQHQDWMSGKEFKCKVNNKDLGAPIERTISK PKGSVRAPQVYVLPPPEEEMTKKQVTLTCMVTD FMPEDIYVEWTNNGKTELNYKNTEPVLDSDGSY FMYSKLRVEKKNWVERNSYSCSVVHEGLHNHH TTKSFSRTPGK	451	DVVMTQTPLTLSVAIGQ PASISCKSSQSLLYTNGK TYLNWLLQRPGQSPKRL IYLLSKLDSGVPDRFSAS GSGTDFTLKISRVEAEDL GVYYCLQSTHFPLTFGA GTKLEMKRADVAPTVSI FPPSSEQLTSGGASVVCF LNNFYPKDINVKWKIDG SERQNGVLNSWTDQDS KDSTYSMSSTLTLTKDE YERHNSYTCEATHKTST SPIVKSFNRNEC	498
14H10.2C9	QIQLVQSGPELKKPGETVKISCKASGYTFTTYGM GWVKQAPGKDLKWMGWINTYSGVPTYADDFK GRFAFSLETSASTAYLQISNLKNEDTATYFCSTPY EYDGAYWGQGTLVTVSAAKTTPPSVYPLAPVCG DTTGSSVTLGCLVKGYFPEPVTLTWNSGSLSSGV HTFPAVLQSDLYTLSSSVTVTSSTWPSQSITCNVA HPASSTKVDKKIEPRGPTIKPCPPCKCPAPNAAGG PSVFIFPPKIKDVLMISLSPIVTCVVVDVSEDDPDV QISWFVNNVEVHTAQTQTHREDYNSTLRVVSAL PIQHQDWMSGKEFKCKVNNKDLGAPIERTISKPK GSVRAPQVYVLPPPEEEMTKKQVTLTCMVTDFM PEDIYVEWTNNGKTELNYKNTEPVLDSDGSYFM YSKLRVEKKNWVERNSYSCSVVHEGLHNHHTT KSFSRTPGK	452	DVVMTQTPLTLSVTIGQ PASISCKSSQSLFDSDGK TYLNWLLQRPGQSPKRL IYLVSKLDSGVPDRFTGS GSGTDFTLKISRVEAEDL GVYYCWQGTHFPLTFG AGTKLEMKRADVAPTV SIFPPSSEQLTSGGASVV CFLNNFYPKDINVKWKI DGSERQNGVLNSWTDQ DSKDSTYSMSSTLTLTK DEYERHNSYTCEATHKT STSPIVKSFNRNEC	499
15F10.2D6	EVQLVESGGGLVKPGGSLKLSCAASGFAFSSYA MSWVRQTPEKRLEWVATISDGGVYTYYTDHVK GRFTISRDNAEDNLYLQMSHLKSEDTAMYYCVR DGGYWGQGTTLTVSSAKTTPPSVYPLAPVCGDT TGSSVTLGCLVKGYFPEPVTLTWNSGSLSSGVHT FPAVLQSDLYTLSSSVTVTSSTWPSQSITCNVAHP ASSTKVDKKIEPRGPTIKPCPPCKCPAPNAAGGPS VFIFPPKIKDVLMISLSPIVTCVVVDVSEDDPDVQI SWFVNNVEVHTAQTQTHREDYNSTLRVVSALPI QHQDWMSGKEFKCKVNNKDLGAPIERTISKPKG SVRAPQVYVLPPPEEEMTKKQVTLTCMVTDFMP EDIYVEWTNNGKTELNYKNTEPVLDSDGSYFMY SKLRVEKKNWVERNSYSCSVVHEGLHNHHTTKS FSRTPGK	453	DVLMTQTPLSLPVSLGD QASISCRSSQSIVHNNGN TYLEWYLQKPGQSPKLL IYKVSNRFSGVPDRFSGS GSGTDFTLKISRVEAEDL GVYYCFQGSHVPLTFGG GTKLELKRADVAPTVSIF PPSSEQLTSGGASVVCFL NNFYPKDINVKWKIDGS ERQNGVLNSWTDQDSK DSTYSMSSTLTLTKDEY ERHNSYTCEATHKTSTS PIVKSFNRNEC	500

FIG. 9 cont.

Antibody name	Heavy chain sequence	SEQ ID NO:	Light chain sequence	SEQ ID NO:
19B5.2E6	QIQLVQSGPELKKPGETVKISCKASGYTFTTYAM SWVKQAPGKGLKWMGWINTYSGVPTYADDLK GRFAFSLETSASTAYLQINNLKNEDTATYFCARG PYAMDYWGQGTSVTVSSAKTTPPSVYPLAPVCG DTTGSSVTLGCLVKGYFPEPVTLTWNSGSLSSGV HTFPAVLQSDLYTLSSSVTVTSSTWPSQSITCNVA HPASSTKVDKKIEPRGPTIKPCPPCKCPAPNAAGG PSVFIFPPKIKDVLMISLSPIVTCVVVDVSEDDPDV QISWFVNNVEVHTAQTQTHREDYNSTLRVVSAL PIQHQDWMSGKEFKCKVNNKDLGAPIERTISKPK GSVRAPQVYVLPPPEEEMTKKQVTLTCMVTDFM PEDIYVEWTNNGKTELNYKNTEPVLDSDGSYFM YSKLRVEKKNWVERNSYSCSVVHEGLHNHHTT KSFSRTPGK	454	DIQMTQTTSSLSASLGDR VTISCSASQGINNYLNW YQQKPDGTVKLLIYYAS SLHSGVPSRFSGSGSGTD YSLTISNLEPEDIATYYC QQYSQVPYTFGSGTKLEI KRADVAPTVSIFPPSSEQ LTSGGASVVCFLNNFYP KDINVKWKIDGSERQNG VLNSWTDQDSKDSTYS MSSTLTLTKDEYERHNS YTCEATHKTSTSPIVKSF NRNEC	501
20D11.2C6	EVQLQQSGPELVKPGASVKISCKASGYTFTDFYI NWVKQSHGKSLEWIGDINPKNGGINYNPKFKIK ATLTVDKSSSTSYMDLRGLTSEDSAVYYCTSGY GFPYWGQGTLVTVSAAKTTPPSVYPLAPVCGDT TGSSVTLGCLVKGYFPEPVTLTWNSGSLSSGVHT FPAVLQSDLYTLSSSVTVTSSTWPSQSITCNVAHP ASSTKVDKKIEPRGPTIKPCPPCKCPAPNAAGGPS VFIFPPKIKDVLMISLSPIVTCVVVDVSEDDPDVQI SWFVNNVEVHTAQTQTHREDYNSTLRVVSALPI QHQDWMSGKEFKCKVNNKDLGAPIERTISKPKG SVRAPQVYVLPPPEEEMTKKQVTLTCMVTDFMP EDIYVEWTNNGKTELNYKNTEPVLDSDGSYFMY SKLRVEKKNWVERNSYSCSVVHEGLHNHHTTKS FSRTPGK	455	DIQMNQSPSSLSASLGDT ITITCRASQNIYIWLSWY QQKPGNIPKLLIYKASNL HTGVPSRFSGSGSGTDFT LTISTLQPEDIATYFCLQ GQSYPLTFGAGTKLEMK RADVAPTVSIFPPSSEQL TSGGASVVCFLNNFYPK DINVKWKIDGSERQNGV LNSWTDQDSKDSTYSMS STLTLTKDEYERHNSYT CEATHKTSTSPIVKSFNR NEC	502
20H5.A3	QIQLVQSGPELKKPGESVKISCKASGYAFTTYGM SWVQQAPGKGLKWMGWVNTYSGVPTCADDFK GRFAFSLETSASTAYLQINNLRNEDTATYFCARG PYAMDYWGQGTSVTVSSAKTTPPSVYPLAPVCG DTTGSSVTLGCLVKGYFPEPVTLTWNSGSLSSGV HTFPAVLQSDLYTLSSSVTVTSSTWPSQSITCNVA HPASSTKVDKKIEPRGPTIKPCPPCKCPAPNAAGG PSVFIFPPKIKDVLMISLSPIVTCVVVDVSEDDPDV QISWFVNNVEVHTAQTQTHREDYNSTLRVVSAL PIQHQDWMSGKEFKCKVNNKDLGAPIERTISKPK GSVRAPQVYVLPPPEEEMTKKQVTLTCMVTDFM PEDIYVEWTNNGKTELNYKNTEPVLDSDGSYFM YSKLRVEKKNWVERNSYSCSVVHEGLHNHHTT KSFSRTPGK	456	DIQMTQTTSSLSASLGDR VTINCSASQDISNYLNW YQQKPDGTVKLLIYYTS SLLSGVPSRFSGSGSGTD YSLTISNLEPEDIATYFC QQYSKLPYTFGSGTHLEI KRADVAPTVSIFPPSSEQ LTSGGASVVCFLNNFYP KDINVKWKIDGSERQNG VLNSWTDQDSKDSTYS MSSTLTLTKDEYERHNS YTCEATHKTSTSPIVKSF NRNEC	503

FIG. 9 cont.

Antibody name	Heavy chain sequence	SEQ ID NO:	Light chain sequence	SEQ ID NO:
23H9.2E4	QIQLVQSGPELKKPGETVKISCKASGYTFTTYAM SWVKQAPGKGLKWMGWINTYSGVPTYADDLK GRFAFSLETSASTAYLQINNLKNEDTATYFCARG PYAMDYWGQGTSVTVSSAKTTPPSVYPLAPVCG DTTGSSVTLGCLVKGYFPEPVTLTWNSGSLSSGV HTFPAVLQSDLYTLSSSVTVTSSTWPSQSITCNVA HPASSTKVDKKIEPRGPTIKPCPPCKCPAPNAAGG PSVFIFPPKIKDVLMISLSPIVTCVVVDVSEDDPDV QISWFVNNVEVHTAQTQTHREDYNSTLRVVSAL PIQHQDWMSGKEFKCKVNNKDLGAPIERTISKPK GSVRAPQVYVLPPPEEEMTKKQVTLTCMVTDFM PEDIYVEWTNNGKTELNYKNTEPVLDSDGSYFM YSKLRVEKKNWVERNSYSCSVVHEGLHNHHTT KSFSRTPGK	457	DIQMTQTTSSLSASLGDR VTISCSASQGINNYLNW YQQKPDGTVKLLIYYAS SLHSGVPSRFSGSGSGTD YSLTISNLEPEDIATYYC QQYSQVPYTFGSGTKLEI KRADVAPTVSIFPPSSEQ LTSGGASVVCFLNNFYP KDINVKWKIDGSERQNG VLNSWTDQDSKDSTYS MSSTLTLTKDEYERHNS YTCEATHKTSTSPIVKSF NRNEC	501
2D10.2B2	QVQLQQSGPELVKPGASVKISCKASGYTFTDYYI NWVKQRPGQGLEWIGWIYPGSNDTKYNEKFKG KATLTVDTSSSTAYMQLGSLTSEDSAVYFCANY FGCSGWFFDVWGTGTTVTVSSAKTTPPSVYPLA PVCGDTTGSSVTLGCLVKGYFPEPVTLTWNSGSL SSGVHTFPAVLQSDLYTLSSSVTVTSSTWPSQSIT CNVAHPASSTKVDKKIEPRGPTIKPCPPCKCPAPN AAGGPSVFIFPPKIKDVLMISLSPIVTCVVVDVSE DDPDVQISWFVNNVEVHTAQTQTHREDYNSTLR VVSALPIQHQDWMSGKEFKCKVNNKDLGAPIER TISKPKGSVRAPQVYVLPPPEEEMTKKQVTLTCM VTDFMPEDIYVEWTNNGKTELNYKNTEPVLDSD GSYFMYSKLRVEKKNWVERNSYSCSVVHEGLH NHHTTKSFSRTPGK	458	DIVMTQAAFSNPVTLGT SASISCRSSKSLLHSDGIT YLYWYLQRPGQSPQLLI YRMSNLASGVPDRFSGS GSGTDFTLRISRVEAEDV GVYYCAQMIEFPLTFGA GTILELKRADVAPTVSIF PPSSEQLTSGGASVVCFL NNFYPKDINVKWKIDGS ERQNGVLNSWTDQDSK DSTYSMSSTLTLTKDEY ERHNSYTCEATHKTSTS PIVKSFNRNEC	504
3B11.2G2	QIQLVQSGPELKKPGETVKISCKTSGYKFKTYVM SWVKQAPGKALKWMGWINTYSGVPTYADDFK GRFAFSLETSASTAYLEIINLKNEDTATYFCARDG NYGDPMDYWGQGTSVTVSSAKTTPPSVYPLAPV CGDTTGSSVTLGCLVKGYFPEPVTLTWNSGSLSS GVHTFPAVLQSDLYTLSSSVTVTSSTWPSQSITCN VAHPASSTKVDKKIEPRGPTIKPCPPCKCPAPNAA GGPSVFIFPPKIKDVLMISLSPIVTCVVVDVSEDDP DVQISWFVNNVEVHTAQTQTHREDYNSTLRVVS ALPIQHQDWMSGKEFKCKVNNKDLGAPIERTISK PKGSVRAPQVYVLPPPEEEMTKKQVTLTCMVTD FMPEDIYVEWTNNGKTELNYKNTEPVLDSDGSY FMYSKLRVEKKNWVERNSYSCSVVHEGLHNHH TTKSFSRTPGK	459	DVVMTQTPLTLSVAIGQ PASISCKSSQSLLYTNGK TYLNWLLQRPGQSPKRL IYLVSKLDSGVPDRFSGS GSGTDFTLKISRVEAEDL GVYYCLQSTHFPLTFGA GTKLELKRADVAPTVSIF PPSSEQLTSGGASVVCFL NNFYPKDINVKWKIDGS ERQNGVLNSWTDQDSK DSTYSMSSTLTLTKDEY ERHNSYTCEATHKTSTS PIVKSFNRNEC	505

FIG. 9 cont.

Antibody name	Heavy chain sequence	SEQ ID NO:	Light chain sequence	SEQ ID NO:
7D8.2D8	EVQLVESGGGLVKPGGSLKLSCAASGFTFSSYA MSWVRQTPEKRLEWVATISDGGIYTYYPDNVKG RFTISRDNAKNNLFLQMSHLKSEDTAMYYCVRD GGYWGQGTTLTVSSAKTTPPSVYPLAPVCGDTT GSSVTLGCLVKGYFPEPVTLTWNSGSLSSGVHTF PAVLQSDLYTLSSSVTVTSSTWPSQSITCNVAHP ASSTKVDKKIEPRGPTIKPCPPCKCPAPNAAGGPS VFIFPPKIKDVLMISLSPIVTCVVVDVSEDDPDVQI SWFVNNVEVHTAQTQTHREDYNSTLRVVSALPI QHQDWMSGKEFKCKVNNKDLGAPIERTISKPKG SVRAPQVYVLPPPEEEMTKKQVTLTCMVTDFMP EDIYVEWTNNGKTELNYKNTEPVLDSDGSYFMY SKLRVEKKNWVERNSYSCSVVHEGLHNHHTTKS FSRTPGK	**460**	DVLMTQTPLSLPVSLGD QASISCRSSQSIVHSNGN TYLEWYLQKPGQSPKLL IYKVSNRFSGVPDRFSGS GSGTDFTLKISRVEAEDL GVYYCFQGSHVPLTFGA GTKLELKRADVAPTVSIF PPSSEQLTSGGASVVCFL NNFYPKDINVKWKIDGS ERQNGVLNSWTDQDSK DSTYSMSSTLTLTKDEY ERHNSYTCEATHKTSTS PIVKSFNRNEC	**506**
mTB001 (mIMT001)	QIQLVQSGPELKKPGETVKISCKASGYTFTNYGM NWVKQAPGKGLKWMGWINTNTGEPTYVEEFKG RFAFSLETSASTAYLQINNLKNEDTATYFCAPYD NFFAYWGQGTLVTVSAAKTTPPSVYPLAPVCGD TTGSSVTLGCLVKGYFPEPVTLTWNSGSLSSGVH TFPAVLQSDLYTLSSSVTVTSSTWPSQSITCNVAH PASSTKVDKKIEPRGPTIKPCPPCKCPAPNAAGGP SVFIFPPKIKDVLMISLSPIVTCVVVDVSEDDPDV QISWFVNNVEVHTAQTQTHREDYNSTLRVVSAL PIQHQDWMSGKEFKCKVNNKDLGAPIERTISKPK GSVRAPQVYVLPPPEEEMTKKQVTLTCMVTDFM PEDIYVEWTNNGKTELNYKNTEPVLDSDGSYFM YSKLRVEKKNWVERNSYSCSVVHEGLHNHHTT KSFSRTPGK**	**461**	DIVITQDELSNPVTSGES VSISCRSSKSLLYKDGKT YLNWFLQRPGQSPQLLI YLMSTHASGVSDRFSGS GSGTDFTLEISRVKAEDV GVYYCQQLVDYPLTFG AGTKLELKRADVAPTVS IFPPSSEQLTSGGASVVC FLNNFYPKDINVKWKID GSERQNGVLNSWTDQD SKDSTYSMSSTLTLTKD EYERHNSYTCEATHKTS TSPIVKSFNRNEC**	**507**
4A11.2B5	QVQLQQSGPELVKPGASVKISCKASGYSFTNYYI HWVKQRPGQGLEWIGWIYPGSGNTNYNEKFKG KATLTADTSSSTTNMQLSSLTSEDSAVYYCSTAP GGFDVWGSGTTVTVSSASTKGPSVFPLAPCSRST SESTAALGCLVKDYFPEPVTVSWNSGALTSGVH TFPAVLQSSGLYSLSSVVTVPSSSLGTKTYTCNV DHKPSNTKVDKRVESKYGPPCPPCPAPEFLGGPS VFLFPPKPKDTLMISRTPEVTCVVVDVSQEDPEV QFNWYVDGVEVHNAKTKPREEQFNSTYRVVSV LTVLHQDWLNGKEYKCKVSNKGLPSSIEKTISKA KGQPREPQVYTLPPSQEEMTKNQVSLTCLVKGF YPSDIAVEWESNGQPENNYKTTPPVLDSDGSFFL YSRLTVDKSRWQEGNVFSCSVMHEALHNHYTQ KSLSLSLG**	**462**	DIVMTQAAFSNPVTLGT SASISCRSSKSLLHSDGIT YLYWYLQRPGQSPQLLI YRMSNLASGVPDRFSGS GSGTDFTLRISRVEAEDV GVYYCAQMLEFPLTFGA GTKLELKRTVAAPSVFIF PPSDEQLKSGTASVVCL LNNFYPREAKVQWKVD NALQSGNSQESVTEQDS KDSTYSLSSTLTLSKADY EKHKVYACEVTHQGLSS PVTKSFNRGEC*	**508**

FIG. 9 cont.

Antibody name	Heavy chain sequence	SEQ ID NO:	Light chain sequence	SEQ ID NO:
4A11.H1L1 (IMT006b)	QVQLVQSGAEVKKPGASVKVSCKASGYSFTNYY MHWVRQAPGQGLEWMGWIYPGSGNTNYNEKF QGRVTMTADTSISTAYMELSRLRSDDTAVYYCS TAPGGFDVWGQGTTVTVSSASTKGPSVFPLAPCS RSTSESTAALGCLVKDYFPEPVTVSWNSGALTSG VHTFPAVLQSSGLYSLSSVVTVPSSSLGTKTYTC NVDHKPSNTKVDKRVESKYGPPCPPCPAPEFLGG PSVFLFPPKPKDTLMISRTPEVTCVVVDVSQEDPE VQFNWYVDGVEVHNAKTKPREEQFNSTYRVVS VLTVLHQDWLNGKEYKCKVSNKGLPSSIEKTISK AKGQPREPQVYTLPPSQEEMTKNQVSLTCLVKG FYPSDIAVEWESNGQPENNYKTTPPVLDSDGSFF LYSRLTVDKSRWQEGNVFSCSVMHEALHNHYT QKSLSLSLG	**463**	DIVMTQTPLSLSVTPGQP ASISCKSSKSLLHSDGIT YLYWYLQKPGQSPQLLI YRMSNLASGVPDRFSGS GSGTDFTLKISRVEAEDV GVYYCAQMLEFPLTFGQ GTKLEIKRTVAAPSVFIF PPSDEQLKSGTASVVCL LNNFYPREAKVQWKVD NALQSGNSQESVTEQDS KDSTYSLSSTLTLSKADY EKHKVYACEVTHQGLSS PVTKSFNRGEC	**509**
4A11.H4L2 (IMT006c)	QVQLVQSGAEVKKPGASVKVSCKASGYSFTNYY IHWVRQAPGQRLEWMGWIYPGSGNTNYNEKFQ GRVTLTADTSASTTYMELSSLRSEDTAVYYCSTA PGGFDVWGQGTTVTVSSASTKGPSVFPLAPCSRS TSESTAALGCLVKDYFPEPVTVSWNSGALTSGV HTFPAVLQSSGLYSLSSVVTVPSSSLGTKTYTCN VDHKPSNTKVDKRVESKYGPPCPPCPAPEFLGGP SVFLFPPKPKDTLMISRTPEVTCVVVDVSQEDPE VQFNWYVDGVEVHNAKTKPREEQFNSTYRVVS VLTVLHQDWLNGKEYKCKVSNKGLPSSIEKTISK AKGQPREPQVYTLPPSQEEMTKNQVSLTCLVKG FYPSDIAVEWESNGQPENNYKTTPPVLDSDGSFF LYSRLTVDKSRWQEGNVFSCSVMHEALHNHYT QKSLSLSLG	**464**	DIVMTQSPLSLPVTPGEP ASISCRSSKSLLHSDGITY LYWYLQKPGQSPQLLIY RMSNLASGVPDRFSGSG SGTDFTLKISRVEAEDVG VYYCAQMLEFPLTFGQG TKLEIKRTVAAPSVFIFPP SDEQLKSGTASVVCLLN NFYPREAKVQWKVDNA LQSGNSQESVTEQDSKD STYSLSSTLTLSKADYEK HKVYACEVTHQGLSSPV TKSFNRGEC	**510**
4G2.2G6	QIQLVQSGPDLKKPGETVKISCKASGYTFTTYVM SWVKQAPGKDLKWMGWINTHSGVPTYADDFK GRFDFSLETSANTAFLQINNLKNEDTATYFCTRD GNDGDAMDNWGQGTSVTVSSASTKGPSVFPLAP CSRSTSESTAALGCLVKDYFPEPVTVSWNSGALT SGVHTFPAVLQSSGLYSLSSVVTVPSSSLGTKTYT CNVDHKPSNTKVDKRVESKYGPPCPPCPAPEFLG GPSVFLFPPKPKDTLMISRTPEVTCVVVDVSQED PEVQFNWYVDGVEVHNAKTKPREEQFNSTYRV VSVLTVLHQDWLNGKEYKCKVSNKGLPSSIEKTI SKAKGQPREPQVYTLPPSQEEMTKNQVSLTCLV KGFYPSDIAVEWESNGQPENNYKTTPPVLDSDGS FFLYSRLTVDKSRWQEGNVFSCSVMHEALHNHY TQKSLSLSLG**	**465**	DVVMTQTPLTLSVTIGQ PASISCKSSQSLLYTDGK TYLSWFLQRPGQSPKRLI YLVSKLDSGVPDRFSGS GSGTDFTLKISRVEAEDL GVYYCLQSTHFPLTFGA GTKLEVKRTVAAPSVFIF PPSDEQLKSGTASVVCL LNNFYPREAKVQWKVD NALQSGNSQESVTEQDS KDSTYSLSSTLTLSKADY EKHKVYACEVTHQGLSS PVTKSFNRGEC*	**511**

FIG. 9 cont.

Antibody name	Heavy chain sequence	SEQ ID NO:	Light chain sequence	SEQ ID NO:
6B3.2D3	QVQLKQSGPGLVQPSQSLSITCTVSGFSLTSYGV HWVRQPPGKGLEWLGVIWSGGSTDYNAAFISRL SISKDNSKSQVFFKMNSLQADDTAIYYCAKGPY DYDLGWFAYWGQGTLVTVSAASTKGPSVFPLAP CSRSTSESTAALGCLVKDYFPEPVTVSWNSGALT SGVHTFPAVLQSSGLYSLSSVVTVPSSSLGTKTYT CNVDHKPSNTKVDKRVESKYGPPCPPCPAPEFLG GPSVFLFPPKPKDTLMISRTPEVTCVVVDVSQED PEVQFNWYVDGVEVHNAKTKPREEQFNSTYRV VSVLTVLHQDWLNGKEYKCKVSNKGLPSSIEKTI SKAKGQPREPQVYTLPPSQEEMTKNQVSLTCLV KGFYPSDIAVEWESNGQPENNYKTTPPVLDSDGS FFLYSRLTVDKSRWQEGNVFSCSVMHEALHNHY TQKSLSLSLG**	466	SIVMTQTPKFLLVSAGD RVTITCKASQSVSNDVA WYQQKPGQSPKLLIYYA SNRYTGVPDRFTGSGYG TDFTFTISTVQAEDLAVY FCQQDYTSPYTFGGGTK LEIKRTVAAPSVFIFPPSD EQLKSGTASVVCLLNNF YPREAKVQWKVDNALQ SGNSQESVTEQDSKDST YSLSSTLTLSKADYEKH KVYACEVTHQGLSSPVT KSFNRGEC*	512
6H6.2D6	QIQLVQSGPELKKPGETVKISCKASGYTFTTYGM SWVKQAPGKGLKWMAWINTYSGVPTYADDFK GRFAFSLETSASTAYLQINNLTNEDTATYFCARG PYAMDYWGQGTSVTVSSASTKGPSVFPLAPCSR STSESTAALGCLVKDYFPEPVTVSWNSGALTSGV HTFPAVLQSSGLYSLSSVVTVPSSSLGTKTYTCN VDHKPSNTKVDKRVESKYGPPCPPCPAPEFLGGP SVFLFPPKPKDTLMISRTPEVTCVVVDVSQEDPE VQFNWYVDGVEVHNAKTKPREEQFNSTYRVVS VLTVLHQDWLNGKEYKCKVSNKGLPSSIEKTISK AKGQPREPQVYTLPPSQEEMTKNQVSLTCLVKG FYPSDIAVEWESNGQPENNYKTTPPVLDSDGSFF LYSRLTVDKSRWQEGNVFSCSVMHEALHNHYT QKSLSLSLG**	467	DIQMTQTTSSLSASLGDR VTISCSASQGISNYLNWY QQKPDGTVKLLIYYTSS LHSGVPSRFSGSGSGTD YSLTISNLEPEDIATYYC QQYSELPYTFGSGTKLEI KRTVAAPSVFIFPPSDEQ LKSGTASVVCLLNNFYP REAKVQWKVDNALQSG NSQESVTEQDSKDSTYS LSSTLTLSKADYEKHKV YACEVTHQGLSSPVTKS FNRGEC*	513
9H2.2H10	QVQLQQPGAELVGPGSSVKLSCKASGYTFTNYW IHWVKQRPLQGLEWIGNIDPSDSETHYNQKFKD KATLTVDKSSSTAYMQLSSLTSEDSAVYYCARH GYYDYWGQGTTLTVSSASTKGPSVFPLAPCSRST SESTAALGCLVKDYFPEPVTVSWNSGALTSGVH TFPAVLQSSGLYSLSSVVTVPSSSLGTKTYTCNV DHKPSNTKVDKRVESKYGPPCPPCPAPEFLGGPS VFLFPPKPKDTLMISRTPEVTCVVVDVSQEDPEV QFNWYVDGVEVHNAKTKPREEQFNSTYRVVSV LTVLHQDWLNGKEYKCKVSNKGLPSSIEKTISKA KGQPREPQVYTLPPSQEEMTKNQVSLTCLVKGF YPSDIAVEWESNGQPENNYKTTPPVLDSDGSFFL YSRLTVDKSRWQEGNVFSCSVMHEALHNHYTQ KSLSLSLG**	468	DIVMTQSHKFMSTSVGD RVSITCKASQDVSTAVA WYQQKPGQSPKLLIYW ASTRHTGVPDRFTGSGS GTDYTLTISSVQAEDLAL YYCQQHYTTPLTFGAGT KLELKRTVAAPSVFIFPP SDEQLKSGTASVVCLLN NFYPREAKVQWKVDNA LQSGNSQESVTEQDSKD STYSLSSTLTLSKADYEK HKVYACEVTHQGLSSPV TKSFNRGEC*	514

FIG. 9 cont.

Antibody name	Heavy chain sequence	SEQ ID NO:	Light chain sequence	SEQ ID NO:
13G4.2F8	QVQLQQPGAELVKPGASVKLSCKASGYTFTSYW MHWVKQRPGQGLEWIGMIHPNSGSTDYNEKFK NKATLNVDKSSSTAYIQLSSLTSEDSAVYYCTRW GIYYYARDYWGQGTTLTVSSASTKGPSVFPLAPC SRSTSESTAALGCLVKDYFPEPVTVSWNSGALTS GVHTFPAVLQSSGLYSLSSVVTVPSSSLGTKTYT CNVDHKPSNTKVDKRVESKYGPPCPPCPAPEFLG GPSVFLFPPKPKDTLMISRTPEVTCVVVDVSQED PEVQFNWYVDGVEVHNAKTKPREEQFNSTYRV VSVLTVLHQDWLNGKEYKCKVSNKGLPSSIEKTI SKAKGQPREPQVYTLPPSQEEMTKNQVSLTCLV KGFYPSDIAVEWESNGQPENNYKTTPPVLDSDGS FFLYSRLTVDKSRWQEGNVFSCSVMHEALHNHY TQKSLSLSLG**	469	DIVMTQSQKFMSTSVGE RVSITCKASQNVGTNVA WYQQKAGQSLELLIYGA SNRHTGVPDRFTGSGSG TDFTLTITNVQSEDMTN YFCEQYSNFPLTFGAGT KLELKRTVAAPSVFIFPP SDEQLKSGTASVVCLLN NFYPREAKVQWKVDNA LQSGNSQESVTEQDSKD STYSLSSTLTLSKADYEK HKVYACEVTHQGLSSPV TKSFNRGEC*	515
13H12.2F8	QIQLVQSGPELKKPGETVKISCKASGYTFTTYGM SWVKQAPGKGLKWMGWINTYSGVPTYADDFK GRFAFSLETSASTAYLQINNLKNEDTATYFCAVP YEYDGAYWGQGTLVTVSAASTKGPSVFPLAPCS RSTSESTAALGCLVKDYFPEPVTVSWNSGALTSG VHTFPAVLQSSGLYSLSSVVTVPSSSLGTKTYTC NVDHKPSNTKVDKRVESKYGPPCPPCPAPEFLGG PSVFLFPPKPKDTLMISRTPEVTCVVVDVSQEDPE VQFNWYVDGVEVHNAKTKPREEQFNSTYRVVS VLTVLHQDWLNGKEYKCKVSNKGLPSSIEKTISK AKGQPREPQVYTLPPSQEEMTKNQVSLTCLVKG FYPSDIAVEWESNGQPENNYKTTPPVLDSDGSFF LYSRLTVDKSRWQEGNVFSCSVMHEALHNHYT QKSLSLSLG**	470	DVVMTQTPLTLSVTIGQ PASISCKSSQSLFHSDGK TYLNWLLQRPGQSPKRL IYLVSKLDSGVPDRFTGS GSGTDFTPKISRVEDEDL GVYYCWQGTHFPLTFG AGTKLEMKRTVAAPSVF IFPPSDEQLKSGTASVVC LLNNFYPREAKVQWKV DNALQSGNSQESVTEQD SKDSTYSLSSTLTLSKAD YEKHKVYACEVTHQGL SSPVTKSFNRGEC*	516
15G7.2A7	EVQLQQSGPELVKPGASVKISCKASGYTFTDYY MNWVKQSHGKSLEWIGDINPNNGGTNYNQKFK GKATLTVDKSSSTAYMELRSLTSEDSAVYYCTS GYGFPYWGQGTLVTVSAASTKGPSVFPLAPCSRS TSESTAALGCLVKDYFPEPVTVSWNSGALTSGV HTFPAVLQSSGLYSLSSVVTVPSSSLGTKTYTCN VDHKPSNTKVDKRVESKYGPPCPPCPAPEFLGGP SVFLFPPKPKDTLMISRTPEVTCVVVDVSQEDPE VQFNWYVDGVEVHNAKTKPREEQFNSTYRVVS VLTVLHQDWLNGKEYKCKVSNKGLPSSIEKTISK AKGQPREPQVYTLPPSQEEMTKNQVSLTCLVKG FYPSDIAVEWESNGQPENNYKTTPPVLDSDGSFF LYSRLTVDKSRWQEGNVFSCSVMHEALHNHYT QKSLSLSLG**	471	DIQMNQSPSSLSASLGDT ISITCRASQNINIWLSWY QQKPGNIPQLLIYKASNL HTGVPSRFSGSGSGTDFT LTISSLQPEDIATYYCLQ GQSYPLTFGAGTKLVMK RTVAAPSVFIFPPSDEQL KSGTASVVCLLNNFYPR EAKVQWKVDNALQSGN SQESVTEQDSKDSTYSLS STLTLSKADYEKHKVYA CEVTHQGLSSPVTKSFN RGEC*	517

FIG. 9 cont.

Antibody name	Heavy chain sequence	SEQ ID NO:	Light chain sequence	SEQ ID NO:
19D9.2E5	QIQLVQSGPELKKPGETVKISCKASGYTFTTYGM GWVKQAPGKGLKWMGWINTYSGVPTYADDFK GRFAFSLETSTSTAYLQINNLKNEDMATYFCATP YEYDGAYWGQGTLVTVSAASTKGPSVFPLAPCS RSTSESTAALGCLVKDYFPEPVTVSWNSGALTSG VHTFPAVLQSSGLYSLSSVVTVPSSSLGTKTYTC NVDHKPSNTKVDKRVESKYGPPCPPCPAPEFLGG PSVFLFPPKPKDTLMISRTPEVTCVVVDVSQEDPE VQFNWYVDGVEVHNAKTKPREEQFNSTYRVVS VLTVLHQDWLNGKEYKCKVSNKGLPSSIEKTISK AKGQPREPQVYTLPPSQEEMTKNQVSLTCLVKG FYPSDIAVEWESNGQPENNYKTTPPVLDSDGSFF LYSRLTVDKSRWQEGNVFSCSVMHEALHNHYT QKSLSLSLG**	472	DVVMTQTPLTLSVTIGQ PASISCKSSQSLLHSDGK TYLNWLLQRPGQPPKRL MYLVSTLDSGVPDRFTG SGSGTDFTLKISRVEAED LGVYYCWQGTHFPLTFG AGTKPERTVAAPSVFIFP PSDEQLKSGTASVVCLL NNFYPREAKVQWKVDN ALQSGNSQESVTEQDSK DSTYSLSSTLTLSKADYE KHKVYACEVTHQGLSSP VTKSFNRGEC*	518
23B10.2B12	QVQLQQSGPELVKPGDSVKISCKAAGYTFSDYYI NWVKQRPGQGLEWIGWIYPVSVNTKYNEKFKG KATLTVDTSSSTAYMQLSSLTSEDSGVYFCAYLD YWGQGTLVTVSAASTKGPSVFPLAPCSRSTSEST AALGCLVKDYFPEPVTVSWNSGALTSGVHTFPA VLQSSGLYSLSSVVTVPSSSLGTKTYTCNVDHKP SNTKVDKRVESKYGPPCPPCPAPEFLGGPSVFLFP PKPKDTLMISRTPEVTCVVVDVSQEDPEVQFNW YVDGVEVHNAKTKPREEQFNSTYRVVSVLTVLH QDWLNGKEYKCKVSNKGLPSSIEKTISKAKGQP REPQVYTLPPSQEEMTKNQVSLTCLVKGFYPSDI AVEWESNGQPENNYKTTPPVLDSDGSFFLYSRLT VDKSRWQEGNVFSCSVMHEALHNHYTQKSLSLS LG**	473	DIVMTQAAFSNPVTLGT SASISCRSSKSLLHSDGIT YFYWYLQRPGQSPQLLI YRMSNLASGVPDRFSGS GSGTDFTLRISRVEAEDV GVYYCAQMLEFPLTFGA GTKLERTVAAPSVFIFPP SDEQLKSGTASVVCLLN NFYPREAKVQWKVDNA LQSGNSQESVTEQDSKD STYSLSSTLTLSKADYEK HKVYACEVTHQGLSSPV TKSFNRGEC*	519
24D12.2H9	QVQLKQSGPGLVQPSQSLSITCTVSGFSLTSYGV HWVRQAPGKGLEWLGVIWSGGSTDYNAAFMSR LSISKDNSKSQVFFKMNSLQADDTAIYYCAKSPD GYDVAWFGYWGQGTLVTVSAASTKGPSVFPLA PCSRSTSESTAALGCLVKDYFPEPVTVSWNSGAL TSGVHTFPAVLQSSGLYSLSSVVTVPSSSLGTKTY TCNVDHKPSNTKVDKRVESKYGPPCPPCPAPEFL GGPSVFLFPPKPKDTLMISRTPEVTCVVVDVSQE DPEVQFNWYVDGVEVHNAKTKPREEQFNSTYR VVSVLTVLHQDWLNGKEYKCKVSNKGLPSSIEK TISKAKGQPREPQVYTLPPSQEEMTKNQVSLTCL VKGFYPSDIAVEWESNGQPENNYKTTPPVLDSD GSFFLYSRLTVDKSRWQEGNVFSCSVMHEALHN HYTQKSLSLSLG**	474	DIVMTQSHKFMSTSVGD RVSITCKASQDVRTAVA WYQQKPGQSPKLLIYW ASTRHTGVPDRFTGSGS GTDFTLTLSNVQSEDLA DYFCQQYSSYPWTFGGG TKLEIKRTVAAPSVFIFPP SDEQLKSGTASVVCLLN NFYPREAKVQWKVDNA LQSGNSQESVTEQDSKD STYSLSSTLTLSKADYEK HKVYACEVTHQGLSSPV TKSFNRGEC*	520

FIG. 9 cont.

Antibody name	Heavy chain sequence	SEQ ID NO:	Light chain sequence	SEQ ID NO:
F846C.1B2	QIQLVQSGPELKKPGETVKISCKASGYTFTNYG MNWVKQAPGKGLKWMGWINTYTGEPSYADD FKGRFAFSLETSASTAYLQINNLKNEDMATYFC ARWGGYAGDYYAMDFWGQGTSVTVSSASTKG PSVFPLAPCSRSTSESTAALGCLVKDYFPEPVTV SWNSGALTSGVHTFPAVLQSSGLYSLSSVVTVP SSSLGTKTYTCNVDHKPSNTKVDKRVESKYGPP CPPCPAPEFLGGPSVFLFPPKPKDTLMISRTPEVT CVVVDVSQEDPEVQFNWYVDGVEVHNAKTKP REEQFNSTYRVVSVLTVLHQDWLNGKEYKCKV SNKGLPSSIEKTISKAKGQPREPQVYTLPPSQEE MTKNQVSLTCLVKGFYPSDIAVEWESNGQPEN NYKTTPPVLDSDGSFFLYSRLTVDKSRWQEGNV FSCSVMHEALHNHYTQKSLSLSLG**	475	NIWLTQSPSSLAVSAGE MVTMTCKSSQSVLYSSN QKNYLAWYQQKPGQSP KLLIYWASTRESGVPDR FTGSGSGTDFSLTISSVQ AEDLAVYYCHQYLSSLT FGAGTKLELKRTVAAPS VFIFPPSDEQLKSGTASV VCLLNNFYPREAKVQW KVDNALQSGNSQESVTE QDSKDSTYSLSSTLTLSK ADYEKHKVYACEVTHQ GLSSPVTKSFNRGEC*	521
F846C.1F5	QIQLVQSGPELKKPGETVKISCKASGYTFTNYG MNWVKQAPGKGLKWMGWINTYTGEPSYADD FKGRFAFSLETSASTAYLQINNLKNEDMATYFC ARWGGYDGDYYAMDYWGQGTSVTVSSASTK GPSVFPLAPCSRSTSESTAALGCLVKDYFPEPVT VSWNSGALTSGVHTFPAVLQSSGLYSLSSVVTV PSSSLGTKTYTCNVDHKPSNTKVDKRVESKYGP PCPPCPAPEFLGGPSVFLFPPKPKDTLMISRTPEV TCVVVDVSQEDPEVQFNWYVDGVEVHNAKTK PREEQFNSTYRVVSVLTVLHQDWLNGKEYKCK VSNKGLPSSIEKTISKAKGQPREPQVYTLPPSQE EMTKNQVSLTCLVKGFYPSDIAVEWESNGQPE NNYKTTPPVLDSDGSFFLYSRLTVDKSRWQEGN VFSCSVMHEALHNHYTQKSLSLSLG**	476	NIMMTQSPSSLAVSAGE KVTMSCKSSQSVLYSSN QKNYLAWYQQKPGQSP KLLIYWASTRESGVPDR FTGSGSGTDFTLTISSVQ PEDLAVYYCHQYLSSLT FGAGTKLELKRTVAAPS VFIFPPSDEQLKSGTASV VCLLNNFYPREAKVQW KVDNALQSGNSQESVTE QDSKDSTYSLSSTLTLSK ADYEKHKVYACEVTHQ GLSSPVTKSFNRGEC*	522
F846C.1H12	QIQLVQSGPELKKPGETVKISCKASGYTFTNFG MNWVKQAPGKGLKWMGWINTYTGEPSYADD FKGRFAFSLETSASTAYLQINNLKNEDIATYFCA RWGGYAGDYYAMDYWGQGTSVTVSSASTKGP SVFPLAPCSRSTSESTAALGCLVKDYFPEPVTVS WNSGALTSGVHTFPAVLQSSGLYSLSSVVTVPS SSLGTKTYTCNVDHKPSNTKVDKRVESKYGPPC PPCPAPEFLGGPSVFLFPPKPKDTLMISRTPEVTC VVVDVSQEDPEVQFNWYVDGVEVHNAKTKPR EEQFNSTYRVVSVLTVLHQDWLNGKEYKCKVS NKGLPSSIEKTISKAKGQPREPQVYTLPPSQEEM TKNQVSLTCLVKGFYPSDIAVEWESNGQPENNY KTTPPVLDSDGSFFLYSRLTVDKSRWQEGNVFS CSVMHEALHNHYTQKSLSLSLG**	477	NIMMTQSPSSLAVSAGQ KVTMSCKSSQSVLYSSS QKNYLAWYQQKPGQSP KLLIYWASTRESGVPDR FSGSGSGTDFTLTISSVQ PEDLAVYYCHQYLSSLT FGAGTKLELKRTVAAPS VFIFPPSDEQLKSGTASV VCLLNNFYPREAKVQW KVDNALQSGNSQESVTE QDSKDSTYSLSSTLTLSK ADYEKHKVYACEVTHQ GLSSPVTKSFNRGEC*	523

FIG. 9 cont.

Antibody name	Heavy chain sequence	SEQ ID NO:	Light chain sequence	SEQ ID NO:
F846C.1H5	EVQLLESGGGLVKPGGSLKLSCAASGFTFSSYA MSWVRQTPEKRLEWVASISSGGDTYYPDSVK GRFTISRDNARNILYLQMSSLRSEDTAMYYCA SYGNSLFDYWGQGTTLTVSSASTKGPSVFPLA PCSRSTSESTAALGCLVKDYFPEPVTVSWNSG ALTSGVHTFPAVLQSSGLYSLSSVVTVPSSSLG TKTYTCNVDHKPSNTKVDKRVESKYGPPCPPC PAPEFLGGPSVFLFPPKPKDTLMISRTPEVTCVV VDVSQEDPEVQFNWYVDGVEVHNAKTKPREE QFNSTYRVVSVLTVLHQDWLNGKEYKCKVSN KGLPSSIEKTISKAKGQPREPQVYTLPPSQEEMT KNQVSLTCLVKGFYPSDIAVEWESNGQPENNY KTTPPVLDSDGSFFLYSRLTVDKSRWQEGNVF SCSVMHEALHNHYTQKSLSLSLG**	478	DVVMTQTPLSLPVSLG DQASISCRSSQSLVHN SGNTYLHWYLQRPGQ SPNLLIYKVSNRFSGVP DRFSGSGSGTDFTLKIS RVAAEDLGVYFCSQST HVPPTFGGGTKLEIKR TVAAPSVFIFPPSDEQL KSGTASVVCLLNNFYP REAKVQWKVDNALQS GNSQESVTEQDSKDST YSLSSTLTLSKADYEK HKVYACEVTHQGLSS PVTKSFNRGEC*	524
F846C.2H3	QIQLVQSGPELKKPGETVKISCKASGYTFTNYG MNWVKQAPGKGLKWMGWINTYTGEPSYADD FKGRFAFSLETSASTAYLQINNLKNEDMATYF CARWGGYDGDYYAMDYWGQGTSVTVSSAST KGPSVFPLAPCSRSTSESTAALGCLVKDYFPEP VTVSWNSGALTSGVHTFPAVLQSSGLYSLSSV VTVPSSSLGTKTYTCNVDHKPSNTKVDKRVES KYGPPCPPCPAPEFLGGPSVFLFPPKPKDTLMIS RTPEVTCVVVDVSQEDPEVQFNWYVDGVEVH NAKTKPREEQFNSTYRVVSVLTVLHQDWLNG KEYKCKVSNKGLPSSIEKTISKAKGQPREPQVY TLPPSQEEMTKNQVSLTCLVKGFYPSDIAVEW ESNGQPENNYKTTPPVLDSDGSFFLYSRLTVDK SRWQEGNVFSCSVMHEALHNHYTQKSLSLSL G**	479	NIMMTQSPSSLAVSAG EKVTMSCKSSQSVLYS SNQKNYLAWYQQKPG QSPKLLIYWASTRESG VPDRFTGSGSGTDFTL TISSVQPEDLAVYYCH QYLSSLTFGAGTKLEL KRTVAAPSVFIFPPSDE QLKSGTASVVCLLNNF YPREAKVQWKVDNAL QSGNSQESVTEQDSKD STYSLSSTLTLSKADY EKHKVYACEVTHQGL SSPVTKSFNRGEC*	522
F846TC.14A2	QIQLVQSGPELKKPGETVKISCKASGYTFTNYG MNWVKQAPGKGLKWMGWINTYTGEPTYAGD LKGRFAFSLETSASTAYLQINNLKNEDTATYFC VRYTMDYWGQGTSVTVSSASTKGPSVFPLAPC SRSTSESTAALGCLVKDYFPEPVTVSWNSGAL TSGVHTFPAVLQSSGLYSLSSVVTVPSSSLGTK TYTCNVDHKPSNTKVDKRVESKYGPPCPPCPA PEFLGGPSVFLFPPKPKDTLMISRTPEVTCVVV DVSQEDPEVQFNWYVDGVEVHNAKTKPREEQ FNSTYRVVSVLTVLHQDWLNGKEYKCKVSNK GLPSSIEKTISKAKGQPREPQVYTLPPSQEEMTK NQVSLTCLVKGFYPSDIAVEWESNGQPENNYK TTPPVLDSDGSFFLYSRLTVDKSRWQEGNVFS CSVMHEALHNHYTQKSLSLSLG**	480	QAVVTQESALTTSPGE TVTLTCRSSTGAVTTS NYANWVQEKPDHLFT GLIGGINNRVPGVPAR FSGSLIGDKAALTITGA QTEDEAIYFCALWYSN HWVFGGGTKLTVLRT VAAPSVFIFPPSDEQLK SGTASVVCLLNNFYPR EAKVQWKVDNALQS GNSQESVTEQDSKDST YSLSSTLTLSKADYEK HKVYACEVTHQGLSS PVTKSFNRGEC*	525

FIG. 9 cont.

Antibody name	Heavy chain sequence	SEQ ID NO:	Light chain sequence	SEQ ID NO:
F846TC.14E4	QVTLKESGPGILQPSQTLSLTCSFSGFSLSTSGM GVGWIRQPSGKGLEWLAHIWWDDDKYYNTAL KSGLTISKDASKNQVFLKIASMDTADTATYYCA RNLYDGSYGYYAMDYWGQGTSVTVSSASTKG PSVFPLAPCSRSTSESTAALGCLVKDYFPEPVTV SWNSGALTSGVHTFPAVLQSSGLYSLSSVVTVP SSSLGTKTYTCNVDHKPSNTKVDKRVESKYGPP CPPCPAPEFLGGPSVFLFPPKPKDTLMISRTPEVT CVVVDVSQEDPEVQFNWYVDGVEVHNAKTKP REEQFNSTYRVVSVLTVLHQDWLNGKEYKCKV SNKGLPSSIEKTISKAKGQPREPQVYTLPPSQEE MTKNQVSLTCLVKGFYPSDIAVEWESNGQPEN NYKTTPPVLDSDGSFFLYSRLTVDKSRWQEGNV FSCSVMHEALHNHYTQKSLSLSLG**	481	DIVMTQAAFSNPVTLG TSASISCRSSKSLLHTNG ITFLYWYLQKPGQSPQP LIYQMSNLASGVPDRFS SSGSGTDFTLRISRVEA EDVGVYYCAQNLELP WTFGGGTKLEINRTVA APSVFIFPPSDEQLKSGT ASVVCLLNNFYPREAK VQWKVDNALQSGNSQ ESVTEQDSKDSTYSLSS TLTLSKADYEKHKVYA CEVTHQGLSSPVTKSFN RGEC*	526
F846TC.16B5	QIQLVQSGPELKKPGETVKISCKASGYTFTNYG MNWVKQAPGKGLKWMGWINTYTGEPAYADD FKGRFAFSLETSASTAYLQINNLKNEDMATYFC ARWGGYDGDYYAMDYWGQGTSVTVSSASTK GPSVFPLAPCSRSTSESTAALGCLVKDYFPEPVT VSWNSGALTSGVHTFPAVLQSSGLYSLSSVVTV PSSSLGTKTYTCNVDHKPSNTKVDKRVESKYGP PCPPCPAPEFLGGPSVFLFPPKPKDTLMISRTPEV TCVVVDVSQEDPEVQFNWYVDGVEVHNAKTK PREEQFNSTYRVVSVLTVLHQDWLNGKEYKCK VSNKGLPSSIEKTISKAKGQPREPQVYTLPPSQE EMTKNQVSLTCLVKGFYPSDIAVEWESNGQPE NNYKTTPPVLDSDGSFFLYSRLTVDKSRWQEGN VFSCSVMHEALHNHYTQKSLSLSLG**	482	NIMMTQSPSSLAVSAGE KVTMSCKSSQSVLYSS NQKNYLAWYQQKPGQ SPKLLIYWASTRESGVP DRFTGSGSGTDFTLTISS VQAEDLAVYYCHQYLS SLTFGAGTKLELKRTV AAPSVFIFPPSDEQLKSG TASVVCLLNNFYPREA KVQWKVDNALQSGNS QESVTEQDSKDSTYSLS STLTLSKADYEKHKVY ACEVTHQGLSSPVTKSF NRGEC*	527
F846TC.7F10	EVQLVESGGDLVKPGGSLKLSCAASGFTFSNYG LSWIRQTPDKRLEWVATISSGGSYTYYPDSVKG RFTISRDSAKNTLYLQMSSLKSEDTAMYYCARH AHYYGVSPYYFDYWGQGTCLTVSSASTKGPSV FPLAPCSRSTSESTAALGCLVKDYFPEPVTVSW NSGALTSGVHTFPAVLQSSGLYSLSSVVTVPSSS LGTKTYTCNVDHKPSNTKVDKRVESKYGPPCPP CPAPEFLGGPSVFLFPPKPKDTLMISRTPEVTCV VVDVSQEDPEVQFNWYVDGVEVHNAKTKPRE EQFNSTYRVVSVLTVLHQDWLNGKEYKCKVSN KGLPSSIEKTISKAKGQPREPQVYTLPPSQEEMT KNQVSLTCLVKGFYPSDIAVEWESNGQPENNY KTTPPVLDSDGSFFLYSRLTVDKSRWQEGNVFS CSVMHEALHNHYTQKSLSLSLG**	483	DIVMTQSPSSLAMSVG QKVTMSCKSSQSLLNSS NQKNYLAWYQQKPGQ SPKLLVYFASTRESGVP DRFIGSGSGTDFTLTISS VQAEDLADYFCQQHYS TPYTFGGGAKLEIKRTV AAPSVFIFPPSDEQLKSG TASVVCLLNNFYPREA KVQWKVDNALQSGNS QESVTEQDSKDSTYSLS STLTLSKADYEKHKVY ACEVTHQGLSSPVTKSF NRGEC*	528

FIG. 9 cont.

Antibody name	Heavy chain sequence	SEQ ID NO:	Light chain sequence	SEQ ID NO:
F847C.10B9	QIQLVQSGPEVKKPGETVKISCKASGYIFTNYG MNWVKQAPGKGLKWMGWINTYTGEPTYTDDF KGRFAFSLETSASTAYLQINNLKNEDTATYFCA KFGNYVGAMDYWGQGTSVTVSSASTKGPSVFP LAPCSRSTSESTAALGCLVKDYFPEPVTVSWNS GALTSGVHTFPAVLQSSGLYSLSSVVTVPSSSLG TKTYTCNVDHKPSNTKVDKRVESKYGPPCPPCP APEFLGGPSVFLFPPKPKDTLMISRTPEVTCVVV DVSQEDPEVQFNWYVDGVEVHNAKTKPREEQF NSTYRVVSVLTVLHQDWLNGKEYKCKVSNKG LPSSIEKTISKAKGQPREPQVYTLPPSQEEMTKN QVSLTCLVKGFYPSDIAVEWESNGQPENNYKTT PPVLDSDGSFFLYSRLTVDKSRWQEGNVFSCSV MHEALHNHYTQKSLSLSLG**	484	DIRMTQSPSSLSASLG DTITITCHASQNINVW LSWYQQKPGNIPKLLI YKASNLHTGVPSRFSG SGSGTGFTLTISSLQPE DIATYYCQQGQSYPYT FGGGTKLELKRTVAAP SVFIFPPSDEQLKSGTA SVVCLLNNFYPREAKV QWKVDNALQSGNSQE SVTEQDSKDSTYSLSS TLTLSKADYEKHKVY ACEVTHQGLSSPVTKS FNRGEC*	529
F847C.11B1	EVQLQQSGPELVKPGASVKISCKASGNTFTDHN MHWVKQSHGKSLEWIGYIYPYNGGTGYNQKF KSKATLTVDNSSSTVYMELRSLTSEDSAVYYCA RGEYDYLAWFAYWGQGTLVTVSAASTKGPSVF PLAPCSRSTSESTAALGCLVKDYFPEPVTVSWN SGALTSGVHTFPAVLQSSGLYSLSSVVTVPSSSL GTKTYTCNVDHKPSNTKVDKRVESKYGPPCPP CPAPEFLGGPSVFLFPPKPKDTLMISRTPEVTCV VVDVSQEDPEVQFNWYVDGVEVHNAKTKPRE EQFNSTYRVVSVLTVLHQDWLNGKEYKCKVSN KGLPSSIEKTISKAKGQPREPQVYTLPPSQEEMT KNQVSLTCLVKGFYPSDIAVEWESNGQPENNY KTTPPVLDSDGSFFLYSRLTVDKSRWQEGNVFS CSVMHEALHNHYTQKSLSLSLG**	485	EIVLTQSPASLSVTTGE KVTIRCITSIDIDDDMN WYQQKPGEPPKLLISE GNTLRPGVPSRFSSSG YGTDFVFTIENTLSED VADYYCLQSDNKPLT FGAGTKLELKRTVAAP SVFIFPPSDEQLKSGTA SVVCLLNNFYPREAKV QWKVDNALQSGNSQE SVTEQDSKDSTYSLSS TLTLSKADYEKHKVY ACEVTHQGLSSPVTKS FNRGEC*	530
F847C.12F12	QIQLVQSGPELKKPGETVKISCKASGYTFTNYG MNWVKQAPGKGLKWMGWINTYTGEPTYVDD FKGRFAFSLETSASTAYLRINNLKNEDTATYFCA KFGNYVGAMDYWGQGTSVTVSSASTKGPSVFP LAPCSRSTSESTAALGCLVKDYFPEPVTVSWNS GALTSGVHTFPAVLQSSGLYSLSSVVTVPSSSLG TKTYTCNVDHKPSNTKVDKRVESKYGPPCPPCP APEFLGGPSVFLFPPKPKDTLMISRTPEVTCVVV DVSQEDPEVQFNWYVDGVEVHNAKTKPREEQF NSTYRVVSVLTVLHQDWLNGKEYKCKVSNKG LPSSIEKTISKAKGQPREPQVYTLPPSQEEMTKN QVSLTCLVKGFYPSDIAVEWESNGQPENNYKTT PPVLDSDGSFFLYSRLTVDKSRWQEGNVFSCSV MHEALHNHYTQKSLSLSLG**	486	DIQVIQSPSSLSASLGD TITITCHASQNINVWLS WYQQKPGNIPKLLIYK ASNLHTGVPSRFSGSG SGTGFTLTISSLQPEDI ATYYCQQGQSYPYTF GGGTKLELKRTVAAPS VFIFPPSDEQLKSGTAS VVCLLNNFYPREAKV QWKVDNALQSGNSQE SVTEQDSKDSTYSLSS TLTLSKADYEKHKVY ACEVTHQGLSSPVTKS FNRGEC*	531

FIG. 9 cont.

Antibody name	Heavy chain sequence	SEQ ID NO:	Light chain sequence	SEQ ID NO:
F847C.26F5	QIQLVQSGPEVKKPGETVKISCKASGYIFTNYG MNWVKQAPGKGLKWMGWINTYTGEPTYTDDF KGRFAFSLETSASTAYLQINNLKNEDTATYFCA KFGNYVGAMDYWGQGTSVTVSSASTKGPSVFP LAPCSRSTSESTAALGCLVKDYFPEPVTVSWNS GALTSGVHTFPAVLQSSGLYSLSSVVTVPSSSLG TKTYTCNVDHKPSNTKVDKRVESKYGPPCPPCP APEFLGGPSVFLFPPKPKDTLMISRTPEVTCVVV DVSQEDPEVQFNWYVDGVEVHNAKTKPREEQF NSTYRVVSVLTVLHQDWLNGKEYKCKVSNKG LPSSIEKTISKAKGQPREPQVYTLPPSQEEMTKN QVSLTCLVKGFYPSDIAVEWESNGQPENNYKTT PPVLDSDGSFFLYSRLTVDKSRWQEGNVFSCSV MHEALHNHYTQKSLSLSLG**	487	EIKMNQSPSSLSASLGDT ITITCHASQNINVWLSW YQQKPGNIPKLLIYKASN LHTGVPSRFSGSGSGTGF TLTISSLQPEDIATYYCQ QGQSYPYTFGGGTKLEL KRTVAAPSVFIFPPSDEQ LKSGTASVVCLLNNFYP REAKVQWKVDNALQSG NSQESVTEQDSKDSTYS LSSTLTLSKADYEKHKV YACEVTHQGLSSPVTKS FNRGEC*	532
F847C.4B10	EVQLVETGGGLVKPGGSLKLSCAASGFTFSSYA MSWVRQTPEKRLEWVASISSGGSTYYPDSVKG RFTISRDNARNILYLQMSSLRSEDTAMYYCTRF TTVVEMDYWGQGTSVTVSSASTKGPSVFPLAP CSRSTSESTAALGCLVKDYFPEPVTVSWNSGAL TSGVHTFPAVLQSSGLYSLSSVVTVPSSSLGTKT YTCNVDHKPSNTKVDKRVESKYGPPCPPCPAPE FLGGPSVFLFPPKPKDTLMISRTPEVTCVVVDVS QEDPEVQFNWYVDGVEVHNAKTKPREEQFNST YRVVSVLTVLHQDWLNGKEYKCKVSNKGLPSS IEKTISKAKGQPREPQVYTLPPSQEEMTKNQVSL TCLVKGFYPSDIAVEWESNGQPENNYKTTPPVL DSDGSFFLYSRLTVDKSRWQEGNVFSCSVMHE ALHNHYTQKSLSLSLG**	488	QAVVTQESALTTSPGET VTLTCRSSTGAVTTSNY ANWVQEKPDHLFTGLIG GTNNRAPGVPARFSGSLI GDKAALTITGAQTEDEA IYFCALWYSNHLVFGGG TKLTVLRTVAAPSVFIFP PSDEQLKSGTASVVCLL NNFYPREAKVQWKVDN ALQSGNSQESVTEQDSK DSTYSLSSTLTLSKADYE KHKVYACEVTHQGLSSP VTKSFNRGEC*	533
F849C.8D10	QVQLQQTGAELVKPGASVKLSCKASGYTFTSY WINWVKQRPGQGLEWIGNIYPGSSSIYYSEKFK SKATLTVDTSSSTAYMQLSSLTSDDSAVYYCAR WGYWGQGTTLTVSSASTKGPSVFPLAPCSRSTS ESTAALGCLVKDYFPEPVTVSWNSGALTSGVHT FPAVLQSSGLYSLSSVVTVPSSSLGTKTYTCNVD HKPSNTKVDKRVESKYGPPCPPCPAPEFLGGPS VFLFPPKPKDTLMISRTPEVTCVVVDVSQEDPEV QFNWYVDGVEVHNAKTKPREEQFNSTYRVVSV LTVLHQDWLNGKEYKCKVSNKGLPSSIEKTISK AKGQPREPQVYTLPPSQEEMTKNQVSLTCLVK GFYPSDIAVEWESNGQPENNYKTTPPVLDSDGS FFLYSRLTVDKSRWQEGNVFSCSVMHEALHNH YTQKSLSLSLG**	489	DVLMTQTPLSLPVSLGD QASISCRSSQDIVHSSGN TYLEWYLQKPGQSLKLL IYKVSNRFSGVPDRFSAS GSGTDFTLKISRVEAEDL GVYYCFQGSHVPPTFGS GTKLEIKRTVAAPSVFIF PPSDEQLKSGTASVVCL LNNFYPREAKVQWKVD NALQSGNSQESVTEQDS KDSTYSLSSTLTLSKADY EKHKVYACEVTHQGLSS PVTKSFNRGEC*	534

FIG. 9 cont.

Antibody name	Heavy chain sequence	SEQ ID NO:	Light chain sequence	SEQ ID NO:
F849C.8H3	QVTLKESGPGILQPSQTLSLTCSFSGFSLSTFGMG VGWIRQPSGKGLEWLAHIWWDDDKHYNPALKS RLTISKDTSKNQVFLRIANVDTADNATYYCARID YGDYVGFAYWGQGTLVTVSAASTKGPSVFPLAP CSRSTSESTAALGCLVKDYFPEPVTVSWNSGALT SGVHTFPAVLQSSGLYSLSSVVTVPSSSLGTKTYT CNVDHKPSNTKVDKRVESKYGPPCPPCPAPEFLG GPSVFLFPPKPKDTLMISRTPEVTCVVVDVSQED PEVQFNWYVDGVEVHNAKTKPREEQFNSTYRV VSVLTVLHQDWLNGKEYKCKVSNKGLPSSIEKTI SKAKGQPREPQVYTLPPSQEEMTKNQVSLTCLV KGFYPSDIAVEWESNGQPENNYKTTPPVLDSDGS FFLYSRLTVDKSRWQEGNVFSCSVMHEALHNHY TQKSLSLSLG**	490	DIGMRQAAFSNPVTLGT SASISCRSSKSLLYSNGIT YLYWFLQKPGQSPQLLI YQMSNLASGVPDRFSSS GSGTDFTLRISRVEADD VGVYYCAQNLELPWTF GGGTKLEIKRTVAAPSV FIFPPSDEQLKSGTASVV CLLNNFYPREAKVQWK VDNALQSGNSQESVTEQ DSKDSTYSLSSTLTLSKA DYEKHKVYACEVTHQG LSSPVTKSFNRGEC*	535
846.2B11	QVQLQQSGPELVRPGALVKISCKASGYTFTSYDI NWVKQRPGQGLEWIGWIYPGDGSTKYNEKFKG KATLTADKSSSTAYMQLSSLTSENSAVYFCAREA ASNAMDYWGQGTSVTVSSASTKGPSVFPLAPCS RSTSESTAALGCLVKDYFPEPVTVSWNSGALTSG VHTFPAVLQSSGLYSLSSVVTVPSSSLGTKTYTC NVDHKPSNTKVDKRVESKYGPPCPPCPAPEFLGG PSVFLFPPKPKDTLMISRTPEVTCVVVDVSQEDPE VQFNWYVDGVEVHNAKTKPREEQFNSTYRVVS VLTVLHQDWLNGKEYKCKVSNKGLPSSIEKTISK AKGQPREPQVYTLPPSQEEMTKNQVSLTCLVKG FYPSDIAVEWESNGQPENNYKTTPPVLDSDGSFF LYSRLTVDKSRWQEGNVFSCSVMHEALHNHYT QKSLSLSLG**	491	DIVLTQSPASLGVSLGQR ATISCRASKSVSTSGYSY MHWYQQKPGQPPKLLI YLASILESGVPARFSGSG SGTDFTLNIHPVEEEDAA IYYCQHSRELPLTFGAGT KLELKRTVAAPSVFIFPP SDEQLKSGTASVVCLLN NFYPREAKVQWKVDNA LQSGNSQESVTEQDSKD STYSLSSTLTLSKADYEK HKVYACEVTHQGLSSPV TKSFNRGEC*	536
846.4D5	EVKLEESGGGLVQPGGSMKLSCVASGFTFSNYW MNWVRQSPEKGLEWVAEIRLKSNNYATHYAES VKGRFTISRDDSKSSVYLQMNNLRAEDTGIYYCT RHYGFPYWYFDVWGAGTTVTVSSASTKGPSVFP LAPCSRSTSESTAALGCLVKDYFPEPVTVSWNSG ALTSGVHTFPAVLQSSGLYSLSSVVTVPSSSLGTK TYTCNVDHKPSNTKVDKRVESKYGPPCPPCPAPE FLGGPSVFLFPPKPKDTLMISRTPEVTCVVVDVS QEDPEVQFNWYVDGVEVHNAKTKPREEQFNST YRVVSVLTVLHQDWLNGKEYKCKVSNKGLPSSI EKTISKAKGQPREPQVYTLPPSQEEMTKNQVSLT CLVKGFYPSDIAVEWESNGQPENNYKTTPPVLDS DGSFFLYSRLTVDKSRWQEGNVFSCSVMHEALH NHYTQKSLSLSLG**	492	NIVLTQSPASLAVSLGQR ATISCRASESVDSYGNSF MHWYQQKPGQPPKLLI YLASNLESGVPARFSGS GSRTDFTLTIDPVEADDA ATYYCQQNNEDPWTFG GGTKLEIKRTVAAPSVFI FPPSDEQLKSGTASVVCL LNNFYPREAKVQWKVD NALQSGNSQESVTEQDS KDSTYSLSSTLTLSKADY EKHKVYACEVTHQGLSS PVTKSFNRGEC*	537

FIG. 9 cont.

Antibody name	Heavy chain sequence	SEQ ID NO:	Light chain sequence	SEQ ID NO:
846T.1H2	QIQLVQSGPELKKPGETVKISCKASGYTFTNYGM NWVKQAPGKGLKWMGWINTNTGEPTYAEEFKG RFAFSLETSASTAYLQINNLKNEDTATYFCATGG GNWDFDYWGQGTTLTVSSASTKGPSVFPLAPCS RSTSESTAALGCLVKDYFPEPVTVSWNSGALTSG VHTFPAVLQSSGLYSLSSVVTVPSSSLGTKTYTC NVDHKPSNTKVDKRVESKYGPPCPPCPAPEFLGG PSVFLFPPKPKDTLMISRTPEVTCVVVDVSQEDPE VQFNWYVDGVEVHNAKTKPREEQFNSTYRVVS VLTVLHQDWLNGKEYKCKVSNKGLPSSIEKTISK AKGQPREPQVYTLPPSQEEMTKNQVSLTCLVKG FYPSDIAVEWESNGQPENNYKTTPPVLDSDGSFF LYSRLTVDKSRWQEGNVFSCSVMHEALHNHYT QKSLSLSLG**	**493**	DVVMTQTPLTLSVTIGQ PASISCKSSQSLLYSNGK TYLNWLLQRPGQSPKRL IYLVSKLDSGVPDRFTGS GSGTDFTLKISRVEAEDL GVYYCVQGTHFPQTFGG GTKLEIKRTVAAPSVFIF PPSDEQLKSGTASVVCL LNNFYPREAKVQWKVD NALQSGNSQESVTEQDS KDSTYSLSSTLTLSKADY EKHKVYACEVTHQGLSS PVTKSFNRGEC*	**538**
847.14H4	QIQLVQSGPELTKPGETVKISCKASGYTFTDYGM NWVRQAPGETLKWMGWINTYTGEPTYADDFKG RFAFSLESSASTAYLQINNLKNEDVATYFCARYP MDYWGQGTSVTVSSASTKGPSVFPLAPCSRSTSE STAALGCLVKDYFPEPVTVSWNSGALTSGVHTF PAVLQSSGLYSLSSVVTVPSSSLGTKTYTCNVDH KPSNTKVDKRVESKYGPPCPPCPAPEFLGGPSVF LFPPKPKDTLMISRTPEVTCVVVDVSQEDPEVQF NWYVDGVEVHNAKTKPREEQFNSTYRVVSVLT VLHQDWLNGKEYKCKVSNKGLPSSIEKTISKAK GQPREPQVYTLPPSQEEMTKNQVSLTCLVKGFYP SDIAVEWESNGQPENNYKTTPPVLDSDGSFFLYS RLTVDKSRWQEGNVFSCSVMHEALHNHYTQKS LSLSLG	**494**	QAVVTQESALTTSPGET VTLTCRSSTGAVTTSNY ANWVQEKPDHLFTGLIG GTNNRAPGVPARFSGSLI GDKAALTITGAQTEDEA IYFCALWYSNHLVFGGG TKLTVLRTVAAPSVFIFP PSDEQLKSGTASVVCLL NNFYPREAKVQWKVDN ALQSGNSQESVTEQDSK DSTYSLSSTLTLSKADYE KHKVYACEVTHQGLSSP VTKSFNRGEC*	**533**
2D10-VH0-VL0	QVQLQQSGPELVKPGASVKISCKASGYTFTDYYI NWVKQRPGQGLEWIGWIYPGSQDTKYNEKFKG KATLTVDTSSSTAYMQLGSLTSEDSAVYFCANY FGSSGWFFDVWGTGTTVTVSSASTKGPSVFPLAP CSRSTSESTAALGCLVKDYFPEPVTVSWNSGALT SGVHTFPAVLQSSGLYSLSSVVTVPSSSLGTKTYT CNVDHKPSNTKVDKRVESKYGPPCPPCPAPEFLG GPSVFLFPPKPKDTLMISRTPEVTCVVVDVSQED PEVQFNWYVDGVEVHNAKTKPREEQFNSTYRV VSVLTVLHQDWLNGKEYKCKVSNKGLPSSIEKTI SKAKGQPREPQVYTLPPSQEEMTKNQVSLTCLV KGFYPSDIAVEWESNGQPENNYKTTPPVLDSDGS FFLYSRLTVDKSRWQEGNVFSCSVMHEALHNHY TQKSLSLSLG--	**829**	DIVMTQAAFSNPVTLGT SASISCRSSKSLLHSDGIT YLYWYLQRPGQSPQLLI YRMSNLASGVPDRFSGS GSGTDFTLRISRVEAEDV GVYYCAQMIEFPLTFGA GTILELKRTVAAPSVFIFP PSDEQLKSGTASVVCLL NNFYPREAKVQWKVDN ALQSGNSQESVTEQDSK DSTYSLSSTLTLSKADYE KHKVYACEVTHQGLSSP VTKSFNRGEC-	**830**

FIG. 9 cont.

Antibody name	Heavy chain sequence	SEQ ID NO:	Light chain sequence	SEQ ID NO:
2D10-hVH4-HVL1	QVQLVQSGAEVKKPGASVKVSCKASGYTFTDY YINWVRQAPGQRLEWMGWIYPGSQDTKYNEKF QGRVTLTVDTSASTAYMELSSLRSEDTAVYFCA NYFGSSGWFFDVWGQGTMVTVSSASTKGPSVFP LAPCSRSTSESTAALGCLVKDYFPEPVTVSWNSG ALTSGVHTFPAVLQSSGLYSLSSVVTVPSSSLGTK TYTCNVDHKPSNTKVDKRVESKYGPPCPPCPAPE FLGGPSVFLFPPKPKDTLMISRTPEVTCVVVDVS QEDPEVQFNWYVDGVEVHNAKTKPREEQFNST YRVVSVLTVLHQDWLNGKEYKCKVSNKGLPSSI EKTISKAKGQPREPQVYTLPPSQEEMTKNQVSLT CLVKGFYPSDIAVEWESNGQPENNYKTTPPVLDS DGSFFLYSRLTVDKSRWQEGNVFSCSVMHEALH NHYTQKSLSLSLG**	836	DIVMTQSPLSLPVTPGEP ASISCRSSKSLLHSDGITY LYWYLQKPGQSPQLLIY RMSNRASGVPDRFSGSG SGTDFTLKISRVEAEDVG VYYCAQMIEFPLTFGQG TKLEIKRTVAAPSVFIFPP SDEQLKSGTASVVCLLN NFYPREAKVQWKVDNA LQSGNSQESVTEQDSKD STYSLSSTLTLSKADYEK HKVYACEVTHQGLSSPV TKSFNRGEC	851
2D10-hVH4-HVL2	QVQLVQSGAEVKKPGASVKVSCKASGYTFTDY YINWVRQAPGQRLEWMGWIYPGSQDTKYNEKF QGRVTLTVDTSASTAYMELSSLRSEDTAVYFCA NYFGSSGWFFDVWGQGTMVTVSSASTKGPSVFP LAPCSRSTSESTAALGCLVKDYFPEPVTVSWNSG ALTSGVHTFPAVLQSSGLYSLSSVVTVPSSSLGTK TYTCNVDHKPSNTKVDKRVESKYGPPCPPCPAPE FLGGPSVFLFPPKPKDTLMISRTPEVTCVVVDVS QEDPEVQFNWYVDGVEVHNAKTKPREEQFNST YRVVSVLTVLHQDWLNGKEYKCKVSNKGLPSSI EKTISKAKGQPREPQVYTLPPSQEEMTKNQVSLT CLVKGFYPSDIAVEWESNGQPENNYKTTPPVLDS DGSFFLYSRLTVDKSRWQEGNVFSCSVMHEALH NHYTQKSLSLSLG**	837	DIVMTQSPLSLPVTPGEP ASISCRSSKSLLHSDGITY LYWYLQKPGQSPQLLIY RMSNLASGVPDRFSGSG SGTDFTLKISRVEAEDVG VYYCAQMIEFPLTFGQG TKLEIKRTVAAPSVFIFPP SDEQLKSGTASVVCLLN NFYPREAKVQWKVDNA LQSGNSQESVTEQDSKD STYSLSSTLTLSKADYEK HKVYACEVTHQGLSSPV TKSFNRGEC	852
2D10-hVH4-HVL3	QVQLVQSGAEVKKPGASVKVSCKASGYTFTDY YINWVRQAPGQRLEWMGWIYPGSQDTKYNEKF QGRVTLTVDTSASTAYMELSSLRSEDTAVYFCA NYFGSSGWFFDVWGQGTMVTVSSASTKGPSVFP LAPCSRSTSESTAALGCLVKDYFPEPVTVSWNSG ALTSGVHTFPAVLQSSGLYSLSSVVTVPSSSLGTK TYTCNVDHKPSNTKVDKRVESKYGPPCPPCPAPE FLGGPSVFLFPPKPKDTLMISRTPEVTCVVVDVS QEDPEVQFNWYVDGVEVHNAKTKPREEQFNST YRVVSVLTVLHQDWLNGKEYKCKVSNKGLPSSI EKTISKAKGQPREPQVYTLPPSQEEMTKNQVSLT CLVKGFYPSDIAVEWESNGQPENNYKTTPPVLDS DGSFFLYSRLTVDKSRWQEGNVFSCSVMHEALH NHYTQKSLSLSLG**	838	DVVMTQSPLSLPVTLGQ PASISCRSSKSLLHSDGIT YLYWYQQRPGQSPRLLI YRMSNRDSGVPDRFSGS GSGTDFTLKISRVEAEDV GVYYCAQMIEFPLTFGQ GTKLEIKRTVAAPSVFIF PPSDEQLKSGTASVVCL LNNFYPREAKVQWKVD NALQSGNSQESVTEQDS KDSTYSLSSTLTLSKADY EKHKVYACEVTHQGLSS PVTKSFNRGEC	853

FIG. 9 cont.

Antibody name	Heavy chain sequence	SEQ ID NO:	Light chain sequence	SEQ ID NO:
2D10-hVH4-HVL4	QVQLVQSGAEVKKPGASVKVSCKASGYTFTDY YINWVRQAPGQRLEWMGWIYPGSQDTKYNEKF QGRVTLTVDTSASTAYMELSSLRSEDTAVYFCA NYFGSSGWFFDVWGQGTMVTVSSASTKGPSVFP LAPCSRSTSESTAALGCLVKDYFPEPVTVSWNSG ALTSGVHTFPAVLQSSGLYSLSSVVTVPSSSLGTK TYTCNVDHKPSNTKVDKRVESKYGPPCPPCPAPE FLGGPSVFLFPPKPKDTLMISRTPEVTCVVVDVS QEDPEVQFNWYVDGVEVHNAKTKPREEQFNST YRVVSVLTVLHQDWLNGKEYKCKVSNKGLPSSI EKTISKAKGQPREPQVYTLPPSQEEMTKNQVSLT CLVKGFYPSDIAVEWESNGQPENNYKTTPPVLDS DGSFFLYSRLTVDKSRWQEGNVFSCSVMHEALH NHYTQKSLSLSLG**	**839**	DIVMTQSPLSLPVTLGQP ASISCRSSKSLLHSDGITY LYWYQQRPGQSPQLLIY RMSNLDSGVPDRFSGSG SGTDFTLKISRVEAEDVG VYYCAQMIEFPLTFGQG TKLEIKRTVAAPSVFIFPP SDEQLKSGTASVVCLLN NFYPREAKVQWKVDNA LQSGNSQESVTEQDSKD STYSLSSTLTLSKADYEK HKVYACEVTHQGLSSPV TKSFNRGEC	**854**
2D10-hVH3-HVL1	QVQLVQSGAEVKKPGASVKVSCKASGYTFTDY YINWVRQAPGQRLEWMGWIYPGSQDTKYSQKF QGRVTITVDTSASTAYMELSSLRSEDTAVYYCA NYFGSSGWFFDVWGQGTMVTVSSASTKGPSVFP LAPCSRSTSESTAALGCLVKDYFPEPVTVSWNSG ALTSGVHTFPAVLQSSGLYSLSSVVTVPSSSLGTK TYTCNVDHKPSNTKVDKRVESKYGPPCPPCPAPE FLGGPSVFLFPPKPKDTLMISRTPEVTCVVVDVS QEDPEVQFNWYVDGVEVHNAKTKPREEQFNST YRVVSVLTVLHQDWLNGKEYKCKVSNKGLPSSI EKTISKAKGQPREPQVYTLPPSQEEMTKNQVSLT CLVKGFYPSDIAVEWESNGQPENNYKTTPPVLDS DGSFFLYSRLTVDKSRWQEGNVFSCSVMHEALH NHYTQKSLSLSLG**	**840**	DIVMTQSPLSLPVTPGEP ASISCRSSKSLLHSDGITY LYWYLQKPGQSPQLLIY RMSNRASGVPDRFSGSG SGTDFTLKISRVEAEDVG VYYCAQMIEFPLTFGQG TKLEIKRTVAAPSVFIFPP SDEQLKSGTASVVCLLN NFYPREAKVQWKVDNA LQSGNSQESVTEQDSKD STYSLSSTLTLSKADYEK HKVYACEVTHQGLSSPV TKSFNRGEC	**855**
2D10-hVH3-HVL2	QVQLVQSGAEVKKPGASVKVSCKASGYTFTDY YINWVRQAPGQRLEWMGWIYPGSQDTKYSQKF QGRVTITVDTSASTAYMELSSLRSEDTAVYYCA NYFGSSGWFFDVWGQGTMVTVSSASTKGPSVFP LAPCSRSTSESTAALGCLVKDYFPEPVTVSWNSG ALTSGVHTFPAVLQSSGLYSLSSVVTVPSSSLGTK TYTCNVDHKPSNTKVDKRVESKYGPPCPPCPAPE FLGGPSVFLFPPKPKDTLMISRTPEVTCVVVDVS QEDPEVQFNWYVDGVEVHNAKTKPREEQFNST YRVVSVLTVLHQDWLNGKEYKCKVSNKGLPSSI EKTISKAKGQPREPQVYTLPPSQEEMTKNQVSLT CLVKGFYPSDIAVEWESNGQPENNYKTTPPVLDS DGSFFLYSRLTVDKSRWQEGNVFSCSVMHEALH NHYTQKSLSLSLG**	**841**	DIVMTQSPLSLPVTPGEP ASISCRSSKSLLHSDGITY LYWYLQKPGQSPQLLIY RMSNLASGVPDRFSGSG SGTDFTLKISRVEAEDVG VYYCAQMIEFPLTFGQG TKLEIKRTVAAPSVFIFPP SDEQLKSGTASVVCLLN NFYPREAKVQWKVDNA LQSGNSQESVTEQDSKD STYSLSSTLTLSKADYEK HKVYACEVTHQGLSSPV TKSFNRGEC	**856**

FIG. 9 cont.

Antibody name	Heavy chain sequence	SEQ ID NO:	Light chain sequence	SEQ ID NO:
2D10-hVH3-HVL3	QVQLVQSGAEVKKPGASVKVSCKASGYTFTDY YINWVRQAPGQRLEWMGWIYPGSQDTKYSQKF QGRVTITVDTSASTAYMELSSLRSEDTAVYYCA NYFGSSGWFFDVWGQGTMVTVSSASTKGPSVFP LAPCSRSTSESTAALGCLVKDYFPEPVTVSWNSG ALTSGVHTFPAVLQSSGLYSLSSVVTVPSSSLGTK TYTCNVDHKPSNTKVDKRVESKYGPPCPPCPAPE FLGGPSVFLFPPKPKDTLMISRTPEVTCVVVDVS QEDPEVQFNWYVDGVEVHNAKTKPREEQFNST YRVVSVLTVLHQDWLNGKEYKCKVSNKGLPSSI EKTISKAKGQPREPQVYTLPPSQEEMTKNQVSLT CLVKGFYPSDIAVEWESNGQPENNYKTTPPVLDS DGSFFLYSRLTVDKSRWQEGNVFSCSVMHEALH NHYTQKSLSLSLG**	842	DVVMTQSPLSLPVTLGQ PASISCRSSKSLLHSDGIT YLYWYQQRPGQSPRLLI YRMSNRDSGVPDRFSGS GSGTDFTLKISRVEAEDV GVYYCAQMIEFPLTFGQ GTKLEIKRTVAAPSVFIF PPSDEQLKSGTASVVCL LNNFYPREAKVQWKVD NALQSGNSQESVTEQDS KDSTYSLSSTLTLSKADY EKHKVYACEVTHQGLSS PVTKSFNRGEC	857
2D10-hVH3-HVL4	QVQLVQSGAEVKKPGASVKVSCKASGYTFTDY YINWVRQAPGQRLEWMGWIYPGSQDTKYSQKF QGRVTITVDTSASTAYMELSSLRSEDTAVYYCA NYFGSSGWFFDVWGQGTMVTVSSASTKGPSVFP LAPCSRSTSESTAALGCLVKDYFPEPVTVSWNSG ALTSGVHTFPAVLQSSGLYSLSSVVTVPSSSLGTK TYTCNVDHKPSNTKVDKRVESKYGPPCPPCPAPE FLGGPSVFLFPPKPKDTLMISRTPEVTCVVVDVS QEDPEVQFNWYVDGVEVHNAKTKPREEQFNST YRVVSVLTVLHQDWLNGKEYKCKVSNKGLPSSI EKTISKAKGQPREPQVYTLPPSQEEMTKNQVSLT CLVKGFYPSDIAVEWESNGQPENNYKTTPPVLDS DGSFFLYSRLTVDKSRWQEGNVFSCSVMHEALH NHYTQKSLSLSLG**	843	DIVMTQSPLSLPVTLGQP ASISCRSSKSLLHSDGITY LYWYQQRPGQSPQLLIY RMSNLDSGVPDRFSGSG SGTDFTLKISRVEAEDVG VYYCAQMIEFPLTFGQG TKLEIKRTVAAPSVFIFPP SDEQLKSGTASVVCLLN NFYPREAKVQWKVDNA LQSGNSQESVTEQDSKD STYSLSSTLTLSKADYEK HKVYACEVTHQGLSSPV TKSFNRGEC	858
20H5.A3-VH3VL1	QIQLVQSGSELKKPGASVKVSCKASGYAFTTYG MSWVRQAPGQGLEWMGWVNTYSGVPTYADDF TGRFVFSLETSVSTAYLQISSLKAEDTAVYFCAR GPYAMDYWGQGTLVTVSSASTKGPSVFPLAPCS RSTSESTAALGCLVKDYFPEPVTVSWNSGALTSG VHTFPAVLQSSGLYSLSSVVTVPSSSLGTKTYTC NVDHKPSNTKVDKRVESKYGPPCPPCPAPEFLGG PSVFLFPPKPKDTLMISRTPEVTCVVVDVSQEDPE VQFNWYVDGVEVHNAKTKPREEQFNSTYRVVS VLTVLHQDWLNGKEYKCKVSNKGLPSSIEKTISK AKGQPREPQVYTLPPSQEEMTKNQVSLTCLVKG FYPSDIAVEWESNGQPENNYKTTPPVLDSDGSFF LYSRLTVDKSRWQEGNVFSCSVMHEALHNHYT QKSLSLSLG	844	DIQMTQSPSSLSASVGDR VTITCQASQDISNYLNW YQQKPGKAPKLLIYYTS SLLTGVPSRFSGSGSGTD YTFTISSLQPEDIATYYC QQYSKLPYTFGQGTKLE IKRTVAAPSVFIFPPSDEQ LKSGTASVVCLLNNFYP REAKVQWKVDNALQSG NSQESVTEQDSKDSTYS LSSTLTLSKADYEKHKV YACEVTHQGLSSPVTKS FNRGEC	859

FIG. 9 cont.

Antibody name	Heavy chain sequence	SEQ ID NO:	Light chain sequence	SEQ ID NO:
20H5.A3-VH3VL3	QIQLVQSGSELKKPGASVKVSCKASGYAFTTYG MSWVRQAPGQGLEWMGWVNTYSGVPTYADDF TGRFVFSLETSVSTAYLQISSLKAEDTAVYFCAR GPYAMDYWGQGTLVTVSSASTKGPSVFPLAPCS RSTSESTAALGCLVKDYFPEPVTVSWNSGALTSG VHTFPAVLQSSGLYSLSSVVTVPSSSLGTKTYTC NVDHKPSNTKVDKRVESKYGPPCPPCPAPEFLGG PSVFLFPPKPKDTLMISRTPEVTCVVVDVSQEDPE VQFNWYVDGVEVHNAKTKPREEQFNSTYRVVS VLTVLHQDWLNGKEYKCKVSNKGLPSSIEKTISK AKGQPREPQVYTLPPSQEEMTKNQVSLTCLVKG FYPSDIAVEWESNGQPENNYKTTPPVLDSDGSFF LYSRLTVDKSRWQEGNVFSCSVMHEALHNHYT QKSLSLSLG	**845**	DIQMTQSPSSLSASVGDR VTITCRASQDISNYLNW YQQKPGKAPKLLIYYTS SLLSGVPSRFSGSGSGTD YTLTISSLQPEDFATYYC QQYSKLPYTFGQGTKLE IKRTVAAPSVFIFPPSDEQ LKSGTASVVCLLNNFYP REAKVQWKVDNALQSG NSQESVTEQDSKDSTYS LSSTLTLSKADYEKHKV YACEVTHQGLSSPVTKS FNRGEC	**860**
20H5.A3-VH4VL1	QIQLVQSGSELKKPGASVKVSCKASGYAFTTYG MSWVRQAPGQGLEWMGWVNTYSGVPTSADDF TGRFVFSLETSVSTAYLQISSLKAEDTAVYFCAR GPYAMDYWGQGTLVTVSSASTKGPSVFPLAPCS RSTSESTAALGCLVKDYFPEPVTVSWNSGALTSG VHTFPAVLQSSGLYSLSSVVTVPSSSLGTKTYTC NVDHKPSNTKVDKRVESKYGPPCPPCPAPEFLGG PSVFLFPPKPKDTLMISRTPEVTCVVVDVSQEDPE VQFNWYVDGVEVHNAKTKPREEQFNSTYRVVS VLTVLHQDWLNGKEYKCKVSNKGLPSSIEKTISK AKGQPREPQVYTLPPSQEEMTKNQVSLTCLVKG FYPSDIAVEWESNGQPENNYKTTPPVLDSDGSFF LYSRLTVDKSRWQEGNVFSCSVMHEALHNHYT QKSLSLSLG	**846**	DIQMTQSPSSLSASVGDR VTITCQASQDISNYLNW YQQKPGKAPKLLIYYTS SLLTGVPSRFSGSGSGTD YTFTISSLQPEDIATYYC QQYSKLPYTFGQGTKLE IKRTVAAPSVFIFPPSDEQ LKSGTASVVCLLNNFYP REAKVQWKVDNALQSG NSQESVTEQDSKDSTYS LSSTLTLSKADYEKHKV YACEVTHQGLSSPVTKS FNRGEC	**861**
20H5.A3-VH5VL1	QVQLVQSGFELKKPGASVKISCKASGYAFTTYG MSWVRQAPGQGLEWMGWVNTYSGVPTYAQAF TGRFVFSLDTSVSTAYLQISSLKAEDTAVYYCAR GPYAMDYWGQGTLVTVSSASTKGPSVFPLAPCS RSTSESTAALGCLVKDYFPEPVTVSWNSGALTSG VHTFPAVLQSSGLYSLSSVVTVPSSSLGTKTYTC NVDHKPSNTKVDKRVESKYGPPCPPCPAPEFLGG PSVFLFPPKPKDTLMISRTPEVTCVVVDVSQEDPE VQFNWYVDGVEVHNAKTKPREEQFNSTYRVVS VLTVLHQDWLNGKEYKCKVSNKGLPSSIEKTISK AKGQPREPQVYTLPPSQEEMTKNQVSLTCLVKG FYPSDIAVEWESNGQPENNYKTTPPVLDSDGSFF LYSRLTVDKSRWQEGNVFSCSVMHEALHNHYT QKSLSLSLG	**847**	DIQMTQSPSSLSASVGDR VTITCQASQDISNYLNW YQQKPGKAPKLLIYYTS SLLTGVPSRFSGSGSGTD YTFTISSLQPEDIATYYC QQYSKLPYTFGQGTKLE IKRTVAAPSVFIFPPSDEQ LKSGTASVVCLLNNFYP REAKVQWKVDNALQSG NSQESVTEQDSKDSTYS LSSTLTLSKADYEKHKV YACEVTHQGLSSPVTKS FNRGEC	**862**

FIG. 9 cont.

Antibody name	Heavy chain sequence	SEQ ID NO:	Light chain sequence	SEQ ID NO:
20H5.A3-VH5VL3	QVQLVQSGFELKKPGASVKISCKASGYAFTTYG MSWVRQAPGQGLEWMGWVNTYSGVPTYAQAF TGRFVFSLDTSVSTAYLQISSLKAEDTAVYYCAR GPYAMDYWGQGTLVTVSSASTKGPSVFPLAPCS RSTSESTAALGCLVKDYFPEPVTVSWNSGALTSG VHTFPAVLQSSGLYSLSSVVTVPSSSLGTKTYTC NVDHKPSNTKVDKRVESKYGPPCPPCPAPEFLGG PSVFLFPPKPKDTLMISRTPEVTCVVVDVSQEDPE VQFNWYVDGVEVHNAKTKPREEQFNSTYRVVS VLTVLHQDWLNGKEYKCKVSNKGLPSSIEKTISK AKGQPREPQVYTLPPSQEEMTKNQVSLTCLVKG FYPSDIAVEWESNGQPENNYKTTPPVLDSDGSFF LYSRLTVDKSRWQEGNVFSCSVMHEALHNHYT QKSLSLSLG	**848**	DIQMTQSPSSLSASVGDR VTITCRASQDISNYLNW YQQKPGKAPKLLIYYTS SLLSGVPSRFSGSGSGTD YTLTISSLQPEDFATYYC QQYSKLPYTFGQGTKLE IKRTVAAPSVFIFPPSDEQ LKSGTASVVCLLNNFYP REAKVQWKVDNALQSG NSQESVTEQDSKDSTYS LSSTLTLSKADYEKHKV YACEVTHQGLSSPVTKS FNRGEC	**863**
20H5.A3-VH6VL1	QVQLVQSGFELKKPGASVKISCKASGYAFTTYG MSWVRQAPGQGLEWMGWVNTYSGVPTSAQAF TGRFVFSLDTSVSTAYLQISSLKAEDTAVYYCAR GPYAMDYWGQGTLVTVSSASTKGPSVFPLAPCS RSTSESTAALGCLVKDYFPEPVTVSWNSGALTSG VHTFPAVLQSSGLYSLSSVVTVPSSSLGTKTYTC NVDHKPSNTKVDKRVESKYGPPCPPCPAPEFLGG PSVFLFPPKPKDTLMISRTPEVTCVVVDVSQEDPE VQFNWYVDGVEVHNAKTKPREEQFNSTYRVVS VLTVLHQDWLNGKEYKCKVSNKGLPSSIEKTISK AKGQPREPQVYTLPPSQEEMTKNQVSLTCLVKG FYPSDIAVEWESNGQPENNYKTTPPVLDSDGSFF LYSRLTVDKSRWQEGNVFSCSVMHEALHNHYT QKSLSLSLG	**849**	DIQMTQSPSSLSASVGDR VTITCQASQDISNYLNW YQQKPGKAPKLLIYYTS SLLTGVPSRFSGSGSGTD YTFTISSLQPEDIATYYC QQYSKLPYTFGQGTKLE IKRTVAAPSVFIFPPSDEQ LKSGTASVVCLLNNFYP REAKVQWKVDNALQSG NSQESVTEQDSKDSTYS LSSTLTLSKADYEKHKV YACEVTHQGLSSPVTKS FNRGEC	**864**
20H5.A3-VH6VL3	QVQLVQSGFELKKPGASVKISCKASGYAFTTYG MSWVRQAPGQGLEWMGWVNTYSGVPTSAQAF TGRFVFSLDTSVSTAYLQISSLKAEDTAVYYCAR GPYAMDYWGQGTLVTVSSASTKGPSVFPLAPCS RSTSESTAALGCLVKDYFPEPVTVSWNSGALTSG VHTFPAVLQSSGLYSLSSVVTVPSSSLGTKTYTC NVDHKPSNTKVDKRVESKYGPPCPPCPAPEFLGG PSVFLFPPKPKDTLMISRTPEVTCVVVDVSQEDPE VQFNWYVDGVEVHNAKTKPREEQFNSTYRVVS VLTVLHQDWLNGKEYKCKVSNKGLPSSIEKTISK AKGQPREPQVYTLPPSQEEMTKNQVSLTCLVKG FYPSDIAVEWESNGQPENNYKTTPPVLDSDGSFF LYSRLTVDKSRWQEGNVFSCSVMHEALHNHYT QKSLSLSLG	**850**	DIQMTQSPSSLSASVGDR VTITCRASQDISNYLNW YQQKPGKAPKLLIYYTS SLLSGVPSRFSGSGSGTD YTLTISSLQPEDFATYYC QQYSKLPYTFGQGTKLE IKRTVAAPSVFIFPPSDEQ LKSGTASVVCLLNNFYP REAKVQWKVDNALQSG NSQESVTEQDSKDSTYS LSSTLTLSKADYEKHKV YACEVTHQGLSSPVTKS FNRGEC	**865**

FIG. 9 cont.

Antibody	Peptides bound (according to peptide numbers of FIG. 18)	Bins
TB001	5, 6	1
TB006	6	3
12G5.D7	n/a	10
13A12.2E5	4,[6]	7
14H10.2C9	6,7	8
15F10.2D6	2,3,[4]	8
19B5.2E6	1, 7	3
20D11.2C6	1, 7, 8	5
20H5.A3	1, 7	3
23H9.2E4	1,[6],7,[8]	3
2D10.2B2	6	3
3B11.2G2	4, 6	7
7D8.2D8	2,3,[17]	8
F846C.1B2	[5],6,[7]	17
F846C.1F5	6,[17]	17
F846C.1H12	[5],6,[17]	17
F846C.1H5	1	n/a
F846C.2H3	6,17	17
F846TC.14A2	[1],7,8	n/a
F846TC.14E4	2	8
F846TC.16B5	6,[17]	17
F846TC.7F10	1	8
F847C.10B9	1,7	n/a
F847C.11B1	[17]	n/a
F847C.12F12	1,7	n/a
F847C.26F5	1,7	Unassigned
F847C.4B10	1	n/a
F849C.8D10	2,3	8
F849C.8H3	2,[17]	n/a

*Parentheses for peptides bound (e.g. [6]) denote peptides that bound to the antibody weakly.

FIG. 10

Antibody	Peptide # (out of 24 peptides)	Bins
F847C.21H6	5,6	1
15G7.2A7	1,[6],7,8,[10]	5
849.2D7	None	10
24D12.2H9	None	11
6B3.2D3	None	11
849.1D2	[1],[17]	11
13G4.2F8	None	12
9H2.2H10	[7]	12
849.5H1	None	21
847.12C4	2,3,[9],[10]	B2C10
847.15D12	[17]	B2C10
847.15H11	None	B2C10
847.20H7	None	B2C10
847.27B9	4	B2C10
847.10C9	2,3,[9],[10]	CRD
847.11D6	None	CRD
847.13E2-mH0mL1	[13],17	CRD
847.13E2-mH0mL2	[13],17	CRD
847.16D10	None	CRD
847.23F11	[13],17	CRD
847.28D1	[6]	CRD
847.3B3	[17]	CRD
849.8D12	None	Unassigned
846.2B11	None	No binding
846T.4C9	None	No binding
847.15F9	None	No binding
847.21B11	None	No binding
847.2B8	None	No binding
847.4D3	None	No binding
849.4F12	None	No binding
849.4B2	None	No binding
847.14H4	7	Unassigned
849.2F12	None	Unassigned

FIG. 10 cont.

Antibody	Human Gal3 KD (M)
F846C.1B2	5.74×10^{9}
F846C.1F5 (846.1F5)	1.63×10^{9}
F846C.1H12 (846.1H12)	6.22×10^{10}
F846C.1H5 (846.1H5)	3.41×10^{9}
F846C.2H3 (846.2H3)	1.72×10^{9}
F846TC.14A2 (846T.14A2)	3.26×10^{9}
F846TC.14E4 (846T.14E4)	5.56×10^{10}
F846TC.16B5 (846T.16B5)	9.27×10^{10}
F846TC.7F10 (846T.7F10)	1.40×10^{9}
F847C.10B9 (847.10B9)	1.36×10^{5}
F847C.11B1 (847.11B1)	4.29×10^{9}
F847C.12F12 (847.12F12)	1.92×10^{8}
F847C.26F5 (847.26F5)	2.09×10^{8}
F847C.4B10 (847.4B10)	2.15×10^{8}
F849C.8D10 (849.8D10)	3.75×10^{9}
F847.14H4 (847.14H4)	1.77×10^{8}

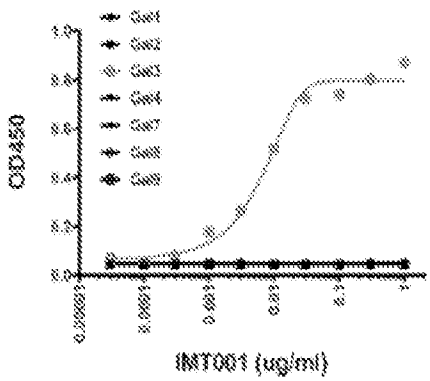
FIG. 11A

IMT001 And IMT006 Humanized Gal3 Therapeutic Antibodies

Humanized IMT001 and IMT006, derived from mouse mAbs, both have high affinity for human and cynomolgus galectin-3, whereas IMT001 also has high affinity for mouse galectin-3

	Antibody K_D Affinities (nM)			
	Human	**Cynomolgus**	**Rat**	**Mouse**
IMT001	3.6	8.9	14	2.3
IMT006	8.9	5.1	undetected	40000

IMT001 is highly specific for galectin-3



IMT006 is highly specific for galectin-3

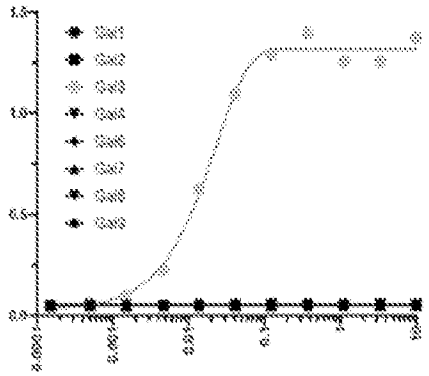
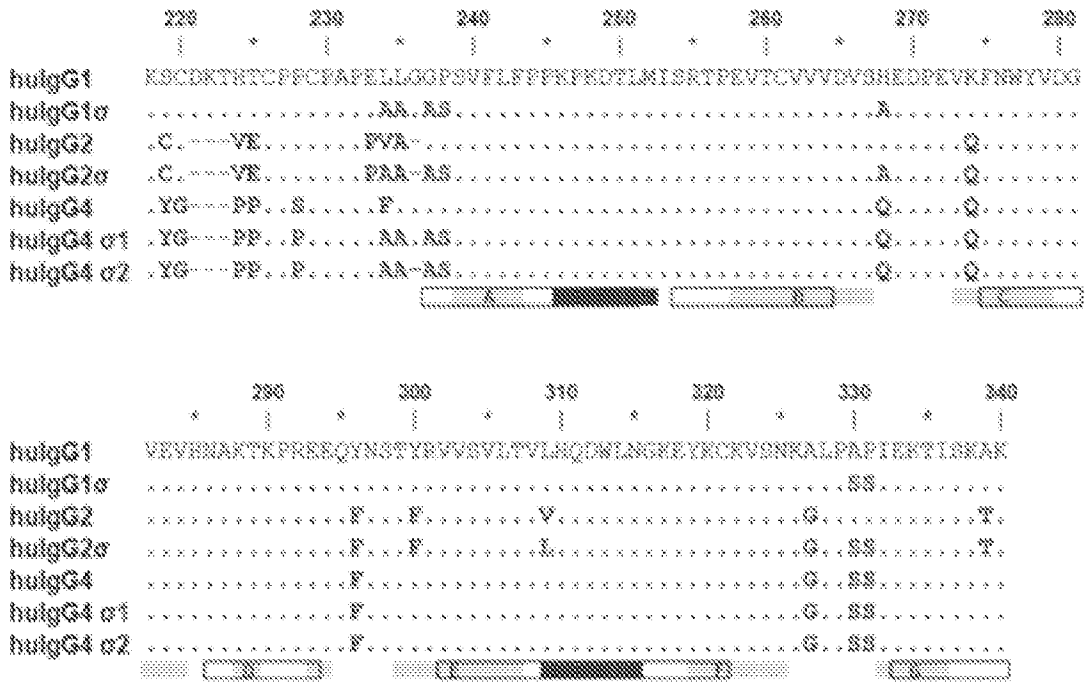


FIG. 11B

mTB001	TB001	4A11.H1L1	TB006	4A11.H4L2
Murine IMT001	IMT001	IMT006-1	4A11.H3L1	IMT006-8
mIMT001	IMT001-4	IMT006b	IMT006-5	IMT006c
			IMT006a	
			IMT006	

Antibody names shown in each column refer to the same antibody as provided in the present disclosure and may be used interchangeably

FIG. 12



Exemplary hIgG1, Ch2 constant heavy chain domain 2. Fc region (**SEQ ID NO: 930**):

EPKSCDKTHTCPPCPAPELLGGP**S**VFLFPP**K**PKDTLMISRTPEVTCVVVDVSHEDPEVKFNWYV
DGVEVHNAKTKPREEQYNSTYRVVSVLTVLHQDWLNGKEYKCKVSNKALP**API**EKTISKAK

FIG. 13

Exemplary hIgG4(S228P) Fc region (**SEQ ID NO: 931**):

ASTKGPSVFPLAPCSRSTSESTAALGCLVKDYFPEPVTVSWNSGALTSGVHTFPAVLQSSGLYS
LSSVVTVPSSSLGTKTYTCNVDHKPSNTKVDKRVESKYGPPCPPCPAPEFLGGPSVFLFPPKPK
DTLMISRTPEVTCVVVDVSQEDPEVQFNWYVDGVEVHNAKTKPREEQFNSTYRVVSVLTVLH
QDWLNGKEYKCKVSNKGLPSSIEKTISKAKGQPREPQVYTLPPSQEEMTKNQVSLTCLVKGFY
PSDIAVEWESNGQPENNYKTTPPVLDSDGSFFLYSRLTVDKSRWQEGNVFSCSVMHEALHNH
YTQKSLSLSLG

Exemplary hIgG4 kappa chain constant domain (**SEQ ID NO: 932**):

RTVAAPSVFIFPPSDEQLKSGTASVVCLLNNFYPREAKVQWKVDNALQSGNSQESVTEQDSKD
STYSLSSTLTLSKADYEKHKVYACEVTHQGLSSPVTKSFNRGEC

Exemplary mIgG2A(LALAPG) Fc region (**SEQ ID NO: 933**):

AKTTPPSVYPLAPVCGDTTGSSVTLGCLVKGYFPEPVTLTWNSGSLSSGVHTFPAVLQSDLYTL
SSSVTVTSSTWPSQSITCNVAHPASSTKVDKKIEPRGPTIKPCPPCKCPAPN**AA**GGPSVFIFPPKI
KDVLMISLSPIVTCVVVDVSEDDPDVQISWFVNNVEVHTAQTQTHREDYNSTLRVVSALPIQH
QDWMSGKEFKCKVNNKDL**G**APIERTISKPKGSVRAPQVYVLPPPEEEMTKKQVTLTCMVTDF
MPEDIYVEWTNNGKTELNYKNTEPVLDSDGSYFMYSKLRVEKKNWVERNSYSCSVVHEGLH
NHHTTKSFSRTPGK

Exemplary mIgG2A(LALA) Fc region (**SEQ ID NO: 934**):

AKTTPPSVYPLAPVCGDTTGSSVTLGCLVKGYFPEPVTLTWNSGSLSSGVHTFPAVLQSDLYTL
SSSVTVTSSTWPSQSITCNVAHPASSTKVDKKIEPRGPTIKPCPPCKCPAPN**AA**GGPSVFIFPPKI
KDVLMISLSPIVTCVVVDVSEDDPDVQISWFVNNVEVHTAQTQTHREDYNSTLRVVSALPIQH
QDWMSGKEFKCKVNNKDLPAPIERTISKPKGSVRAPQVYVLPPPEEEMTKKQVTLTCMVTDF
MPEDIYVEWTNNGKTELNYKNTEPVLDSDGSYFMYSKLRVEKKNWVERNSYSCSVVHEGLH
NHHTTKSFSRTPGK

FIG. 13 cont.

Antibody	SEQ ID NO:	V_H nucleic acid sequence
TB001 (IMT001; IMT001-4)	539	CAGGTGCAGCTGGTGCAGTCCGGCTCCGAGCTGAAAAAACCCGGCGCCTCCGT GAAAGTGTCCTGCAAAGCCTCCGGCTACACATTCACAAACTACGGCATGAACTG GGTGAGGCAGGCCCCCGGCCAGGGCCTGAAATGGATGGGCTGGATCAACACAA ACACAGGCGAGCCCACATACGTGGAGGAGTTCACAGGCAGGTTCGTGTTCTCCC TGGAGACATCCGTGTCCACAGCCTACCTGCAGATCTCCTCCCTGAAAGCCGAGG ACACAGCCGTGTACTTCTGCGCCCCCTACGACAACTTCTTCGCCTACTGGGGCC AGGGCACAACAGTGACAGTGTCCTCC
TB006 (4A11.H3L1; IMT006; IMT006a)	540	CAGATTCAATTGGTTCAGAGCGGCTCAGAACTGAAAAAGCCTGGAGCCAGCGT TAAAGTGAGCTGTAAAGCCAGTGGATACACATTCACCACTTACGTCATGTCCTG GGTTAGACAGGCCCCTGGACAGGGGCTGGAATGGATGGGCTGGATAAACACTC ACTCTGGAGTGCCCACATACGCCGACGACTTTACAGGCAGGTTCGTGTTTTCCC TAGATACTAGTGTGAATACTGCATACTTGCAAATCTCTTCTCTGAAAGCAGAGG ATACCGCCGTGTACTTTTGCACCCGCGATGGGAATGATGGGGATGCCATGGACA ACTGGGGCCAGGGGACGACTGTGACAGTGTCTTCA
12G5.D7	541	CAGGTGCAGCTGAAGCAGTCTGGGGCTGAGCTGGTGAGGCCTGGGGCTTCAGT GAAGCTGTCCTGCAAGGCTTCTGGCTACACTTTCACTGACTACTATATAAACTG GGTGAAGCAGAGGCCTGGACAGGGACTTGAGTGGATTGCAAGGATTTATCCTG GAACTGGTAATACTGACTACAATGAGAAGTTCAAGGGCAGGGCCACACTGACT GCAGAAAACTCCTCCAGCACTGCCTACATGCAGCTCAGCAGTCTGACATCTGAG GACTCTGCTGTCTATTTCTGTGCAAGATTTGCGTATTACTACGGTAGTGGAGGGT ACTTTGACTACTGGGGCCACGGCACCACTCTCACAGTCTCCTCA
13A12.2E5	542	CAGATCCAGTTGGTACAGTCTGGACCTGAGCTGAAGAAGCCTGGAGAGACAGT CAAGATCTCCTGCAAGACTTCTGGGTATAAATTCAAAACCTATGTGATGAGCTG GGTGAAACAGGCTCCAGGAAAGGCTTTAAAGTGGATGGGCTGGATAAACACCT ACTCTGGAGTGCCAACATATGCTGATGACTTCAAGGGACGATTTGCCTTCTCTTT GGAAACCTCTGCCAGCACTGCCTATTTGGAGATCATCAACCTCAAAAATGAGGA CACGGCTACATATTTCTGTGCAAGAGATGGTAACTACGGGGATCCTATGGACTA CTGGGGTCAAGGAACCTCAGTCACCGTCTCCTCA
14H10.2C9	543	CAGATCCAGTTGGTACAGTCTGGACCTGAGCTGAAGAAGCCTGGAGAGACAGT CAAGATCTCCTGCAAGGCTTCTGGGTATACCTTCACAACCTATGGAATGGGCTG GGTGAAACAGGCTCCAGGAAAGGATTTAAAGTGGATGGGCTGGATAAACACCT ACTCTGGAGTGCCAACATATGCTGATGACTTCAAGGGACGGTTTGCCTTCTCTTT GGAAACCTCTGCCAGCACTGCCTATTTGCAGATCAGCAACCTCAAAAATGAAG ACACGGCTACATATTTCTGTTCAACCCCTTATGAATACGACGGGGCTTACTGGG GCCAGGGGACTCTGGTCACTGTCTCTGCA
15F10.2D6	544	GAAGTACAGCTGGTGGAGTCTGGGGGAGGCTTAGTGAAGCCTGGAGGGTCCCT GAAACTCTCCTGTGCAGCCTCTGGATTCGCTTTCAGTTCCTATGCCATGTCTTGG GTTCGCCAGACTCCGGAAAAGAGGCTGGAGTGGGTCGCAACCATTAGTGATGG TGGTGTTTACACCTACTATACAGACCATGTAAAGGGCCGATTCACCATCTCCAG AGACAATGCCGAGGACAACCTGTACCTGCAAATGAGCCATCTGAAGTCTGAGG ACACAGCCATGTATTATTGTGTGAGAGATGGGGGCTACTGGGGCCAAGGCACC ACTCTCACAGTCTCCTCA
19B5.2E6	545	CAGATCCAACTTGTTCAGAGCGGGCCTGAATTGAAGAAACCAGGCGAGACTGT AAAGATCTCCTGTAAGGCCAGTGGCTATACATTCACCACCTACGCAATGAGCTG GGTCAAGCAGGCACCCGGAAAGGGTCTGAAGTGGATGGGTTGGATAAATACAT ACTCAGGCGTCCCAACCTACGCTGATGATTTGAAGGGGCGCTTTGCCTTTTCTCT TGAAACCTCAGCATCAACCGCCTACTTGCAGATAAATAACCTCAAAAATGAAG ACACCGCTACCTATTTCTGCGCAAGGGGGCCTTATGCTATGGACTACTGGGGCC AGGGCACCTCTGTGACTGTAAGTTCT

FIG. 14

Antibody	SEQ ID NO:	V_H nucleic acid sequence
20D11.2C6	546	GAGGTCCAGCTGCAACAATCTGGACCTGAACTGGTGAAGCCTGGGGCTTCAGT GAAGATATCCTGTAAGGCTTCTGGATACACGTTCACTGACTTCTACATAAACTG GGTGAAGCAGAGCCATGGAAAGAGCCTTGAGTGGATTGGAGATATTAATCCTA AGAATGGTGGTATTAACTACAACCCGAAGTTCAAGATCAAGGCCACATTGACT GTAGACAAGTCCTCCAGCACATCCTACATGGACCTCCGCGGCCTGACATCTGAG GACTCTGCAGTCTATTACTGCACCTCAGGCTACGGATTTCCTTACTGGGGCCAA GGGACTCTGGTCACTGTCTCTGCA
20H5.A3	547	CAGATCCAGTTGGTACAGTCTGGACCTGAGCTGAAGAAGCCTGGAGAGTCAGT CAAGATCTCCTGCAAGGCTTCTGGTTATGCCTTCACAACCTATGGAATGAGCTG GGTGCAACAGGCTCCAGGAAAGGGTTTAAAGTGGATGGGCTGGGTAAACACCT ACTCTGGAGTGCCAACATGTGCTGATGACTTCAAGGGACGGTTTGCCTTCTCTTT GGAAACCTCTGCCAGCACTGCCTATTTGCAGATCAACAACCTCAGAAATGAGG ACACGGCTACATATTTCTGTGCAAGAGGGCCCTATGCTATGGACTACTGGGGTC AAGGAACCTCAGTCACCGTCTCCTCA
23H9.2E4	548	CAGATCCAGTTGGTACAGTCTGGACCTGAGCTGAAGAAGCCTGGAGAGACAGT CAAGATCTCCTGCAAGGCTTCTGGGTATACCTTCACAACCTATGCAATGAGCTG GGTGAAACAGGCTCCAGGAAAGGGTTTAAAGTGGATGGGCTGGATAAACACCT ACTCTGGAGTGCCAACATATGCTGATGACCTCAAGGGACGGTTTGCCTTCTCTT TGGAAACCTCTGCCAGCACTGCCTATTTGCAGATCAACAACCTCAAAAATGAGG ACACGGCTACATATTTCTGTGCAAGAGGGCCCTATGCTATGGACTACTGGGGTC AAGGAACCTCAGTCACCGTCTCCTCA
2D10-VH0-VL0	549	CAAGTACAGCTCCAGCAATCAGGACCTGAACTTGTTAAGCCAGGTGCAAGCGT CAAAATAAGTTGTAAAGCATCAGGTTACACCTTTACAGACTACTATATCAACTG GGTCAAGCAACGGCCTGGTCAGGGACTTGAATGGATAGGTTGGATCTACCCTG GGTCACAAGACACCAAGTACAATGAAAAATTTAAGGGGAAAGCCACTCTGACA GTAGATACTAGCTCAAGTACCGCCTACATGCAGCTCGGCAGCCTCACTTCCGAG GACTCTGCCGTATATTTCTGTGCCAACTACTTCGGGTCTTCTGGGTGGTTCTTTG ATGTGTGGGGAACCGGCACCACCGTAACCGTTTCCTCA
3B11.2G2	550	CAGATCCAGTTGGTACAGTCTGGACCTGAGCTGAAGAAGCCTGGAGAGACAGT CAAGATCTCCTGCAAGACTTCTGGGTATAAATTCAAAACCTATGTAATGAGCTG GGTGAAACAGGCTCCAGGAAAGGCTTTAAAGTGGATGGGCTGGATAAACACCT ACTCTGGAGTGCCAACATATGCTGATGACTTCAAGGGACGGTTTGCCTTCTCTTT GGAAACCTCTGCCAGCACTGCCTATTTGGAGATCATCAACCTCAAAAATGAGGA CACGGCTACATATTTCTGTGCAAGAGATGGTAATTACGGGGATCCTATGGACTA CTGGGGTCAAGGAACCTCAGTCACCGTCTCCTCA
7D8.2D8	551	GAAGTGCAGCTGGTGGAGTCTGGGGGAGGCTTAGTGAAGCCTGGAGGGTCCCT GAAACTCTCCTGTGCAGCCTCTGGATTCACTTTCAGTAGCTATGCCATGTCTTGG GTTCGCCAGACTCCGGAAAAGAGGCTGGAGTGGGTCGCAACCATCAGTGATGG TGGTATTTACACCTACTATCCAGACAATGTAAAGGGCCGATTCACCATTTCCAG AGACAATGCCAAGAACAACCTGTTCCTGCAAATGAGCCATCTGAAGTCTGAGG ATACAGCCATGTATTACTGTGTAAGAGATGGGGGCTACTGGGGCCAAGGCACC ACTCTCACAGTCTCCTCA
mTB001 (mIMT001)	552	CAGATCCAACTTGTGCAGTCAGGTCCAGAATTGAAGAAGCCTGGTGAGACCGT CAAGATTTCCTGTAAGGCCTCTGGTTATACTTTTACCAACTATGGCATGAATTGG GTCAAGCAGGCACCTGGGAAGGGTTTGAAATGGATGGGGTGGATAAATACCAA CACAGGGGAACCAACTTACGTTGAAGAGTTTAAGGGTCGTTTTGCATTCAGTCT TGAGACTTCTGCAAGCACAGCTTACCTCCAAATTAACAATCTCAAAAATGAAGA TACTGCTACATATTTCTGTGCTCCTTATGATAATTTTTTCGCCTACTGGGGACAG GGAACTCTGGTCACCGTCTCAGCA

FIG. 14 cont.

Antibody	SEQ ID NO:	V_H nucleic acid sequence
4A11.2B5	553	CAGGTACAACTTCAGCAGAGCGGTCCAGAACTTGTGAAGCCCGGTGCTAGTGTC AAAATATCTTGCAAAGCAAGTGGTTATTCCTTCACCAACTATTACATACACTGG GTAAAACAACGTCCAGGGCAAGGACTCGAATGGATTGGTTGGATCTACCCCGG CAGCGGCAACACTAACTACAACGAGAAGTTTAAAGGCAAAGCTACTCTCACAG CAGACACTTCTAGCAGTACAACAAATATGCAGTTGTCCTCTCTGACTTCCGAAG ACAGCGCCGTCTATTACTGTTCTACTGCACCCGGAGGTTTTGACGTCTGGGGTTC CGGCACCACAGTTACCGTTAGTTCC
4A11.H1L1 (IMT006b)	554	CAGGTGCAGCTGGTGCAATCAGGAGCCGAAGTTAAGAAGCCTGGCGCCAGCGT CAAGGTCTCATGTAAAGCCTCCGGTTACAGTTTCACCAACTACTATATGCACTG GGTTAGGCAAGCACCAGGCCAGGGGCTTGAGTGGATGGGATGGATCTATCCAG GGAGCGGTAACACCAATTACAATGAGAAGTTTCAAGGGCGCGTAACCATGACA GCAGATACCAGTATAAGCACCGCCTATATGGAACTCTCTCGGTTGAGATCCGAT GATACCGCTGTTTATTACTGCTCTACCGCACCTGGTGGTTTCGACGTTTGGGGCC AAGGTACTACAGTGACCGTATCATCA
4A11.H4L2 (IMT006c)	555	CAGGTGCAACTGGTCCAGTCTGGGGCCGAGGTCAAAAAGCCTGGAGCCTCCGT CAAAGTGTCATGTAAAGCCTCAGGGTATAGTTTCACCAACTACTATATACATTG GGTCAGACAAGCCCCAGGCCAGCGTCTTGAGTGGATGGGATGGATTTATCCCG GATCAGGGAATACAAACTATAACGAGAAATTTCAAGGCAGAGTTACTCTCACT GCCGATACCTCTGCAAGTACTACCTATATGGAGCTCTCCAGTCTCAGAAGCGAA GACACAGCAGTATATTACTGTAGCACCGCCCCAGGCGGGTTTGACGTGTGGGGC CAAGGCACTACTGTAACCGTTAGCTCA
4G2.2G6	556	CAAATACAGCTCGTGCAGTCTGGTCCCGATTTGAAGAAGCCTGGAGAAACCGT AAAGATAAGCTGTAAGGCTAGTGGTTACACTTTCACAACATACGTTATGTCATG GGTTAAACAGGCTCCTGGAAAAGACCTTAAATGGATGGGATGGATTAACACCC ATAGCGGTGTCCCAACTTACGCTGACGATTTTAAGGGACGATTTGACTTTTCTCT CGAAACTTCTGCCAACACAGCTTTTTTGCAGATCAACAATCTCAAGAATGAAGA CACCGCAACCTATTTCTGCACTCGAGATGGGAACGACGGGGATGCAATGGATA ACTGGGGACAAGGCACATCAGTTACCGTGAGCTCT
6B3.2D3	557	CAGGTGCAGCTGAAGCAGTCAGGACCTGGCCTAGTGCAGCCCTCACAGAGCCT GTCCATCACCTGCACAGTCTCTGGTTTCTCATTAACTAGTTATGGTGTACACTGG GTTCGCCAGCCTCCAGGAAAGGGTCTGGAGTGGCTGGGAGTGATATGGAGTGG TGGAAGCACAGACTATAATGCTGCTTTCATATCCAGACTGAGCATCAGTAAGGA CAACTCCAAGAGCCAAGTTTTCTTTAAAATGAACAGTCTGCAAGCTGATGACAC TGCCATATACTACTGTGCCAAAGGGCCTTATGATTACGACTTAGGCTGGTTTGC TTACTGGGGCCAAGGGACTCTGGTCACTGTCTCTGCA
6H6.2D6	558	CAGATCCAGCTGGTGCAGTCCGGCCCCGAGCTGAAGAAGCCCGGCGAGACTGT GAAGATCTCCTGCAAGGCCTCCGGCTACACCTTCACCACCTACGGCATGTCCTG GGTGAAGCAGGCCCCCGGCAAGGGCCTGAAGTGGATGGCCTGGATCAACACCT ACTCCGGCGTGCCCACCTACGCCGACGACTTCAAGGGCAGGTTCGCCTTCTCCC TGGAGACTTCCGCCTCCACCGCCTACCTGCAGATCAACAACCTGACCAACGAGG ACACCGCCACCTACTTCTGCGCCAGGGGCCCCTACGCCATGGACTACTGGGGCC AGGGCACCTCCGTGACCGTGTCCTCC
9H2.2H10	559	CAGGTCCAGCTGCAGCAGCCTGGGGCTGAACTGGTGGGGCCTGGGTCTTCAGTG AAGCTGTCCTGCAAGGCTTCTGGCTACACCTTCACCAACTACTGGATACATTGG GTGAAGCAGAGGCCTCTACAAGGCCTTGAATGGATTGGTAACATTGACCCTTCT GATAGTGAAACTCACTACAATCAAAAGTTCAAGGACAAGGCCACATTGACTGT AGACAAATCCTCCAGCACAGCCTACATGCAACTCAGCAGCCTGACATCTGAGG ACTCTGCGGTCTATTACTGTGCAAGACATGGTTACTACGACTACTGGGGCCAAG GCACCACTCTCACAGTCTCCTCA

FIG. 14 cont.

Antibody	SEQ ID NO:	V_H nucleic acid sequence
13G4.2F8	560	CAGGTCCAGCTGCAGCAGCCTGGGGCTGAGCTGGTAAAGCCTGGGGCTTCAGT GAAGTTGTCCTGCAAGGCTTCTGGCTACACTTTCACCAGCTACTGGATGCACTG GGTGAAGCAGAGGCCTGGACAAGGCCTTGAGTGGATTGGAATGATTCATCCTA ACAGTGGTAGTACTGACTACAATGAGAAGTTCAAGAACAAGGCCACACTGAAT GTAGACAAATCCTCCAGTACAGCCTACATACAACTCAGCAGCCTGACATCTGAG GACTCTGCGGTCTATTACTGTACAAGATGGGGGATTTATTACTACGCGAGGGAC TACTGGGGCCAAGGCACCACTCTCACAGTCTCCTCA
13H12.2F8	561	CAGATCCAGCTGGTCCAATCAGGACCCGAACTGAAAAAACCAGGCGAGACAGT CAAAATCAGCTGTAAGGCCTCAGGCTACACTTTCACAACCTACGGGATGTCATG GGTAAAGCAAGCTCCTGGCAAGGGGCTGAAATGGATGGGTTGGATCAACACAT ACTCTGGAGTGCCCACCTACGCTGACGACTTTAAGGGTAGATTCGCATTTAGCC TGGAAACAAGTGCCAGTACAGCCTACCTCCAGATAAACAACTTGAAAAACGAG GATACCGCAACCTATTTTTGCGCCGTCCCCTACGAGTACGACGGTGCCTATTGG GGTCAGGGTACACTCGTAACAGTTTCCGCC
15G7.2A7	562	GAGGTCCAGCTGCAACAATCTGGACCTGAGCTGGTGAAGCCTGGGGCTTCAGT GAAGATATCCTGTAAGGCTTCTGGATACACGTTCACTGACTACTACATGAACTG GGTGAAGCAGAGCCATGGAAAGAGCCTTGAGTGGATTGGAGATATTAATCCTA ACAATGGTGGTACTAACTACAACCAGAAGTTCAAGGGCAAGGCCACATTGACT GTAGACAAGTCCTCCAGCACAGCCTACATGGAGCTCCGCAGCCTGACATCTGAG GACTCTGCAGTCTATTACTGCACCTCAGGCTACGGGTTTCCTTACTGGGGCCAG GGGACTCTGGTCACTGTCTCTGCA
19D9.2E5	563	CAGATCCAGTTGGTACAGTCTGGACCTGAGCTGAAGAAGCCTGGAGAGACAGT CAAGATCTCCTGCAAGGCTTCTGGATATACCTTCACAACCTATGGAATGGGCTG GGTGAAACAGGCTCCAGGAAAGGGTTTGAAGTGGATGGGCTGGATAAACACCT ACTCTGGCGTGCCAACATATGCTGATGACTTCAAGGGACGGTTTGCCTTCTCTTT GGAAACCTCTACCAGCACTGCCTATTTGCAGATCAACAACCTCAAAAATGAGG ACATGGCTACATATTTCTGTGCAACCCCTTATGAATACGACGGGGCTTACTGGG GCCAAGGGACTCTGGTCACTGTCTCTGCA
23B10.2B12	564	CAGGTCCAGCTGCAGCAGTCTGGACCTGAACTGGTGAAGCCTGGGGATTCTGTG AAGATATCCTGCAAGGCTGCTGGCTACACCTTCAGTGACTATTATATAAACTGG GTGAAGCAGAGGCCTGGACAGGGACTTGAGTGGATTGGATGGATTTATCCTGT AAGCGTTAATACTAAGTACAATGAGAAGTTCAAGGGCAAGGCCACATTGACTG TAGACACATCCTCCAGCACAGCCTACATGCAGCTCAGCAGCCTGACCTCTGAGG ACTCTGGGGTCTATTTCTGTGCCTACCTTGATTATTGGGGCCAAGGGACTCTGGT CACTGTCTCTGCA
24D12.2H9	565	CAGGTGCAGCTGAAGCAGTCAGGACCTGGCCTAGTGCAGCCCTCACAGAGCCT GTCCATCACCTGCACAGTCTCTGGTTTCTCATTAACTAGCTATGGTGTACACTGG GTTCGCCAGGCTCCAGGAAAGGGTCTGGAATGGCTGGGAGTGATATGGAGTGG TGGAAGCACAGACTATAATGCTGCTTTCATGTCCAGACTGAGCATCAGCAAGGA CAACTCCAAGAGCCAAGTTTTCTTTAAAATGAACAGTCTGCAAGCTGATGACAC TGCCATATACTACTGTGCCAAAAGCCCTGATGGTTACGACGTCGCCTGGTTTGG TTACTGGGGCCAAGGGACTCTGGTCACTGTCTCTGCA
F846C.1B2	566	CAGATCCAGTTGGTGCAGTCTGGACCTGAGCTGAAGAAGCCTGGAGAGACAGT CAAGATCTCCTGCAAGGCTTCTGGGTATACCTTCACAAACTATGGAATGAATTG GGTGAAGCAGGCTCCAGGAAAGGGTTTAAAGTGGATGGGCTGGATAAACACCT ACACTGGAGAGCCATCATATGCTGATGACTTCAAGGGACGGTTTGCCTTCTCTT TGGAAACCTCTGCCAGCACTGCCTATTTGCAGATCAACAACCTCAAAAATGAGG ACATGGCTACATATTTCTGTGCAAGATGGGGGGGTTACGCTGGGGATTACTATG CTATGGACTTCTGGGGTCAAGGAACCTCAGTCACCGTCTCCTCA

FIG. 14 cont.

Antibody	SEQ ID NO:	V_H nucleic acid sequence
F846C.1F5	567	CAGATCCAGTTGGTGCAGTCTGGACCTGAGCTGAAGAAGCCTGGAGAGACAGT CAAGATCTCCTGCAAGGCTTCTGGGTATACCTTCACAAACTATGGAATGAACT GGGTGAAGCAGGCTCCAGGAAAGGGTTTAAAGTGGATGGGCTGGATAAACAC CTACACTGGAGAGCCATCATATGCTGATGACTTCAAGGGACGGTTTGCCTTCTC TTTGGAAACCTCTGCCAGCACTGCCTATTTGCAGATCAACAACCTCAAAAATG AGGACATGGCTACATATTTCTGTGCAAGATGGGGGGGTTACGATGGGGATTAC TATGCTATGGACTACTGGGGTCAAGGAACCTCAGTCACCGTCTCCTCA
F846C.1H12	568	CAGATCCAGTTGGTGCAGTCTGGACCTGAGCTGAAGAAGCCTGGAGAGACAGT CAAGATCTCCTGCAAGGCTTCTGGGTATACCTTCACAAACTTTGGAATGAACT GGGTGAAGCAGGCTCCAGGAAAGGGTTTAAAGTGGATGGGCTGGATAAACAC CTACACTGGAGAGCCATCATATGCTGATGACTTCAAGGGACGGTTTGCCTTCTC TTTGGAAACCTCTGCCAGCACTGCCTATTTGCAGATCAACAACCTCAAAAATG AGGACATTGCTACATATTTCTGTGCAAGATGGGGGGGTTACGCTGGGGATTAC TATGCTATGGACTACTGGGGTCAAGGAACCTCAGTCACCGTCTCCTCA
F846C.1H5	569	GAGGTCCAGCTGTTGGAGTCTGGGGGAGGCTTAGTGAAGCCTGGAGGGTCCCT GAAACTCTCCTGTGCAGCCTCTGGATTCACTTTCAGCAGCTATGCCATGTCTTG GGTTCGCCAGACTCCAGAGAAGAGGCTGGAGTGGGTCGCATCCATTAGTAGTG GTGGTGACACCTACTATCCAGACAGTGTGAAGGGCCGATTCACCATCTCTAGA GATAATGCCAGGAACATCCTGTACCTGCAAATGAGCAGTCTGAGGTCTGAGGA CACGGCCATGTATTACTGTGCAAGTTATGGTAACTCCCTCTTTGACTACTGGGG CCAAGGCACCACTCTCACAGTCTCCTCA
F846C.2H3	570	CAGATCCAGTTGGTGCAGTCTGGACCTGAGCTGAAGAAGCCTGGAGAGACAGT CAAGATCTCCTGCAAGGCTTCTGGGTATACCTTCACAAACTATGGAATGAACT GGGTGAAGCAGGCTCCAGGAAAGGGTTTAAAGTGGATGGGCTGGATAAACAC CTACACTGGAGAGCCATCATATGCTGATGACTTCAAGGGACGGTTTGCCTTCTC TTTGGAAACCTCTGCCAGCACTGCCTATTTGCAGATCAACAACCTCAAAAATG AGGACATGGCTACATATTTCTGTGCAAGATGGGGGGGTTACGATGGGGATTAC TATGCTATGGACTACTGGGGTCAAGGAACCTCAGTCACCGTCTCCTCA
F846TC.14A2	571	CAGATCCAGTTGGTGCAGTCTGGACCTGAGCTGAAGAAGCCTGGAGAGACAGT CAAGATCTCCTGCAAGGCTTCTGGGTATACCTTCACAAACTATGGAATGAACT GGGTGAAGCAGGCTCCAGGAAAGGGTTTAAAGTGGATGGGCTGGATAAACAC CTACACTGGAGAGCCAACATATGCTGGTGACCTCAAGGGACGGTTTGCCTTCT CTTTGGAAACCTCTGCCAGCACTGCCTATTTGCAGATCAACAACCTCAAAAAT GAGGACACGGCTACATATTTCTGTGTAAGATATACTATGGACTACTGGGGTCA AGGAACCTCAGTCACCGTCTCCTCA
F846TC.14E4	572	CAGGTTACTCTGAAAGAGTCTGGCCCTGGGATATTGCAGCCCTCCCAGACCCT CAGTCTGACTTGTTCTTTCTCTGGGTTTTCACTGAGCACTTCTGGTATGGGTGTA GGCTGGATTCGTCAGCCTTCAGGGAAGGGTCTGGAGTGGCTGGCACACATTTG GTGGGATGATGATAAGTACTATAACACAGCCCTGAAGAGCGGGCTCACAATCT CCAAGGATGCCTCCAAAAACCAGGTCTTCCTCAAGATCGCCAGTATGGACACT GCAGATACTGCCACATACTACTGTGCTCGAAACCTCTATGATGGTTCCTACGG GTACTATGCTATGGACTACTGGGGTCAAGGAACCTCAGTCACCGTCTCCTCA
F846TC.16B5	573	CAGATCCAGTTGGTGCAGTCTGGACCTGAGCTGAAGAAGCCTGGAGAGACAGT CAAGATCTCCTGCAAGGCTTCTGGGTATACCTTCACAAACTATGGAATGAACT GGGTGAAGCAGGCTCCAGGAAAGGGTTTAAAGTGGATGGGCTGGATAAACAC CTACACTGGAGAGCCAGCATATGCTGATGACTTCAAGGGACGGTTTGCCTTCT CTTTGGAAACCTCTGCCAGCACTGCCTATTTGCAGATCAACAACCTCAAAAAT GAGGACATGGCTACATATTTCTGTGCAAGATGGGGGGGTTACGATGGGGATTA CTATGCTATGGACTACTGGGGTCAAGGAACCTCAGTCACCGTCTCCTCA

FIG. 14 cont.

Antibody	SEQ ID NO:	V_H nucleic acid sequence
F846TC.7F10	574	GAAGTGCAGCTGGTGGAGTCTGGGGGAGACTTAGTGAAGCCTGGAGGGTCCCT GAAACTCTCCTGTGCAGCCTCTGGATTCACTTTCAGTAACTATGGCTTGTCTTG GATTCGCCAGACTCCAGACAAGAGGCTGGAGTGGGTCGCAACCATTAGTAGTG GTGGTAGTTACACCTACTATCCTGACAGTGTGAAGGGGCGATTCACCATCTCC AGAGACAGTGCCAAGAACACCCTGTACCTGCAAATGAGCAGTCTGAAGTCTGA GGACACAGCCATGTATTACTGTGCAAGACATGCGCATTACTACGGTGTTAGCC CGTACTACTTTGACTACTGGGGCCAAGGCACCTGTCTCACAGTCTCCTCA
F847C.10B9	575	CAGATCCAGTTGGTGCAGTCTGGACCTGAGGTGAAGAAGCCTGGAGAGACAG TCAAGATCTCCTGCAAGGCTTCTGGGTATATCTTCACAAACTATGGAATGAACT GGGTGAAGCAGGCTCCAGGAAAGGGTTTAAAGTGGATGGGCTGGATAAACAC CTACACTGGAGAGCCAACATATACTGATGACTTCAAGGGACGGTTTGCCTTCT CTTTGGAAACCTCTGCCAGCACTGCCTATTTGCAGATCAACAACCTCAAAAAT GAGGACACGGCTACATATTTCTGTGCAAAGTTTGGTAACTACGTGGGAGCTAT GGACTACTGGGGTCAAGGAACCTCAGTCACCGTCTCCTCA
F847C.11B1	576	GAGGTCCAGCTTCAGCAGTCTGGACCTGAGCTGGTGAAACCTGGGGCCTCAGT GAAGATATCCTGCAAGGCTTCTGGAAACACATTCACTGACCACAACATGCACT GGGTGAAGCAGAGCCATGGAAAGAGCCTTGAGTGGATTGGATATATTTATCCT TACAATGGTGGTACTGGCTACAACCAGAAGTTCAAGAGCAAGGCCACATTGAC TGTAGACAATTCCTCCAGCACAGTCTACATGGAGCTCCGCAGCCTGACATCTG AGGACTCTGCAGTCTATTACTGTGCAAGAGGGGAGTATGATTACCTGGCCTGG TTTGCTTACTGGGGCCAAGGGACTCTGGTCACTGTCTCTGCA
F847C.12F12	577	CAGATCCAGTTGGTGCAGTCTGGACCTGAGCTGAAGAAGCCTGGAGAGACAGT CAAGATCTCCTGCAAGGCTTCTGGGTATACCTTCACAAACTATGGAATGAACT GGGTGAAGCAGGCTCCAGGAAAGGGTTTAAAGTGGATGGGCTGGATAAACAC CTACACTGGAGAGCCAACATATGTTGATGACTTCAAGGGACGGTTTGCCTTCT CTTTGGAAACCTCTGCCAGCACTGCCTATTTGCGGATCAACAACCTCAAAAAT GAGGACACGGCTACATATTTCTGTGCAAAGTTTGGTAACTACGTGGGAGCTAT GGACTACTGGGGTCAAGGAACCTCAGTCACCGTCTCCTCA
F847C.26F5	578	CAGATCCAGTTGGTGCAGTCTGGACCTGAGGTGAAGAAGCCTGGAGAGACAG TCAAGATCTCCTGCAAGGCTTCTGGGTATATCTTCACAAACTATGGAATGAACT GGGTGAAGCAGGCTCCAGGAAAGGGTTTAAAGTGGATGGGCTGGATAAACAC CTACACTGGAGAGCCAACATATACTGATGACTTCAAGGGACGGTTTGCCTTCT CTTTGGAAACCTCTGCCAGCACTGCCTATTTGCAGATCAACAACCTCAAAAAT GAGGACACGGCTACATATTTCTGTGCAAAGTTTGGTAACTACGTGGGAGCTAT GGACTACTGGGGTCAAGGAACCTCAGTCACCGTCTCCTCA
F847C.4B10	579	GAGGTGCAGCTTGTTGAGACTGGGGGAGGCTTAGTGAAGCCTGGAGGGTCCCT GAAACTCTCCTGTGCAGCCTCTGGATTCACTTTCAGTAGCTATGCCATGTCTTG GGTTCGCCAGACTCCAGAGAAGAGGCTGGAGTGGGTCGCATCCATTAGTAGTG GTGGTAGCACCTACTATCCAGACAGTGTGAAGGGCCGATTCACCATCTCCAGA GATAATGCCAGGAACATCCTGTACCTGCAAATGAGCAGTCTGAGGTCTGAGGA CACGGCCATGTATTACTGTACAAGGTTTACTACGGTAGTAGAGATGGACTACT GGGGTCAAGGAACCTCAGTCACCGTCTCCTCA
F849C.8D10	580	CAGGTCCAACTGCAGCAGACTGGTGCTGAGCTTGTGAAGCCTGGGGCCTCAGT GAAGCTGTCCTGCAAGGCTTCTGGCTATACTTTCACCAGCTACTGGATAAACTG GGTGAAGCAGAGGCCTGGACAAGGCCTTGAGTGGATTGGAAACATTTATCCTG GTAGTAGTAGTATTTACTACAGTGAGAAGTTCAAGAGTAAGGCCACACTGACT GTAGACACATCCTCCAGCACAGCCTACATGCAGCTCAGCAGCCTGACATCTGA CGACTCTGCGGTCTATTATTGTGCAAGATGGGGCTACTGGGGCCAAGGCACCA CTCTCACAGTCTCCTCA

FIG. 14 cont.

Antibody	SEQ ID NO:	V_H nucleic acid sequence
F849C.8H3	581	CAGGTTACTCTGAAAGAGTCTGGCCCTGGGATATTGCAGCCCTCCCAGACCCTC AGTCTGACTTGTTCTTTCTCTGGGTTTTCACTGAGCACTTTTGGTATGGGTGTAG GCTGGATTCGTCAGCCTTCAGGGAAGGGTCTGGAGTGGCTGGCACACATTTGGT GGGATGATGATAAACACTATAACCCAGCCCTGAAGAGCCGGCTCACAATCTCC AAGGATACCTCCAAAAACCAGGTCTTCCTCAGGATCGCCAATGTGGACACTGCA GATAATGCCACATATTACTGTGCTCGAATCGACTATGGTGACTACGTCGGGTTT GCTTATTGGGGCCAAGGGACTCTGGTCACTGTCTCTGCA
846.2B11	582	CAGGTCCAGCTACAGCAGTCTGGACCTGAGCTGGTGAGGCCTGGGGCTTTAGTG AAGATTTCCTGCAAGGCTTCTGGTTACACCTTCACAAGCTACGATATAAACTGG GTGAAGCAGAGGCCTGGACAGGGACTTGAGTGGATTGGATGGATTTATCCTGG AGATGGTAGTACTAAATATAATGAGAAATTCAAGGGCAAGGCCACACTGACTG CAGACAAATCCTCCAGCACAGCCTACATGCAGCTCAGCAGCCTGACTTCTGAGA ACTCTGCAGTCTATTTCTGTGCAAGAGAGGCGGCTTCTAATGCTATGGACTACT GGGGTCAAGGAACCTCAGTCACCGTCTCCTCA
846.4D5	583	GAAGTGAAGCTTGAGGAGTCTGGAGGAGGCTTGGTGCAACCTGGAGGATCCAT GAAACTCTCCTGTGTTGCCTCTGGATTCACTTTCAGTAACTACTGGATGAACTGG GTCCGCCAGTCTCCAGAGAAGGGGCTTGAGTGGGTTGCTGAAATTAGATTGAA ATCTAATAATTATGCAACACATTATGCGGAGTCTGTGAAAGGGAGGTTCACCAT CTCAAGAGATGATTCCAAAAGTAGTGTCTACCTGCAAATGAACAACTTAAGAG CTGAAGACACTGGCATTTATTACTGTACCAGGCACTACGGCTTTCCCTACTGGT ACTTCGATGTCTGGGGCGCAGGGACCACGGTCACCGTCTCCTCA
846T.1H2	584	CAGATCCAGTTGGTGCAGTCTGGACCTGAGCTGAAGAAGCCTGGAGAGACAGT CAAGATCTCCTGCAAGGCTTCTGGGTATACCTTCACAAACTATGGAATGAACTG GGTGAAGCAGGCTCCAGGAAAGGGTTTAAAGTGGATGGGCTGGATAAACACCA ACACTGGAGAGCCAACATATGCTGAAGAGTTCAAGGGACGGTTTGCCTTCTCTT TGGAAACCTCTGCCAGCACTGCCTATTTGCAGATCAACAACCTCAAAAATGAGG ACACGGCTACATATTTCTGTGCAACCGGGGGGGGTAACTGGGACTTTGACTACT GGGGCCAAGGCACCACTCTCACAGTCTCCTCA
847.14H4	585	CAGATCCAGTTGGTGCAGTCTGGACCTGAACTGACGAAGCCTGGAGAGACAGT CAAGATCTCCTGTAAGGCTTCTGGCTATACCTTCACAGACTATGGAATGAACTG GGTGAGGCAGGCTCCAGGAGAGACTTTAAAGTGGATGGGCTGGATAAACACCT ACACTGGAGAGCCAACATATGCTGATGACTTCAAGGGGCGGTTTGCCTTCTCTT TGGAATCCTCTGCCAGCACTGCCTATTTGCAGATCAACAACCTCAAAAATGAGG ACGTGGCTACATATTTCTGTGCAAGATACCCTATGGACTACTGGGGTCAAGGAA CCTCAGTCACCGTCTCCTCA
846.2D4	586	GAAGTGAAGCTTGAGGAGTCTGGAGGAGGCTTGGTGCAACCTGGAGGATCCAT GAAACTCTCCTGTGTTGCCTCTGGATTCACTTTCAGTAACTACTGGATGAACTGG GTCCGCCAGTCTCCAGAGAAGGGGCTTGAGTGGGTTGCTGAACTTAGATTGAAA TCTAATAATTATGCAACACATTATGCGGAGTCTGTGAAAGGGAGGTTCACCATC TCAAGAGATGATTCCAAAAGTAGTGTCTACCTGCAAATGAACAACTTAAGAGCT GAAGACACTGGCATTTATTACTGTACCAGGCACTACGGCTTTCCCTACTGGTAC TTCGATGTCTGGGGCGCAGGGACCACGGTCACCGTCTCCTCA
846.2F11	587	GAGGTCCAGCTGCAGCAGTCTGGACCTGAGCTGGTGAAGCCTGGGGCTTCAGT GAAGATGTCCTGCAAGGCTTCTGGATACACATTCACTAGCTATGTTATGCACTG GGTGAAGCAGAAGCCTGGGCAGGGCCTTGAGTGGATTGGATATATTAATCCTTA CAATGATGGTACTAAGTACAATGAGAAGTTCAAAGGCAAGGCCACACTGACTT CAGACAAATCCTCCAGCACAGCCTACATGGAGCTCAGCAGCCTGACCTCTGAG GACTCTGCGGTCTATTACTGTGCAAGATTACTTTTTTACTATGCTATGGACTACT GGGGTCAAGGAACCTCAGTCACCGTCTCCTCA

FIG. 14 cont.

Antibody	SEQ ID NO:	V_H nucleic acid sequence
846T.10B1	588	CAGGTTCAGCTGCAGCAGTCTGGACCTGAGCTGGTGAGGCCTGGGGCTTTAGTG AAGATTTCCTGCAAGGCTTCTGGTTACACCTTCACAAGCTACGATATAAACTGG GTGAAGCAGAGGCCTGGACAGGGACTTGAGTGGATTGGATGGATTTATCCTGG AGATGGTAGTACTAAATACAATGAGAAATTCAAGGGCAAGGCCACACTGACTG CAGACAAATCCTCCAGCACAGTTTACATGCAGCTCAGCAGCCTGACTTCTGAGA ACTCTGCAGTCTATTTCTGTGCTAGAGAGGCGGCTTCTAATGCCATGGACTACT GGGGTCAAGGAACCTCAGTCACCGTCTCCTCA
846T.2E3	589	CAGGTCCAGCTGCAGCAGTCTGGACCTGAGCTGGTGAAGCCTGGGGCTTTAGTG AAGATATCCTGCAAGGCTTCTGGTTACACCTTCACAAGCTACGATATAAACTGG GTGAAGCAGAGGCCTGGACAGGGACTTGAGTGGATTGGATGGATTTATCCTGG AGATGGTAGTACTAAGTACAATGAGAAATTCAAGGGCAAGGCCGCACTGACTG CAGACAAGTCCTCCAGCACAGCCTACATGCAGCTCAGCAGCCTGACTTCTGAGA ACTCTGCAGTCTATTTCTGTGCAAGAGAGGCGGCTTCTAATGCTATGGACTACT GGGGTCAAGGAACCTCAGTCACCGTCTCCTCA
846T.4C9	590	GAGGTCCAGCTGCAGCAGTCTGGACCTGAGCTGGTAAAGCCTGGGGCTTCAGT GAAGATGTCCTGCAAGGCTTCTGGATACTCATTCACTAACTATATTATGCACTG GGTGAAGCAGAAGCCTGGGCAGGGCCTTGAGTGGATTGGATATATTAATCCTTA CAATGATGGTACTAAGTACAATGAGAAGTTCAAAGGCAAGGCCACACTGACTT CAGACAAATCCTCCAGCACAGCCTACATGGAGCTCAGCAGCCTGACCTCTGAG GACTCTGCGGTCTATTACTGTGCAAGATTACTTTTTTACTATGCTATGGACTACT GGGGTCAAGGAACCTCAGTCACCGTCTCCTCA
846T.4E11	591	CAGGTTCAGCTGCAGCAGTCTGGAGCTGAACTGGTAAAGCCTGGGGCTTCAGTG AAGTTGTCCTGCAAGGCTTCTGGCTACACCTTCAGAAGCTATGATATAAACTGG GTGAGGCAGAGGCCTGAACAGGGACTTGAGTGGATTGGATGGATTTTTCCTGG AGAAGGTATTTCTAAGTACAATGAGAAGTTCAAGGGCAAGGCCACACTGACTA CAGACAAATTGTCCAGCACAGCCTACATGCAGCTCAGCAGCCTGACATCTGAG GACTCTGCTGTCTATTTCTGTGCAAGAGAGGCTACGGCTGGGGCTATGGACTAC TGGGGTCAAGGAACCTCAGTCACCGTCTCCTCA
846T.4F5	592	GAGGTGAAGCTTCTCGAGTCTGGAGGAGGCTTGGTGCAACCTGGAGGATCCAT GAAACTCTCCTGTGTTGCCTCTGGATTCACTTTCAGTAACTTCTGGATGAACTGG GTCCGCCAGTCTCCAGAGAAGGGGCTTGAGTGGGTTGCTGAAATTAGATTGAA ATCTAATAATTATGCAACACATTATGCGGAGTCTGTGAAAGGGAGGTTCACCAT CTCAAGAGATGATTCCAAAAGTAGTGTCTACCTGCAAATGAACAACTTAAGAG CTGAAGACACTGGCATTTATTACTGTACCAGGCACTACGGCTTTCCCTACTGGT ACTTCGATGTCTGGGGCGCAGGGACCACGGTCACCGTCTCCTCA
846T.8D1	593	CAGATTCAGTTGCAGCAGTCTGGAGCTGAACTGGTAAAGCCTGGGGCTTCAGTG AAGTTGTCCTGCAAGGCTTCTGGCTACACCTTCACAAGCTATGATATATGCTGG GTGAGGCAGAGGCCTGAGCAGGGACTTGAGTGGATTGGATGGATTTTTCCTGG AGATGGTACTACTAAGTACACTGAGAACTTCAAGGGCAAGGCCACACTGACTA CAGACAAATCCTCCAGCACAGCCTACATGCACCTCAGCAGGCTGACATCTGAG GACTCTGCTGTCTATTTCTGTGCAAGGGAGGGGGCGGGCTCCTGGTTTGCTTAC TGGGGCCAAGGGACTCTGGTCACTGTCTCTGCA
847.10C9	594	GAGGTTCAGCTGCAGCAGTCTGGAGCTGAGCTGGTGCGGCCTGGGACTTCAGTG AAGGTGTCCTGCAAGGCTTCGGAATACGCCTTCAATAATTACATGATGGAATGG GTAAAACAGAGGCCTGGACAGGGCCTTGAGTGGATTGGAGTGATTAATCCCGG AAGTGGTGCTACTAATTACAATGAGAATTTCAAGGACAAGGCAACACTGACTG CAGACAAATCCTCCACCACTGCCTACATGCAGCTCAGCAGCCTGACATCTGATG ACTCTGCGGTCTATTTCTGTACCTACAATGATCTTGGTTACTGGGGCCAAGGGA CTCTGGTCACTGTCTCTGCA

FIG. 14 cont.

Antibody	SEQ ID NO:	V_H nucleic acid sequence
847.11D6	595	GAGGTCAAGCTGCAGCAGTCTGGACCTGAGCTGATGAAGCCTGGAACTTCAAT GAAGATATCCTGTAAGGCTTCTGGTTACTCATTCACCGGCTACACCATGAACTG GGTGAAGCAGAGCCATGGAAAGAACCTTGAGTGGATTGGACTTATTAATCCTTA CAATGGTGGTACTAACTACAACCAGAAGTTCAGGGGCAAGGCCACATTAAGTG TAGACAAGTCATCCAACACAGCCTACATGGAGCTCCTCAGTCTGACATCTGAAG ACTCTGCAGTCTATTACTGTGCAAGAAAGGACGATTATTACGGAAGTAGTCCCT ATGCTCTGGACTACTGGGGTCAAGGAACCTCAGTCACCGTCTCCTCA
847.15D12	596	CAGGTCCAGCTGCAGCAGTCTGGAGCTGAGCTGATGAAGCCTGGGGCCTCAGT GAAGATATCCTGCAAGGCTACTGGCTACACATTCACTAACTACTGGATAGAGTG GGTAAAGCAGAGGCCTGGACATGGCCTTGAATGGATTGGAGAATTTTTACCTGG AGATGGCAGTAGTCACTACAATGAGAAGTTCAAGGGCAAGGCCACATTCACTT CAGATACATCCTCCAACACAGCCTACATACACCTCACCAGCCTGACATCTGAGG ACTCTGCCGTCTATTACTGTGTAAGAGATGACTACGACAGTGACTACTGGGCCC AAGGCACCACTCTCACAGTCTCCTCA
847.15F9	597	CAGGTGCAGATGAAGCAGTCAGGACCTGGCCTAGTGCAGCCCTCACAGAGCCT GTCCATCACCTGCACAGTCTCTGGTTTCTCATTAATCAACTATGGTGTACACTGG GTTCGCCAATCTCCAGGAAAGGGTCTGGAGTGGCTGGGAGTGATATGGAGTGG TGGAAGCACAGACTATAATGCAGCTTTCATATCCAGACTGAGCATCAGCAAGG ACAATTCCAAGAGCCAAGTTTTCTTTAAAATGAACAGTCTGCAAGCTGATGACA CAGCCATATATTACTGTGCCAGAATTTATTACTACGGTAGGGGCTATGCTATGG ACTACTGGGGTCAAGGAACCTCAGTCACCGTCTCCTCA
847.15H11	598	GAGGTCCAGCTTCAGCAGTCTGGGGCTGAAGTTGTGAAGCCTGGGGCTCCAGTG AAGCTGTCCTGCAAGGCTTCTGGCTACACCTTCAACAACTACTGGCTGAACTGG GTGAAACAGCGGCCTGGACGAGGCCTCGAGTGGATTGGAAGGATTGATCCTTC CGATAGTGAAACTCACTACAATCAAAAGTTCAAGGACAAGGCCACACTGACTG TAGACATGTCCTCCAGCACAGCCTACATCCAACTCAGCAGCCTGACATCTGAGG ACTCTGCGGTCTATTACTGTGCAAGAGGGGATTATTATTACGGTACTAGGGGTC CTATGGACTACTGGGGTCAAGGCACCTCAGTCACCGTCTCCTCA
847.20H7	599	CAGGTCCAGCTGCAGCAGTCTGGGGCTGAGCTGGTGAGGCCTGGGGCTTCAGT GAACCTGTCCTGCAAGGCTTCTGGCTACACCTTCACCAACTACTGGATGAACTG GGTGAAGCAGAGGCCTGGACAAGGCCTTGAATGGGTTGGTATGATTGATCCTTC AGACAGTGAAACTCACTACAATCAAATGTTCAAGGACAAGGCCACATTGACTA TAGACAAATCTTCCAGCATAGCCTACATGCAGCTCAGCAGCCTGACATCTGAGG ACTCTGCGGTCTATTACTGTGCAAGATGGGGTGCTATGGACTACTGGGGTCAAG GAACCTCAGTCACCGTCTCCTCA
847.21B11	600	CAGGTGCAACTGAAGCAGTCAGGACCTGGCCTGGTGGCGCCCTCACAGAGCCT GTCCATCACTTGCACTGTCTCTGGATTTTCATTAACCAGCTATGGTGTACACTGG GTTCGCCAGCCTCCAGGAAAGGGTCTGGAGTGGCTGGGAATAATATGGGCTGG TGGAAGCACAAATTATAATCCGGCTCTCATGTCCAGACTGAGCATCAGCAAAG ACAAATCCAAGAGCCAAGTTTTCTTAAAAATGAACAGTCTGAAAACTGATGAC ACAGCCATGTACTACTGTGCCAGAGATCGGGCTTCATTACTACGGCCGGGGGCT ATGGACTACTGGGGTCAAGGAACCTCAGTCACCGTCTCCTCA
847.27B9	601	CAGATCCAGTTGGTGCAGTCTGGACCTGAGCTGAAGAAGCCTGGAGAGACAGT CAAGATCTCCTGCAAGGCTTCTGGGTATACCTTCACAAACTATGGAATGAACTG GGTGAAGCAGGCTCCAGGAAAGGGTTTAAAGTGGATGGGCTGGATAAACACCA ACACTGGAGAGCCAACATATGCTGAAGAGTTCAAGGGACGGTTTGCCTTCTCTT TGGAGACCTCTGCCAGCACTGCCTATTTGCAGATCAACTACCTCAAAAATGAGG ACACGGCTACATTTTTCTGTGCAAGATTGGACTATGATTACGACGAGGACTACT GGGGCCAAGGCACCACTCTCACAGTCTCCTCA

FIG. 14 cont.

Antibody	SEQ ID NO:	V_H nucleic acid sequence
847.28D1	602	CAGGTGCAGCTTGTAGAGACCGGACCTGGCCTGGTGGCGCCCTCACAGAGCCT GTCCATCACTTGCACTGTCTCTGGGTTTTCATTAACCAGCTATGGTGTACACTGG ATTCGTCAGTCTCCAGGAAAGGGTCTGGAGTGGCTGGGAACTATATGGGCTGGT GGAAGCACAGATTATAATTCGCCACTCATGTCCAGACTGAGCATCAGCAAAGA CAACTCCAAGAACCAAGTTTTTTTAAAAATGAATAGTCTGCAGATTGATGACAC AGCCATATATTATTGTGCCAGTCCTCCTTCTGGGTATGATTACGACGTGTTTGCT TCCTGGGGCCAAGGGACTCTGGTCACTGTCTCTGCA
847.2B8	603	CAGGTACAACTGAAGCAGTCAGGACCTGGCCTAGTGCAGCCCTCACAGAGCCT GTCCATCACCTGCACAGTCTCTGGTTTCTCATTAATCAACTATGGTGTACACTGG GTTCGCCAATCTCCAGGAAAGGGTCTGGAGTGGCTGGGAGTGATATGGAGTGG TGGAAGCACAGACTATAATGCAGCTTTCATATCCAGACTGAGCATCAGCAAGG ACAATTCCAAGAGCCAAGTTTTCTTTAAAATGAACAGTCTGCAAGCTGATGACA CAGCCATATATTACTGTGCCAGAATTTATTACTACGGTAGGGGCTATGCTATGG ACTACTGGGGTCAAGGAACCTCAGTCACCGTCTCCTCA
847.3B3	604	CAGGTGCAGCTGAAGGAGTCAGGACCTGGCCTGGTGGCGCCCTCACAGAGCCT GTCCATCACTTGCACTGTCTCTGGGTTTTCATTAACCAGCTATGGTGTACACTGG ATTCGCCAGCCTCCAGGAAAGGGTCTGGAGTGGCTGGGAGGAATATGGGCTGG TGGAAGTACAGATTACAATTCGCCTCTCATGTCCCGACTGAGTATCACTAAAGA CAACTCCAAGAGCCAAGTTTTCTTAAAAATGAACAGTCTGCAAAGTGATGACAC AGCCATGTACTACTGTGCCAGTCCTCCCTCTGGGTATGATTACGACGTGTTTGCT TACTGGGGCCAAGGGACTCTGGTCACTGTCTCTGCA
849.1D2	605	CAGGTGCAGCTGAAGGAGTCAGGACCTGTCCTGGTGGCGCCCTCACAGAGCCT GTCCATCACTTGCACTGTCTCTGGGTTTTCATTAAGCAGCTATGGTGTACACTGG GTTCGCCAGCCTCCAGGAAAGGGTCTGGAGTGGCTGGGAGTAATATGGGCTGG TGGAAGCACAGATTATGATTCAGCTCTCATGTCCAGACTGAGCATCAGCAAAGA CAACTCCAAGAGCCAAGTTTTCTTAAAAATGGACAGTCTGCAAACTGATGACAC AGCCATGTACTACTGTGCCAAACCCCCATATGATTACGACGGGGCCTGGTTTGC TTACTGGGGCCAAGGGACTCTGGTCACTGTCTCTGCA
849.2D7	606	CAGGTGCAACTGCAGCAGTCTGGGCCTCAGCTGGTTAGGCCTGGGGCTTCAGTG AAGATATCCTGCAAGGCTTCTGGTTACTCATTCACCAACTACTGGATGCACTGG GTGAAGCAGAGGCCTGGACAAGGTCTTGAGTGGATTGGCATGATTGATCCTTCC GATAGTGAAACTAGGTTAAATCAGAAGTTCAAGGACAAGGCCACATTGACTGT AGACAAATCCTCCAGCACAGCCTACATGCAACTCAGCAGCCCGACATCTGAGG ACTCTGCGGTCTATTACTGTGCAACGGGGAGACCCGACTACTGGGGCCAAGGC ACCACTCTCACAGTCTCCTCA
849.2F12	607	CAGGTGCAACTGCAGCAGTCTGGGCCTCAGCTGGTTAGGCCTGGGGCTTCAGTG AAGATATCCTGCAAGGCTTCTGGTTACTCATTCACCAGCTACTGGATGCACTGG GTGAAGCAGAGGCCTGGACAAGGTCTTGAGTGGATTGGCATGATTGATCCTTCC GATAGTGAAACTAGGTTAAATCAGAAGTTCAAGGACAAGGCCACATTGACTGT AGACAAATCCTCCAGCACAGCCTACATGCAACTCAGCAGCCCGACATCTGAGG ACTCTATAGTCTATTACTGTGCAAAGGGGAGACCCGACTACTGGGGCCAAGGC ACCACTCTCACAGTCTCCTCA
849.4B2	608	GATGGAAAACTTCAGGAGTCAGGACCTGGCCTCGTGAAACCTTCTCAGTCTCTG TCTCTCACCTGCTCTGTCACTGGCTACTCCATCACCAGTGGTTATTACTGGAACT GGATCCGGCAGTTTCCAGGAAACAAACTGGAATGGATGGGCCACATAAGCTAC GATGGTAGAAATAACTACAACCCATCTCTCAAAAATCGAATCTCCATCACTCGT GACACATCTAAGAACCAGTTTTTCCTGAAGTTGAATTCTGTGACTACTGAGGAC ACAGCCACATATTACTGTGCAGGCTATGATTTCCTCTGGTACTTCGATGTCTGGG GCACAGGGACCACGGTCACCGTCTCCTCA

FIG. 14 cont.

Antibody	SEQ ID NO:	V_H nucleic acid sequence
849.4F12	609	CAGGTGCAGCTGAAGGAGTCTGGCCCTGGGATATTGCAGCCCTCCCAGACCCTC AGTCTGACTTGTTCTTTCTCTGGGTTTTCACTGAGCACTTTTGGTATGGGTGTAG GCTGGATTCGTCAGCCTTCAGGGAAGGGTCTGGAGTGGCTGGCACACATTTGGT GGGATGATGATAAACACTATAACCCAGCCCTGAAGAGCCGGCTCACAATCTCC AAGGATACCTCCAAAAACCAGGTCTTCCTCAGGATCGCCAATGTGGACACTGCA GATAATGCCACATATTACTGTGCTCGAATCGACTATGGTGACTACGTCGGGTTT GCTTATTGGGGCCAAGGGACTCTGGTCACTGTCTCTGCA
849.4F2	610	GATGGACAGCTTCAGGAGTCAGGACCTGGCCTCGTGAAACCTTCTCAGTCTCTG TCTCTCACCTGCTCTGTCACTGGCTACTCCATCACCAGTGGTTATTACTGGAACT GGATCCGGCAGTTTCCAGGAAACAAACTGGAATGGATGGGCCACATAAGCTAC GATGGTAGAAATAACTACAACCCATCTCTCAAAAATCGAATCTCCATCACTCGT GACACATCTAAGAACCAGTTTTTCCTGAAGTTGAATTCTGTGACTACTGAGGAC ACAGCCACATATTACTGTGCAGGCTATGATTTCCTCTGGTACTTCGATGTCTGGG GCACAGGGACCACGGTCACCGTCTCCTCA
849.5C2	611	GAGGTTCAGCTGCAGCAGTCTGGGGCAGAGCTTGTGAAGTCAGGGGCCTCAGT CAAGTTGTCCTGCACAGCTTCTGGCTTCAACATTAAAGACTACTATATGCACTG GGTGAAGCAGAGGACTGAACAGGGCCTGGAGTGGATTGGAAGGATTTATCCTG AGGATGATGAAACTAAATATGCCCCGAAATTCCAGGGCAAGGCCACTATAACA GCAGACACATCCTCCAACACAGCCTACCTGCAGCTCAGCAGCCTGACATCTGAG GACACTGCCGTCTATTACTGTGCTAGATCAGGGGGTTACTACGTTTGGTTTGCTT ACTGGGGCCAAGGGACTCTGGTCACTGTCTCTGCA
849.8D12	612	GAGGTCCAGCTACAACAGTCTGGACCTGAGCTGGTGAAGCCTGGGTCTTCAGTG AAGATATCCTGCAAGGCTTCTAGATACACATTCACTGACTACAACATGGACTGG GTGAAGCAGAGCCATGGAAAGAGACTTGAGTGGATTGGATATATTTATCCTAA CAATGGTGGTACTGGCTACAACCAGAAGTTCAAGGGCAAGGCCACATTGACTG TAGACAAGTCCTCCAGCACAGCCTACATGGAGCTCCGCAGCCTGACATCTGAGG ACTCTGCAGTCTATTACTGTGCAAGGTCCTACTACGATGGTAGCTACGATGCTA TGGACTACTGGGGTCAAGGAACCTCAGTCACCGTCTCCTCA
F847C.21H6	613	CAGATCCAGTTGGTGCAGTCTGGACCTGAGCTGAAGAAGCCTGGAGAGACAGT CAAGATCTCCTGCAAGGCTTCTGGGTATACCTTCACAATCTTTGGAATGAACTG GGTGAAGCAGGCTCCAGGAAAGGGTTTAAAGTGGATGGGCTGGGTAAACACCT ACACTGGAGAGCCAACATATGCTGATGACTTCAAGGGACGGTTTGCCTTCTCTT TGGAAACCTCTGCCAGCACTGCCTATTTGCAGATCAACAACCTCAAAAATGAGG ACACGGCTACATATTTCTGTGCAAGAGGCTGGTTTGCTTACTGGGGCCAAGGGA CTCTGGTCACTGTCTCTGCA
849.5H1	614	CAGGTGCAGCTGAAGGAGTCAGGACCTGTCCTGGTGGCGCCCTCACAGAGCCT GTCCATCACTTGCACTGTCTCTGGGTTTTCATTAACCAGTTATGGTATACACTGG GTTCGCCAGCCTCCAGGAAAGGGTCTGGAGTGGCTGGGAGTAATATGGGCTGG TGGAAGCACAAATTATAATTCAGCTCTCATGTCCAGACTGAGCATCAGCAAAGA CAACTCCAAGAGCCAAGTTTTCTTAAAAATGAACAGTCTGCAAATTGATGACAC AGCCATGTACTATTGTGCCAAACCCCCCCATGATTACGACCAGGCCTGGTTTGC TTACTGGGGCCAAGGGACTCTGATCACTGTCTCTGCA
847.23F11	615	CAGGTCCAGCTGCAGCAGTCTGGGGCTGAGCTGGTGAGGCCTGGGGCTTCAGT GAAGCTGTCCTGCAAGGCTTCTGGCTACACCTTCACCAGCTCCTGGATGAACTG GGTGAAACAGAGGCCTGGACAAGGCCTTGACTGGATTGGTATGATTGATCCTTC AGACAGTGAAACTCACTACAATCAAATGTTCAAGGACAAGGCCACATTGACTG TAGACAAATCCTCTAACACAGCCTACATGCAGCTCAGCAGGCTGACATCTGAGG ACTCAGCGGTCTATTACTGTGTAAATAGTAACTACGAGAGTGGCTATTGGGGCC AAGGCACCACTCTCACAGTCTCCTCA

FIG. 14 cont.

Antibody	SEQ ID NO:	V_H nucleic acid sequence
847.16D10	616	CAGGTCCAGCTGCAGCAGTCTGGGGCTGAGCTGGTGAGGCCTGGGGCTTCAGT GAAGCTGTCCTGCAAGGCTTCTGGCTACACCTTCACCGGCTACTGGTTGAACTG GGTGAAGCAGAGGCCTGGACAAGGCCTGGAATGGATTGGTATGATTGATCCTT CAGACAGTGAAACTCACTACAATCAAGTGTTCAAGGACAAGGCCACAATGACT GTAGACAGGTCCTCCAGCACAGCCTACATGCAGCTCAGCGGACTGACATCTGA GGACTCTGCGGTCTATTACTGTGCAAATAGTAACTACGCGAGTGGCTCCTGGGG CCAGGGCACCACTCTCACAGTCTCCTCA
847.13E2-mH0mL1	617	GAGGTCCAGCTTCAGCAGTCTGGACCTGAGCTGGTGAAGCCTGGGGCTTCAGTG AAGGTTTCCTGCAAGGCTTCTGGTTACTCATTCACTGACTACAACATGTACTGG GTGATGCAGAGCCATGGAAAGAGCCTTGAGTGGATTGGATATATTGATCCTTAC AATGATGCTACTAGCTACAGCCAGAAGTTCACGGGCAAGGCCACATTGACTGTT GACAAGTCCTCCAGCACAGCCTTCATGCATCTCAACAGCCTGACATCTGAGGAC TCTGCAGTCTATTACTGTGCAAGATGGGGGAGGTACGAATACTATGCTATGGAC TATTGGGGTCAAGGAACCTCAGTCACCGTCTCCTCA
847.13E2-mH0mL2	618	GAGGTCCAGCTTCAGCAGTCTGGACCTGAGCTGGTGAAGCCTGGGGCTTCAGTG AAGGTTTCCTGCAAGGCTTCTGGTTACTCATTCACTGACTACAACATGTACTGG GTGATGCAGAGCCATGGAAAGAGCCTTGAGTGGATTGGATATATTGATCCTTAC AATGATGCTACTAGCTACAGCCAGAAGTTCACGGGCAAGGCCACATTGACTGTT GACAAGTCCTCCAGCACAGCCTTCATGCATCTCAACAGCCTGACATCTGAGGAC TCTGCAGTCTATTACTGTGCAAGATGGGGGAGGTACGAATACTATGCTATGGAC TATTGGGGTCAAGGAACCTCAGTCACCGTCTCCTCA
847.12C4	619	CAGGTACAGCTGAAGGAGTCAGGACCTGACCTTGTGCAGCCCTCACAGACCCT GTCTCTCACCTGCACTGTCTCTGGGTTCTCATTAACCATCTATGGTGTTCACTGG GTTCGCCAGCCTCCAGGAAAGGGACTGGAGTGGGTGGGAACAGTGGCCTGGGA TGACAAAAAATATTATAATTCACCTCTACAATCTCGACTGAGCATCAGCAGGGA TACCTCCAAGAACCAAGTTTTCTTAAAACTGAGCAGTCTGCAAACTGAAGACAC AGCCATGTACTACTGTACTATGACTGGGGGCCCTATAAACTACTGGGGTCCAGG AACCTCAGTCACCGTCTCCTCA
847.4D3	620	GAGGTGCAGCTGGTGGAGTCTGGGGGAGGCTTAGTGAAGCCTGGAGGGTCCCT GAAACTCTCCTGTGCAGCCTCTGGATTCACTTTCAGTAGCTATGCCATGTCTTGG GTTCGCCAGACTCCAGAGAAGAGGCTGGAGTGGGTCGCATCCATTAGTAGTGG TGATAGCCCCTACTATCCAGACAGTGTGAAGGGCCGCTTCACCATCTCCAGAGA TAATGCCAGGAACATCCTGTACCTGCAAATGAGCAGTCTGAGGTCTGAGGACA CGGCCATGTATTACTGTACAAGGTTTACTACGGTAGTAGAGATGGACTACTGGG GTCAAGGAACCTCAGTCACCGTCTCCTCA
2D10.2B2 (murine; mIgG2A (LALAPG))	797	CAGGTCCAGCTGCAGCAGTCTGGACCTGAGCTGGTGAAGCCTGGGGCTTCAGTG AAGATATCCTGCAAGGCTTCTGGCTACACCTTCACTGACTACTATATAAACTGG GTGAAGCAGAGGCCTGGACAGGGACTTGAGTGGATTGGATGGATTTATCCTGG AAGCAATGATACCAAGTACAATGAGAAGTTCAAGGGCAAGGCCACATTGACTG TAGACACATCCTCCAGCACGGCCTACATGCAGCTCGGCAGCCTGACCTCTGAGG ACTCTGCGGTCTATTTCTGTGCGAATTACTTCGGTTGTAGCGGGTGGTTCTTCGA TGTCTGGGGCACAGGGACCACAGTCACCGTCTCCTCA
2D10-hVH4-HVL1	866	CAGGTACAGTTGGTTCAATCTGGGGCTGAGGTGAAAAAGCCAGGGGCCTCCGT TAAGGTAAGCTGCAAGGCAAGCGGCTACACATTTACAGACTATTATATCAACTG GGTGAGGCAAGCTCCTGGCCAGCGGCTTGAGTGGATGGGGTGGATCTATCCGG GGAGTCAAGACACCAAATATAATGAGAAGTTCCAGGGACGGGTGACCCTTACA GTAGACACGTCTGCAAGCACTGCCTACATGGAGTTGTCATCCCTCCGCTCTGAA GATACTGCCGTCTACTTTTGCGCTAATTACTTCGGAAGCAGCGGGTGGTTCTTCG ACGTTTGGGGCCAGGGAACTATGGTCACAGTGTCATCA

FIG. 14 cont.

Antibody	SEQ ID NO:	V_H nucleic acid sequence
2D10-hVH4-HVL2	867	CAGGTACAGTTGGTTCAATCTGGGGCTGAGGTGAAAAAGCCAGGGGCCTCCGT TAAGGTAAGCTGCAAGGCAAGCGGCTACACATTTACAGACTATTATATCAACTG GGTGAGGCAAGCTCCTGGCCAGCGGCTTGAGTGGATGGGGTGGATCTATCCGG GGAGTCAAGACACCAAATATAATGAGAAGTTCCAGGGACGGGTGACCCTTACA GTAGACACGTCTGCAAGCACTGCCTACATGGAGTTGTCATCCCTCCGCTCTGAA GATACTGCCGTCTACTTTTGCGCTAATTACTTCGGAAGCAGCGGGTGGTTCTTCG ACGTTTGGGGCCAGGGAACTATGGTCACAGTGTCATCA
2D10-hVH4-HVL3	868	CAGGTACAGTTGGTTCAATCTGGGGCTGAGGTGAAAAAGCCAGGGGCCTCCGT TAAGGTAAGCTGCAAGGCAAGCGGCTACACATTTACAGACTATTATATCAACTG GGTGAGGCAAGCTCCTGGCCAGCGGCTTGAGTGGATGGGGTGGATCTATCCGG GGAGTCAAGACACCAAATATAATGAGAAGTTCCAGGGACGGGTGACCCTTACA GTAGACACGTCTGCAAGCACTGCCTACATGGAGTTGTCATCCCTCCGCTCTGAA GATACTGCCGTCTACTTTTGCGCTAATTACTTCGGAAGCAGCGGGTGGTTCTTCG ACGTTTGGGGCCAGGGAACTATGGTCACAGTGTCATCA
2D10-hVH4-HVL4	869	CAGGTACAGTTGGTTCAATCTGGGGCTGAGGTGAAAAAGCCAGGGGCCTCCGT TAAGGTAAGCTGCAAGGCAAGCGGCTACACATTTACAGACTATTATATCAACTG GGTGAGGCAAGCTCCTGGCCAGCGGCTTGAGTGGATGGGGTGGATCTATCCGG GGAGTCAAGACACCAAATATAATGAGAAGTTCCAGGGACGGGTGACCCTTACA GTAGACACGTCTGCAAGCACTGCCTACATGGAGTTGTCATCCCTCCGCTCTGAA GATACTGCCGTCTACTTTTGCGCTAATTACTTCGGAAGCAGCGGGTGGTTCTTCG ACGTTTGGGGCCAGGGAACTATGGTCACAGTGTCATCA
2D10-hVH3-HVL1	870	CAAGTCCAGCTGGTTCAGTCTGGTGCGGAGGTCAAGAAGCCAGGGGCAAGCGT GAAAGTCTCCTGTAAGGCAAGTGGATATACTTTCACGGATTACTATATTAACTG GGTCAGACAGGCACCAGGTCAACGCCTCGAATGGATGGGCTGGATATACCCAG GTAGCCAAGATACCAAGTACTCCCAGAAATTTCAGGGCAGGGTGACCATTACT GTGGATACTTCCGCTTCTACCGCCTACATGGAACTCAGTAGCCTGCGTTCAGAG GACACCGCCGTGTACTATTGCGCTAACTATTTCGGATCCTCCGGATGGTTCTTCG ATGTGTGGGGCCAGGGGACGATGGTGACAGTTAGCTCC
2D10-hVH3-HVL2	871	CAAGTCCAGCTGGTTCAGTCTGGTGCGGAGGTCAAGAAGCCAGGGGCAAGCGT GAAAGTCTCCTGTAAGGCAAGTGGATATACTTTCACGGATTACTATATTAACTG GGTCAGACAGGCACCAGGTCAACGCCTCGAATGGATGGGCTGGATATACCCAG GTAGCCAAGATACCAAGTACTCCCAGAAATTTCAGGGCAGGGTGACCATTACT GTGGATACTTCCGCTTCTACCGCCTACATGGAACTCAGTAGCCTGCGTTCAGAG GACACCGCCGTGTACTATTGCGCTAACTATTTCGGATCCTCCGGATGGTTCTTCG ATGTGTGGGGCCAGGGGACGATGGTGACAGTTAGCTCC
2D10-hVH3-HVL3	872	CAAGTCCAGCTGGTTCAGTCTGGTGCGGAGGTCAAGAAGCCAGGGGCAAGCGT GAAAGTCTCCTGTAAGGCAAGTGGATATACTTTCACGGATTACTATATTAACTG GGTCAGACAGGCACCAGGTCAACGCCTCGAATGGATGGGCTGGATATACCCAG GTAGCCAAGATACCAAGTACTCCCAGAAATTTCAGGGCAGGGTGACCATTACT GTGGATACTTCCGCTTCTACCGCCTACATGGAACTCAGTAGCCTGCGTTCAGAG GACACCGCCGTGTACTATTGCGCTAACTATTTCGGATCCTCCGGATGGTTCTTCG ATGTGTGGGGCCAGGGGACGATGGTGACAGTTAGCTCC
2D10-hVH3-HVL4	873	CAAGTCCAGCTGGTTCAGTCTGGTGCGGAGGTCAAGAAGCCAGGGGCAAGCGT GAAAGTCTCCTGTAAGGCAAGTGGATATACTTTCACGGATTACTATATTAACTG GGTCAGACAGGCACCAGGTCAACGCCTCGAATGGATGGGCTGGATATACCCAG GTAGCCAAGATACCAAGTACTCCCAGAAATTTCAGGGCAGGGTGACCATTACT GTGGATACTTCCGCTTCTACCGCCTACATGGAACTCAGTAGCCTGCGTTCAGAG GACACCGCCGTGTACTATTGCGCTAACTATTTCGGATCCTCCGGATGGTTCTTCG ATGTGTGGGGCCAGGGGACGATGGTGACAGTTAGCTCC

FIG. 14 cont.

Antibody	SEQ ID NO:	V_H nucleic acid sequence
20H5.A3-VH3VL1	874	CAAATCCAGCTTGTTCAGAGTGGATCAGAACTCAAGAAGCCCGGAGCATCCGT GAAAGTGTCATGCAAGGCCAGTGGCTACGCTTTTACTACATATGGGATGTCTTG GGTTCGGCAGGCCCCCGGCCAGGGACTAGAGTGGATGGGCTGGGTTAACACCT ATAGCGGAGTGCCTACGTACGCCGATGATTTTACAGGCAGGTTCGTATTTTCTC TCGAAACGTCCGTCAGTACCGCCTACCTCCAAATTAGCTCTCTGAAAGCAGAGG ACACCGCAGTCTACTTTTGCGCCAGAGGTCCGTATGCTATGGATTATTGGGGAC AGGGCACCCTGGTGACAGTATCCTCC
20H5.A3-VH3VL3	875	CAAATCCAGCTTGTTCAGAGTGGATCAGAACTCAAGAAGCCCGGAGCATCCGT GAAAGTGTCATGCAAGGCCAGTGGCTACGCTTTTACTACATATGGGATGTCTTG GGTTCGGCAGGCCCCCGGCCAGGGACTAGAGTGGATGGGCTGGGTTAACACCT ATAGCGGAGTGCCTACGTACGCCGATGATTTTACAGGCAGGTTCGTATTTTCTC TCGAAACGTCCGTCAGTACCGCCTACCTCCAAATTAGCTCTCTGAAAGCAGAGG ACACCGCAGTCTACTTTTGCGCCAGAGGTCCGTATGCTATGGATTATTGGGGAC AGGGCACCCTGGTGACAGTATCCTCC
20H5.A3-VH4VL1	876	CAAATCCAGTTGGTGCAGAGTGGTTCTGAGCTGAAGAAACCTGGTGCTTCAGTT AAGGTCTCTTGCAAAGCATCCGGTTATGCATTTACTACCTACGGAATGTCTTGG GTAAGGCAAGCTCCCGGACAGGGTCTCGAGTGGATGGGGTGGGTGAACACCTA TTCCGGCGTGCCTACGTCAGCCGACGACTTTACTGGGCGTTTTGTATTTAGTCTA GAGACGTCTGTTTCAACCGCCTACCTGCAGATCTCTAGCCTGAAAGCTGAAGAT ACAGCCGTATATTTCTGTGCCCGGGGACCATACGCCATGGACTACTGGGGCCAA GGGACTCTGGTGACCGTTTCTAGC
20H5.A3-VH5VL1	877	CAAGTGCAACTGGTGCAGAGCGGCTTTGAGCTGAAAAAGCCCGGCGCCTCTGT GAAGATCAGTTGCAAAGCTTCCGGCTACGCCTTTACCACCTATGGTATGTCTTG GGTTAGACAGGCTCCAGGACAGGGCCTGGAGTGGATGGGTTGGGTCAATACCT ACTCTGGAGTGCCAACCTATGCTCAGGCATTCACAGGCCGGTTTGTCTTCAGTC TCGATACCAGCGTGTCAACCGCATACCTGCAGATCAGCTCTCTTAAAGCCGAGG ATACCGCTGTCTACTACTGTGCCAGAGGACCTTATGCCATGGATTACTGGGGGC AAGGCACCCTCGTCACAGTGTCTTCT
20H5.A3-VH5VL3	878	CAAGTGCAACTGGTGCAGAGCGGCTTTGAGCTGAAAAAGCCCGGCGCCTCTGT GAAGATCAGTTGCAAAGCTTCCGGCTACGCCTTTACCACCTATGGTATGTCTTG GGTTAGACAGGCTCCAGGACAGGGCCTGGAGTGGATGGGTTGGGTCAATACCT ACTCTGGAGTGCCAACCTATGCTCAGGCATTCACAGGCCGGTTTGTCTTCAGTC TCGATACCAGCGTGTCAACCGCATACCTGCAGATCAGCTCTCTTAAAGCCGAGG ATACCGCTGTCTACTACTGTGCCAGAGGACCTTATGCCATGGATTACTGGGGGC AAGGCACCCTCGTCACAGTGTCTTCT
20H5.A3-VH6VL1	879	CAGGTTCAGCTTGTCCAATCAGGCTTTGAGCTGAAGAAGCCTGGAGCTAGCGTC AAGATTAGTTGTAAGGCCTCAGGCTACGCTTTCACCACCTACGGAATGTCCTGG GTGCGGCAAGCCCCAGGCCAGGGCCTGGAGTGGATGGGATGGGTGAATACGTA CAGTGGCGTCCCCACTAGCGCCCAGGCTTTTACTGGAAGATTCGTGTTCTCTCTT GATACCTCCGTATCAACCGCTTACCTGCAGATAAGTTCACTCAAGGCTGAGGAT ACCGCCGTGTATTATTGTGCCCGAGGGCCCTACGCTATGGATTACTGGGGACAG GGCACACTCGTAACAGTGAGCTCT
20H5.A3-VH6VL3	880	CAGGTTCAGCTTGTCCAATCAGGCTTTGAGCTGAAGAAGCCTGGAGCTAGCGTC AAGATTAGTTGTAAGGCCTCAGGCTACGCTTTCACCACCTACGGAATGTCCTGG GTGCGGCAAGCCCCAGGCCAGGGCCTGGAGTGGATGGGATGGGTGAATACGTA CAGTGGCGTCCCCACTAGCGCCCAGGCTTTTACTGGAAGATTCGTGTTCTCTCTT GATACCTCCGTATCAACCGCTTACCTGCAGATAAGTTCACTCAAGGCTGAGGAT ACCGCCGTGTATTATTGTGCCCGAGGGCCCTACGCTATGGATTACTGGGGACAG GGCACACTCGTAACAGTGAGCTCT

FIG. 14 cont.

Antibody	SEQ ID NO:	V_L nucleic acid sequence
TB001 (IMT001; IMT001-4)	621	GACATCGTGCTGACCCAGTCTCCACTGAGCCTGCCTGTTACACCTGGCGAGCCAG CCTCCATCTCCTGCAGATCCTCTAAGTCCCTGCTGTACAAGGACGGCAAGACCTAC CTGAACTGGTTCCTGCAGAAGCCCGGCCAGTCTCCTCAGCTCCTGATCTACCTGAT GAGCACCCATGCCTCTGGCGTGCCCGATAGATTTTCCGGCTCTGGCTCTGGCACCG ACTTCACCCTGAAGATCTCCAGAGTGGAAGCCGAGGACGTGGGCGTGTACTACTG TCAGCAGCTGGTGGACTACCCTCTGACCTTTGGCGGCGGAACAAAGCTGGAAATC AAG
TB006 (4A11.H3L1; IMT006; IMT006a)	622	GATATAGTGATGACCCAAACACCTTTGTCCCTGTCAGTCACCCCAGGCCAACCCG CATCTATCTCATGCAAATCCTCAAAAAGTCTTTTGCACTCTGACGGGATAACATAT CTCTACTGGTATCTTCAAAAACCTGGTCAGTCCCCCCAGCTCTTGATCTATAGAAT GAGTAACCTTGCCTCTGGTGTCCCCGACCGGTTTAGTGGAAGCGGGTCTGGGACC GACTTCACCCTCAAGATTAGTCGCGTCGAAGCCGAAGATGTGGGAGTGTATTACT GTGCCCAGATGCTCGAATTTCCCCTGACATTTGGTCAAGGAACTAAATTGGAGAT TAAG
12G5.D7	623	GACATCCTGATGACCCAATCTCCATCCTCCATGTCTGTATCTCTGGGAGACACAGT CAGCATCACTTGCCATGCAAGTCAGGGCATTAACTCTAATATGGGGTGGTTGCAG CAGAAACCAGGGAAATCATTTAAGGGCCTGATCTATCATGCAACCAACTTGGAAG ATGGAGTTCCATCAAGGTTCAGTGGCAGTGGATCTGGAGCAGATTATTCTCTCAC CATCAGCAGCCTGGAATCTGAAGATTTTGCAGACTATTACTGTGTACAGTATGCTC AGTTTCCTCCTACGTTCGGATCGGGGACCAAGCTGGAAATAAAA
13A12.2E5	624	GATGTTGTGATGACCCAGACTCCACTCACTTTGTCGGTTGCCATTGGACAACCAGC TTCCATCTCTTGCAAGTCGAGTCAGAGCCTCTTATATACTAATGGAAAAACCTATT TGAATTGGTTATTACAGAGGCCAGGCCAGTCTCCAAAACGCCTAATCTATCTGCT GTCTAAATTGGACTCTGGAGTCCCTGACAGGTTCAGTGCCAGTGGATCAGGGACA GATTTCACACTGAAAATCAGCAGAGTGGAGGCTGAGGATTTGGGAGTTTATTACT GCTTGCAGAGTACACATTTTCCGCTCACGTTCGGTGCTGGGACCAAGCTGGAGAT GAAA
14H10.2C9	625	GATGTTGTGATGACCCAGACTCCACTCACTTTGTCGGTTACCATTGGACAACCAGC CTCCATCTCTTGCAAGTCAAGTCAGAGCCTCTTCGATAGTGATGGAAAGACATATT TGAATTGGTTGTTACAGAGGCCAGGCCAGTCTCCAAAGCGCCTAATCTATCTGGT GTCTAAACTGGACTCTGGAGTCCCTGACAGGTTCACTGGCAGTGGATCAGGGACA GATTTCACACTGAAAATCAGCAGAGTGGAGGCTGAGGATTTGGGAGTTTATTATT GCTGGCAAGGTACACATTTTCCTCTCACGTTCGGTGCTGGGACCAAGCTGGAAAT GAAA
15F10.2D6	626	GATGTTTTGATGACCCAAACTCCACTCTCCCTGCCTGTCAGTCTTGGAGATCAAGC CTCCATCTCTTGCAGATCTAGTCAGAGCATTGTACATAATAATGGAAACACCTATT TAGAATGGTACCTGCAGAAACCAGGCCAGTCTCCAAAACTCCTGATCTACAAAGT TTCCAACCGATTTTCTGGGGTCCCAGACAGGTTCAGTGGCAGTGGATCAGGGACA GATTTCACACTCAAGATCAGCAGAGTGGAGGCTGAGGATCTGGGAGTTTATTACT GCTTTCAAGGTTCACATGTTCCGCTCACGTTCGGTGGTGGGACCAAGTTGGAGCTG AAA
19B5.2E6	627	GATATACAAATGACTCAAACTACCTCTTCTCTTTCCGCATCTTTGGGTGATCGGGT CACTATATCCTGCTCCGCCTCTCAAGGCATAAACAATTACCTGAATTGGTATCAGC AAAAACCAGACGGAACTGTAAAATTGCTTATCTACTACGCTTCAAGTCTGCATAG TGGGGTTCCCAGCAGATTTTCCGGTTCCGGGTCCGGCACTGATTATTCTCTCACAA TTAGTAACCTGGAACCTGAGGACATTGCAACTTATTACTGTCAACAATACAGTCA GGTACCTTACACTTTCGGATCAGGAACAAAGTTGGAAATCAAG

FIG. 15

Antibody	SEQ ID NO:	V_L nucleic acid sequence
20D11.2C6	628	GACATCCAGATGAACCAGTCTCCATCCAGTCTGTCTGCATCCCTCGGAGACACAA TTACCATCACTTGCCGTGCCAGTCAGAACATTTATATTTGGTTAAGTTGGTACCAG CAGAAACCAGGAAATATTCCTAAACTCTTGATCTATAAGGCTTCCAACTTGCACA CAGGCGTCCCATCAAGGTTTAGTGGCAGTGGATCTGGAACAGATTTCACATTAAC CATCAGCACTCTGCAGCCTGAAGACATTGCCACTTACTTCTGTCTCCAGGGTCAAA GTTATCCTCTCACGTTCGGTGCTGGGACCAAGCTGGAGATGAAA
20H5.A3	629	GATATCCAGATGACACAGACTACATCCTCCCTGTCTGCCTCTCTGGGAGACAGAG TCACCATCAATTGCAGTGCAAGTCAGGACATTAGCAATTATTTAAACTGGTATCA GCAGAAACCAGATGGAACTGTTAAACTCCTGATCTATTACACATCAAGTTTACTCT CAGGAGTCCCATCAAGGTTCAGTGGCAGTGGGTCTGGGACAGATTATTCTCTCAC CATCAGCAACCTGGAACCTGAAGATATTGCCACTTACTTTTGTCAGCAATATAGTA AGCTTCCCTATACGTTCGGATCGGGGACCCACCTGGAAATAAAA
23H9.2E4	630	GATATCCAGATGACACAGACTACATCCTCCCTGTCTGCCTCTCTGGGAGACAGAG TCACCATCAGTTGCAGTGCAAGTCAGGGCATTAACAATTATTTAAACTGGTATCA GCAGAAACCAGATGGAACTGTTAAACTCCTGATCTATTACGCATCAAGTTTACAC TCAGGAGTCCCATCAAGGTTCAGTGGCAGTGGGTCTGGGACAGATTATTCTCTCA CCATCAGCAACCTGGAACCTGAAGATATTGCCACTTACTATTGTCAGCAGTATAG TCAGGTTCCGTATACGTTCGGATCGGGGACCAAGTTGGAAATAAAA
2D10-VH0-VL0	631	GACATAGTAATGACACAGGCCGCATTTAGCAATCCAGTAACCTTGGGCACATCCG CCTCCATATCTTGCAGGTCATCCAAAAGCTTGCTGCACTCTGACGGTATTACTTAC CTGTACTGGTATTTGCAGCGACCTGGGCAATCCCCTCAACTCCTGATTTACCGCAT GAGCAACCTGGCCTCAGGGGTGCCTGACCGCTTTTCAGGATCAGGGAGCGGCACT GACTTCACCTTGCGAATCAGCAGAGTAGAAGCAGAGGATGTTGGAGTTTACTACT GTGCCCAGATGATCGAATTTCCACTTACTTTTGGGGCCGGGACCATTCTGGAGCTT AAA
3B11.2G2	632	GATGTTGTGATGACCCAGACTCCACTCACTTTGTCGGTTGCCATTGGACAACCAGC TTCCATCTCTTGCAAGTCGAGTCAGAGCCTCTTATATACTAATGGAAAAACCTATT TGAATTGGTTATTACAGAGGCCAGGCCAGTCTCCAAAACGCCTAATCTATCTGGT GTCTAAATTGGACTCTGGAGTCCCTGACAGGTTCAGTGGCAGTGGATCAGGGACA GATTTCACACTGAAAATCAGCAGAGTGGAGGCTGAGGATTTGGGAGTTTATTACT GCTTGCAGAGTACACATTTTCCGCTCACGTTCGGTGCTGGGACCAAGCTGGAGCT GAAA
7D8.2D8	633	GATGTTTTGATGACCCAAACTCCACTCTCCCTGCCTGTCAGTCTTGGAGATCAAGC CTCCATCTCTTGCAGATCTAGTCAGAGCATTGTACATAGTAATGGAAACACCTATT TAGAATGGTACCTGCAGAAACCAGGCCAGTCTCCAAAGCTCCTGATCTACAAAGT TTCCAACCGATTTTCTGGGGTCCCAGACAGGTTCAGTGGCAGTGGATCAGGGACA GATTTCACACTCAAGATCAGCAGAGTGGAGGCTGAGGATCTGGGAGTTTATTACT GCTTTCAAGGTTCACATGTTCCGCTCACGTTCGGTGCTGGGACCAAGCTGGAGCTG AAA
mTB001 (mIMT001)	634	GATATTGTTATTACTCAGGATGAGCTTAGTAATCCTGTCACTAGCGGGGAAAGTG TTAGTATCAGTTGTCGTTCATCCAAGTCACTCCTCTACAAAGACGGCAAGACTTAT CTCAACTGGTTTCTTCAACGACCCGGTCAATCTCCACAGCTCCTGATTTACCTGAT GTCAACTCACGCTTCTGGTGTTAGCGACCGTTTCTCCGGAAGTGGCTCCGGGACA GACTTCACTCTTGAAATCTCACGTGTAAAAGCAGAGGACGTAGGTGTCTATTATT GTCAACAGCTTGTGGACTACCCCTTGACCTTTGGCGCTGGCACAAAGCTGGAACT GAAG

FIG. 15 cont.

Antibody	SEQ ID NO:	V_L nucleic acid sequence
4A11.2B5	635	GACATTGTGATGACTCAGGCAGCCTTTTCCAACCCTGTAACACTTGGAACTAGTGC CTCCATCTCATGCCGTTCCAGCAAGAGTCTTTTGCACAGCGATGGGATAACCTATC TCTATTGGTATCTGCAACGACCCGGTCAGTCACCCCAACTTCTTATCTATCGAATG TCTAACTTGGCCTCCGGCGTGCCCGACCGCTTTTCCGGGAGTGGGAGCGGTACAG ATTTCACCTTGCGAATTTCCCGGGTTGAGGCAGAGGACGTAGGTGTCTACTATTGT GCTCAGATGCTTGAGTTTCCTCTCACTTTCGGAGCCGGCACCAAACTGGAACTGA AA
4A11.H1L1 (IMT006b)	636	GATATAGTGATGACCCAAACACCTTTGTCCCTGTCAGTCACCCCAGGCCAACCCG CATCTATCTCATGCAAATCCTCAAAAAGTCTTTTGCACTCTGACGGGATAACATAT CTCTACTGGTATCTTCAAAAACCTGGTCAGTCCCCCCAGCTCTTGATCTATAGAAT GAGTAACCTTGCCTCTGGTGTCCCCGACCGGTTTAGTGGAAGCGGGTCTGGGACC GACTTCACCCTCAAGATTAGTCGCGTCGAAGCCGAAGATGTGGGAGTGTATTACT GTGCCCAGATGCTCGAATTTCCCCTGACATTTGGTCAAGGAACTAAATTGGAGAT TAAG
4A11.H4L2 (IMT006c)	637	GATATTGTAATGACCCAAAGCCCCCTGTCCTTGCCTGTTACCCCAGGTGAGCCTGC CAGCATATCTTGCCGATCCAGTAAATCTCTGCTTCATAGCGATGGCATCACCTATT TGTATTGGTATTTGCAGAAGCCCGGCCAGAGCCCCCAGTTGCTGATCTACAGAAT GTCCAACCTTGCTAGTGGAGTGCCCGACCGGTTTAGCGGTTCAGGCTCAGGGACT GATTTCACTCTTAAAATCAGTAGGGTAGAGGCCGAAGACGTTGGTGTATATTATT GTGCTCAGATGTTGGAGTTTCCACTCACATTTGGACAAGGTACAAAGCTGGAAAT TAAG
4G2.2G6	638	GATGTCGTAATGACTCAAACCCCCCTGACCCTTAGTGTTACTATAGGCCAGCCCGC AAGCATCTCCTGCAAATCCTCCCAGTCTCTTCTTTATACTGATGGCAAAACCTACT TGTCCTGGTTTTTGCAGCGCCCAGGTCAAAGTCCTAAACGTCTTATTTACTTGGTC TCTAAACTCGATTCCGGCGTGCCTGACCGGTTCTCCGGTAGCGGTAGCGGTACCG ATTTCACTTTGAAGATTAGCCGAGTTGAGGCAGAAGACCTCGGGGTCTACTACTG CCTTCAGAGTACACACTTCCCACTTACATTTGGCGCAGGAACCAAGTTGGAGGTT AAA
6B3.2D3	639	AGTATTGTGATGACCCAGACTCCCAAATTCCTGCTTGTATCAGCAGGAGACAGGG TTACCATAACCTGCAAGGCCAGTCAGAGTGTGAGTAATGATGTAGCTTGGTACCA ACAGAAGCCAGGGCAGTCTCCTAAATTGTTGATATATTATGCATCCAATCGCTAC ACTGGAGTCCCTGATCGCTTCACTGGCAGTGGATATGGGACGGATTTCACTTTCAC CATCAGCACTGTGCAGGCTGAAGACCTGGCAGTTTATTTCTGTCAGCAGGATTAT ACCTCTCCGTACACGTTCGGAGGGGGGACCAAGCTGGAAATAAAA
6H6.2D6	640	GACATCCAGATGACCCAGACCACCTCCTCCCTGTCCGCCTCCCTGGGCGACAGGG TGACCATCTCCTGCTCCGCCTCCCAGGGCATCTCCAACTACCTGAACTGGTACCAG CAGAAGCCCGACGGCACCGTGAAGCTGCTGATCTACTACACCTCCTCCCTGCACT CCGGCGTGCCCTCCAGGTTCTCCGGCTCCGGCTCCGGCACCGACTACTCCCTGACC ATCTCCAACCTGGAGCCCGAGGACATCGCCACCTACTACTGCCAGCAGTACTCCG AGCTGCCCTACACCTTCGGCTCCGGCACCAAGCTGGAGATCAAG
9H2.2H10	641	GACATTGTGATGACCCAGTCTCACAAATTCATGTCCACATCAGTAGGAGACAGGG TCAGCATCACCTGCAAGGCCAGTCAGGATGTGAGTACTGCTGTAGCCTGGTATCA ACAAAAACCAGGGCAATCTCCTAAACTACTGATTTACTGGGCATCCACCCGGCAC ACTGGAGTCCCTGATCGCTTCACAGGCAGTGGATCTGGGACAGATTATACTCTCA CCATCAGCAGTGTGCAGGCTGAAGACCTGGCACTTTATTACTGTCAGCAACATTA TACCACTCCGCTCACGTTCGGTGCTGGGACCAAGCTGGAGCTGAAA

FIG. 15 cont.

Antibody	SEQ ID NO:	V_L nucleic acid sequence
13G4.2F8	642	GACATTGTGATGACCCAGTCTCAAAAATTCATGTCCACATCAGTAGGAGAGAGGG TCAGCATCACCTGCAAGGCCAGTCAGAATGTAGGTACTAATGTAGCCTGGTATCA GCAGAAAGCAGGGCAGTCTCTTGAACTGCTGATCTATGGGGCATCCAACCGGCAC ACTGGAGTCCCTGATCGCTTCACAGGCAGTGGATCTGGGACAGATTTCACTCTCA CCATCACCAATGTGCAGTCTGAAGACATGACAAATTATTTCTGTGAGCAATATAG CAACTTTCCTCTCACGTTCGGTGCTGGGACCAAGCTGGAGCTGAAA
13H12.2F8	643	GACGTTGTTATGACACAAACACCACTTACACTTTCTGTAACTATCGGTCAGCCTGC CTCAATTTCATGTAAGTCTTCTCAGTCCCTGTTTCATAGCGACGGGAAGACTTACC TGAATTGGCTTCTCCAACGACCAGGCCAATCACCCAAGCGCCTTATTTATTTGGTC AGTAAATTGGACAGTGGAGTTCCCGATAGATTTACCGGGAGCGGTTCTGGGACCG ATTTCACCCCAAAGATCTCCAGGGTAGAAGACGAAGATCTCGGTGTGTACTATTG CTGGCAGGGGACACATTTCCCTCTGACATTCGGTGCTGGAACCAAACTTGAGATG AAA
15G7.2A7	644	GACATCCAGATGAACCAGTCTCCATCCAGTCTGTCTGCATCCCTCGGAGACACAA TTTCCATCACTTGCCGTGCCAGTCAGAACATTAATATTTGGTTAAGCTGGTACCAG CAGAAACCAGGAAATATTCCTCAACTATTGATCTATAAGGCTTCCAACTTGCACA CAGGCGTCCCCTCAAGGTTTAGTGGCAGTGGATCTGGAACAGATTTCACATTAAC CATCAGCAGTCTGCAGCCTGAAGACATTGCCACTTACTACTGTCTACAGGGTCAA AGTTATCCTCTCACGTTCGGTGCTGGGACCAAGCTGGTGATGAAA
19D9.2E5	645	GATGTTGTGATGACCCAGACTCCACTCACTTTGTCGGTTACCATTGGACAACCAGC CTCCATCTCTTGTAAGTCAAGTCAGAGCCTCTTACATAGTGATGGAAAGACATATT TGAATTGGTTGTTACAGAGGCCAGGCCAGCCTCCAAAGCGCCTAATGTATCTGGT GTCTACACTGGACTCTGGAGTCCCTGACAGGTTCACTGGCAGTGGATCAGGGACA GATTTCACACTGAAAATCAGCAGAGTGGAGGCTGAGGATTTGGGAGTTTATTATT GCTGGCAAGGTACACATTTTCCTCTCACGTTCGGTGCTGGGACCAAGCCGGAG
23B10.2B12	646	GATATTGTGATGACGCAGGCTGCATTCTCCAATCCAGTCACTCTTGGAACGTCAGC TTCCATCTCCTGCAGGTCTAGTAAGAGTCTCCTACATAGTGATGGCATCACTTATT TCTATTGGTATCTGCAGAGGCCAGGCCAGTCTCCTCAGCTCCTGATATATCGGATG TCCAACCTTGCCTCAGGAGTCCCAGACAGGTTCAGTGGCAGTGGGTCAGGAACTG ATTTCACACTGAGAATCAGCAGAGTGGAGGCTGAGGATGTGGGTGTTTATTACTG TGCTCAAATGCTAGAATTCCCGCTCACGTTCGGTGCTGGGACCAAGCTGGAG
24D12.2H9	647	GACATTGTGATGACCCAGTCTCACAAATTCATGTCCACATCAGTAGGAGACAGGG TCAGCATCACCTGCAAGGCCAGTCAGGATGTGCGTACTGCTGTAGCCTGGTATCA ACAGAAACCAGGGCAATCTCCTAAACTACTGATTTACTGGGCATCCACCCGGCAC ACTGGAGTCCCTGATCGCTTCACAGGCAGTGGATCTGGGACAGATTTCACTCTCA CCCTTAGCAATGTGCAGTCTGAAGACTTGGCAGATTATTTCTGTCAGCAATATAGT AGTTATCCGTGGACGTTCGGTGGAGGCACCAAGCTGGAAATCAAA
F846C.1B2	648	AACATTTGGTTGACACAGTCGCCATCATCTCTGGCTGTGTCTGCAGGAGAAATGG TCACTATGACCTGTAAGTCCAGTCAAAGTGTTTTATACAGTTCAAATCAGAAGAA CTACTTGGCCTGGTACCAGCAGAAACCAGGGCAGTCTCCTAAACTGCTGATCTAC TGGGCATCCACTAGGGAATCTGGTGTCCCTGATCGCTTCACAGGCAGTGGATCTG GGACAGACTTTTCTCTTACCATCAGCAGTGTACAAGCTGAAGACCTGGCAGTTTAT TACTGTCATCAATATCTCTCCTCGCTCACGTTCGGTGCTGGGACCAAGCTGGAGCT GAAA

FIG. 15 cont.

Antibody	SEQ ID NO:	V_L nucleic acid sequence
F846C.1F5	649	AACATTATGATGACACAGTCGCCATCATCTCTGGCTGTGTCTGCAGGAGAAAAGG TCACTATGAGCTGTAAGTCCAGTCAAAGTGTTTTATACAGTTCAAATCAGAAGAA CTACTTGGCCTGGTACCAGCAGAAACCAGGGCAGTCTCCTAAACTGCTGATCTAC TGGGCATCCACTAGGGAATCTGGTGTCCCTGATCGCTTCACAGGCAGTGGATCTG GGACAGATTTTACTCTTACCATCAGCAGTGTACAACCTGAAGACCTGGCAGTTTAT TACTGTCATCAATACCTCTCCTCGCTCACGTTCGGTGCTGGGACCAAGCTGGAGCT GAAA
F846C.1H12	650	AACATTATGATGACACAGTCGCCATCATCTCTGGCTGTGTCTGCAGGACAAAAGG TCACTATGAGCTGTAAGTCCAGTCAAAGTGTTTTATACAGTTCAAGTCAGAAGAA CTACTTGGCCTGGTACCAGCAGAAACCAGGGCAGTCTCCTAAACTTCTGATCTACT GGGCATCCACTAGGGAATCTGGTGTCCCTGATCGCTTCTCAGGCAGTGGATCTGG GACAGATTTTACTCTTACCATCAGCAGTGTACAACCTGAAGACCTGGCAGTTTATT ACTGTCATCAATACCTCTCCTCGCTCACGTTCGGTGCTGGGACCAAGCTGGAGCTG AAA
F846C.1H5	651	GATGTTGTGATGACCCAAACTCCACTCTCCCTGCCTGTCAGTCTTGGAGATCAAGC CTCCATCTCTTGCAGATCTAGTCAGAGCCTTGTACACAATAGTGGAAACACCTATT TACATTGGTACCTGCAGAGGCCAGGCCAGTCTCCAAACCTCCTGATCTACAAAGT TTCCAACCGATTTTCTGGGGTCCCAGACAGGTTCAGTGGCAGTGGATCAGGGACA GATTTCACACTCAAGATCAGCAGAGTGGCGGCTGAGGATCTGGGAGTTTATTTCT GCTCTCAAAGTACACATGTTCCTCCGACGTTCGGTGGAGGCACCAAGCTGGAAAT CAAA
F846C.2H3	652	AACATTATGATGACACAGTCGCCATCATCTCTGGCTGTGTCTGCAGGAGAAAAGG TCACTATGAGCTGTAAGTCCAGTCAAAGTGTTTTATACAGTTCAAATCAGAAGAA CTACTTGGCCTGGTACCAGCAGAAACCAGGGCAGTCTCCTAAACTGCTGATCTAC TGGGCATCCACTAGGGAATCTGGTGTCCCTGATCGCTTCACAGGCAGTGGATCTG GGACAGATTTTACTCTTACCATCAGCAGTGTACAACCTGAAGACCTGGCAGTTTAT TACTGTCATCAATACCTCTCCTCGCTCACGTTCGGTGCTGGGACCAAGCTGGAGCT GAAA
F846TC.14A2	653	CAGGCTGTTGTGACTCAGGAATCTGCACTCACCACATCACCTGGTGAAACAGTCA CACTCACTTGTCGCTCAAGTACTGGGGCTGTTACAACTAGTAACTATGCCAACTGG GTCCAAGAAAAACCAGATCATTTATTCACTGGTCTAATAGGTGGTATCAATAACC GAGTTCCAGGTGTTCCTGCCAGATTCTCAGGCTCCCTGATTGGAGACAAGGCAGC CCTCACCATCACAGGGGCACAGACTGAGGATGAGGCAATATATTTCTGTGCTCTA TGGTATAGCAACCATTGGGTGTTCGGTGGAGGAACCAAACTGACTGTCCTA
F846TC.14E4	654	GATATTGTGATGACGCAGGCTGCATTCTCCAATCCAGTCACTCTTGGAACATCAGC TTCCATCTCCTGCAGGTCTAGTAAGAGTCTCCTACATACTAATGGCATCACTTTTT TGTATTGGTATCTGCAGAAGCCAGGCCAGTCTCCTCAGCCCCTGATTTATCAGATG TCCAACCTTGCCTCAGGAGTCCCAGACAGGTTCAGTAGCAGTGGGTCAGGAACTG ATTTCACACTGAGAATCAGCAGAGTGGAGGCTGAGGATGTGGGTGTTTATTACTG TGCTCAAAATCTAGAACTTCCTTGGACGTTCGGTGGAGGCACCAAGCTGGAAATC AAT
F846TC.16B5	655	AACATTATGATGACACAGTCGCCATCATCTCTGGCTGTGTCTGCAGGAGAAAAGG TCACTATGAGCTGTAAGTCCAGTCAAAGTGTTTTATACAGTTCAAATCAGAAGAA CTACTTGGCCTGGTACCAGCAGAAACCAGGGCAGTCTCCTAAACTACTGATCTAC TGGGCATCCACTAGGGAATCTGGTGTCCCTGATCGCTTCACAGGCAGTGGATCTG GGACAGATTTTACTCTTACCATCAGCAGTGTACAAGCTGAAGACCTGGCAGTTTA TTACTGTCATCAATACCTCTCCTCGCTCACGTTCGGTGCTGGGACCAAGCTGGAGC TGAAA

FIG. 15 cont.

Antibody	SEQ ID NO:	V_L nucleic acid sequence
F846TC.7F10	656	GACATTGTGATGACACAGTCTCCATCCTCCCTGGCTATGTCAGTAGGACAGAAGG TCACTATGAGCTGCAAGTCCAGTCAGAGCCTTTTAAATAGTAGCAATCAAAAGAA CTATTTGGCCTGGTACCAGCAGAAACCAGGACAGTCTCCTAAACTTCTGGTATACT TTGCATCCACTAGGGAATCTGGGGTCCCTGATCGCTTCATAGGCAGTGGATCTGG GACAGATTTCACTCTTACCATCAGCAGTGTGCAGGCTGAAGACCTGGCAGATTAC TTCTGTCAGCAACATTATAGCACTCCGTACACGTTCGGAGGGGGGGCCAAGCTGG AAATAAAA
F847C.10B9	657	GACATCCGGATGACTCAGTCTCCATCCAGTCTGTCTGCATCCCTTGGAGACACAAT TACCATCACTTGCCATGCCAGTCAGAACATTAATGTTTGGTTAAGCTGGTACCAGC AGAAACCAGGAAATATTCCTAAACTATTGATCTATAAGGCTTCCAACTTGCACAC AGGCGTCCCATCAAGGTTTAGTGGCAGTGGATCTGGAACAGGTTTCACATTAACC ATCAGCAGCCTGCAGCCTGAAGACATTGCCACTTACTACTGTCAACAGGGTCAAA GTTATCCGTACACGTTCGGAGGGGGGACCAAGCTGGAGCTGAAA
F847C.11B1	658	GAAATTGTGTTGACCCAGTCTCCAGCATCCCTGTCCGTGACTACAGGAGAAAAAG TCACTATCAGATGCATAACCAGCATTGATATTGATGATGATATGAACTGGTACCA GCAGAAGCCAGGGGAACCTCCTAAGCTCCTTATTTCAGAAGGCAATACTCTTCGT CCTGGAGTCCCATCCCGATTCTCCAGCAGTGGCTATGGCACAGATTTTGTTTTTAC AATTGAAAACACGCTCTCAGAAGATGTTGCAGATTACTACTGTTTGCAAAGTGAT AACAAGCCTCTCACGTTCGGTGCTGGGACCAAGCTGGAGCTGAAA
F847C.12F12	659	GACATCCAGGTGATTCAGTCTCCATCCAGTCTGTCTGCATCCCTTGGAGACACAAT TACCATCACTTGCCATGCCAGTCAGAACATTAATGTTTGGTTAAGCTGGTACCAGC AGAAACCAGGAAATATTCCTAAACTATTGATCTATAAGGCTTCCAACTTGCACAC AGGCGTCCCATCAAGGTTTAGTGGCAGTGGATCTGGAACAGGTTTCACATTAACC ATCAGCAGCCTGCAGCCTGAAGACATTGCCACTTACTACTGTCAACAGGGTCAAA GTTATCCGTACACGTTCGGAGGGGGGACCAAGCTGGAGCTGAAA
F847C.26F5	660	GAAATTAAGATGAACCAGTCTCCATCCAGTCTGTCTGCATCCCTTGGAGACACAA TTACCATCACTTGCCATGCCAGTCAGAACATTAATGTTTGGTTAAGCTGGTACCAG CAGAAACCAGGAAATATTCCTAAACTATTGATCTATAAGGCTTCCAACTTGCACA CAGGCGTCCCATCAAGGTTTAGTGGCAGTGGATCTGGAACAGGTTTCACATTAAC CATCAGCAGCCTACAGCCTGAAGACATTGCCACTTACTACTGTCAACAGGGTCAA AGTTATCCGTACACGTTCGGAGGGGGGACCAAGCTGGAGCTGAAA
F847C.4B10	661	CAGGCTGTTGTGACTCAGGAATCTGCACTCACCACATCACCTGGTGAAACAGTCA CACTCACTTGTCGCTCAAGTACTGGGGCTGTTACAACTAGTAACTATGCCAACTGG GTCCAAGAAAAACCAGATCATTTATTCACTGGTCTAATAGGTGGTACCAACAACC GAGCTCCAGGTGTTCCTGCCAGATTCTCAGGCTCCCTGATTGGAGACAAGGCTGC CCTCACCATCACAGGGGCACAGACTGAGGATGAGGCAATATATTTCTGTGCTCTA TGGTACAGCAACCATTTAGTGTTCGGTGGAGGAACCAAACTGACTGTCCTA
F849C.8D10	662	GATGTTTTGATGACCCAAACTCCACTCTCCCTGCCTGTCAGTCTTGGAGATCAAGC CTCCATCTCTTGCAGATCTAGTCAGGACATTGTGCATAGTAGTGGAAACACCTATT TAGAATGGTACCTGCAGAAACCAGGCCAGTCTCTAAAGCTCCTGATTTACAAAGT TTCCAACCGATTTTCTGGGGTCCCAGACAGGTTCAGTGCCAGTGGATCAGGGACA GATTTCACACTCAAGATCAGCAGAGTGGAGGCTGAGGATCTGGGAGTTTATTACT GCTTTCAAGGTTCACATGTTCCTCCCACGTTCGGCTCGGGGACAAAGTTGGAAAT AAAA

FIG. 15 cont.

Antibody	SEQ ID NO:	V_L nucleic acid sequence
F849C.8H3	663	GATATTGGGATGAGGCAGGCTGCATTCTCCAATCCAGTCACTCTTGGAACATCAG CTTCCATCTCCTGCAGGTCTAGTAAGAGTCTCCTATATAGTAATGGCATCACTTAT TTGTATTGGTTTCTCCAGAAGCCAGGCCAGTCTCCTCAGCTCCTGATTTATCAGAT GTCCAACCTTGCCTCAGGAGTCCCAGACAGGTTCAGTAGCAGTGGGTCAGGAACT GATTTCACACTGAGAATCAGCAGAGTGGAGGCTGACGATGTGGGTGTTTATTACT GTGCTCAAAATCTAGAACTTCCGTGGACGTTCGGTGGAGGCACCAAGCTGGAAAT CAAA
846.2B11	664	GACATTGTGCTGACACAGTCTCCTGCTTCCTTAGGTGTTTCTCTGGGGCAGAGGGC CACCATCTCATGCAGGGCCAGCAAAAGTGTCAGTACATCTGGCTATAGTTATATG CACTGGTACCAACAGAAACCAGGACAGCCACCCAAACTCCTCATCTATCTTGCAT CCATCCTAGAATCTGGGGTCCCTGCCAGGTTCAGTGGCAGTGGGTCTGGGACAGA CTTCACCCTCAACATCCATCCTGTGGAGGAGGAGGATGCTGCAATCTATTACTGTC AGCACAGTAGGGAGCTTCCTCTCACGTTCGGTGCTGGGACCAAGCTGGAGCTGAA A
846.4D5	665	AACATTGTGCTGACCCAATCTCCAGCTTCTTTGGCTGTGTCTCTAGGGCAGAGGGC CACCATATCCTGCAGAGCCAGTGAAAGTGTTGATAGTTATGGCAATAGTTTTATG CACTGGTACCAGCAGAAACCAGGACAGCCACCCAAACTCCTCATCTATCTTGCAT CCAACCTAGAATCTGGGGTCCCTGCCAGGTTCAGTGGCAGTGGGTCTAGGACAGA CTTCACCCTCACCATTGATCCTGTGGAGGCTGATGATGCTGCAACCTATTACTGTC AGCAAAATAATGAGGATCCGTGGACGTTCGGTGGAGGCACCAAGCTGGAAATCA AA
846T.1H2	666	GATGTTGTGATGACCCAGACTCCACTCACTTTGTCGGTTACCATTGGACAACCAGC CTCTATCTCTTGCAAGTCAAGTCAGAGTCTCTTATATAGTAATGGAAAAACCTATT TGAATTGGTTATTACAGAGGCCAGGCCAGTCTCCAAAGCGCCTAATCTATCTGGT GTCTAAACTGGACTCTGGAGTCCCTGACAGGTTCACTGGCAGTGGATCAGGAACA GATTTTACACTGAAAATCAGCAGAGTGGAGGCTGAGGATTTGGGAGTTTATTACT GCGTGCAAGGTACACATTTTCCTCAGACGTTCGGTGGAGGCACCAAGCTGGAAAT AAAA
847.14H4	667	CAGGCTGTTGTGACTCAGGAATCTGCACTCACCACATCACCTGGTGAAACAGTCA CACTCACTTGTCGCTCAAGTACTGGGGCTGTTACAACTAGTAACTATGCCAACTGG GTCCAAGAAAAACCAGATCATTTATTCACTGGTCTAATAGGTGGTACCAACAACC GAGCTCCAGGTGTTCCTGCCAGATTCTCAGGCTCCCTGATTGGAGACAAGGCTGC CCTCACCATCACAGGGGCACAGACTGAGGATGAGGCAATATATTTCTGTGCTCTA TGGTACAGCAACCATTTAGTGTTCGGTGGAGGAACCAAACTGACTGTCCTA
846.2D4	668	AACATTGTGCTCACCCAATCTCCAGCTTCTTTGGCTGTGTCTCTAGGGCAGAGGGC CACCATATCCTGCAGAGCCAGTGAAAGTGTTGATAGTTATGGCAATAGTTTTATG CACTGGTACCAGCAGAAACCAGGACAGCCACCCAAACTCCTCATCTATCTTGCAT CCAACCTAGAATCTGGGGTCCCTGCCAGGTTCAGTGGCAGTGGGTCTAGGACAGA CTTCACCCTCACCATTGATCCTGTGGAGGCTGATGATGCTGCAACCTATTACTGTC AGCAAAATAATGAGGATCCGTGGACGTTCGGTGGAGGCACCAAGCTGGAAATAA AA
846.2F11	669	GACATCCTGATGACCCAATCTCCATCCTCCATGTCTGTATCTCTGGGAGACACAGT CAGCATCACTTGCCATGCAAGTCAGGGCATTAACAGTAATATAGGGTGGTTGCAG CAGAAACCAGGGAAGTCATTTAAGGGCCTGATCTATCATGGAACCAACTTGGAAG ATGGAGTTCCATCAAGGTTCAGTGGCAGTGGATCTGGAGCAGATTATTCTCTCAC CATCAGCAGCCTGGAATCTGAAGATTTTGCGGACTATTACTGTGTACAGTATGATC AGTTTCCGTGGACGTTCGGTGGAGGCACCAAGCTGGAAATCAAA

FIG. 15 cont.

Antibody	SEQ ID NO:	V_L nucleic acid sequence
846T.10B1	670	GACATTGTGATGTCACAGTCTCCTGCTTCCTTAGGTGTTTCTCTGGGGCAGAGGGC CACCATCTCATGCAGGGCCAGCAAAAGTGTCAGTACATCTGGCTATAGTTATATG CACTGGTACCAACAGAAACCAGGACAGCCACCCAAACTCCTCATCTATCTTGCAT CCATCCTAGAATCTGGGGTCCCTGCCAGGTTCAGTGGCAGTGGGTCTGGGACAGA CTTCACCCTCAACATCCATCCTGTGGAGGAGGAGGATGCTGCAATCTATTACTGTC AGCACAGTAGGGAGCTTCCTCTCACGTTCGGTGCTGGGACCAAGCTGGAGCTGAA A
846T.2E3	671	GACATTGTGCTGACACAGTCTCCTGCTTCCTTAGCTGTATCTCTGGGGCAGAGGGC CACCATCTCATGCAGGGCCAGCAAAAGTGTCAGTACATCTGGCTATAGTTATATG CACTGGTACCAACAGAAACCAGGACAGCCACCCAAACTCCTCATCTATCTTGCAT CCATCCTAGAATCTGGGGTCCCTGCCAGGTTCAGTGGCAGTGGGTCTGGGACAGA CTTCACCCTCAACATCCATCCTGTGGAGGAGGAGGATGCTGCAACCTATTACTGTC AGCACAGTAGGGAGCTTCCTCTCACGTTCGGTGCTGGGACCAAGCTGGAGCTGAA A
846T.4C9	672	GACATTTTGATGACCCAAACTCCATCCTCCATGTCTGTATCTCTGGGAGACACAGT CAGCATCACTTGCCATGCAAGTCAGGGCATTAGCAGTAATATAGGGTGGTTGCAG CAGAAACCACGGAAATCATTTAAGGGCCTGATCTATTATGGAACCAACTTGGAAG ATGGAGTTCCATCAAGGTTCAGTGGCAGTGGATCTGGAGCAGATTATTCTCTCAC CATCAGCAGCCTGGAATCTGAAGATTTTGCAGACTATTACTGTGTACAGTATGATC AGTTTCCGTGGACGTTCGGTGGAGGCACCAAGCTGGAAATAAAA
846T.4E11	673	GACATTGTGCTGACACAGTCTCCTGCTTCCTTAGCTGTATCTCTGGGGCAGAGGGC CACCATCTCATGCAGGGCCAGCAAAAGTGTCAGTACATCTGGCTATAGTTGTATG CACTGGTACCAACAGAAACCAGGACAGCCACCCAAACTCCTCATCTATCTTGCAT CCAACCTAGAATCTGGGGTCCCTGCCAGGTTCAGTGGCGGTGGGTCTGGGACAGA CTTCACCCTCAGCATCCATCCTGTGGAGGAGGAGGATGCTGCAACCTATTACTGTC ACCACAGTACGGAGCTTCCGTACACGTTCGGAGGGGGGACCAAGCTGGAAGTAG AA
846T.4F5	674	GACATTGTGCTGACCCAATCTCCAGCTTCTTTGGCTGTGTCTCTAGGGCAGAGGGC CACCATATCCTGCAGAGCCAGTGAAAGTGTTGATAGTTATGGCAATAGTTTTATG CACTGGTACCAGCAGAAACCAGGACAGCCACCCAAACTCCTCATCTATCTTGCAT CCAACCTAGAATCTGGGGTCCCTGCCAGGTTCAGTGGCAGTGGGTCTAGGACAGA CTTCACCCTCACCATTGATCCTGTGGAGGCTGATGATGCTGCAACCTATTACTGTC AGCAAAATAATGAGGATCCGTGGACGTTCGGTGGAGGCACCAAGCTGGAAATCA AA
846T.8D1	675	GACATTGTGCTGACACAGTCTCCTGCTTCCTTAGCTGTATCTCTGGGGCAGAGGGC CACCATCTCATGCAGGGCCAGCAAAAGTGTCAGTACATCTGGCTATAGTTATATG CACTGGTACCAACAGAAACCAGGACAGCCACCCAAACTCCTCATCTATCTTGCAT CCATCCTAGAATCTGGGGTCCCTGCCAGGTTCAGTGGCAGTGGGTCTGGGACAGA CTTCACCCTCAACATCCATCCTGTGGAGGAGGAGGATGCTGCAACCTATTACTGTC AGCACAGTAGGGAGCTTCCTCTCACGTTCGGTGCTGGGACCAAGCTG
847.10C9	676	GATGTTGTGATGACCCAGACTCCACTCACTTTGTCGGTTACCATTGGACAACCAGC CTCTATCTCTTGCAAGTCAAGTCAGAGCCTCTTATATAGTGATGGAAAAACCTATT TGAATTGGTTATTACAGAGGCCAGGCCAGTCTCCAAAGCGCCTAATCTATCTGGT GTCTCAACTGGACTCTGGAGTCCCTGACAGGTTCACTGGCAGTGGATCAGGAACA GATTTTACACTGAAAATCAGCAGAGTGGAGGCTGATGATTTGGGAGTTTATTGCT GCGTGCAAGGTACACATCTTCCCACGTTCGGAGGGGGGACCAAGCTGGAAATAA AA

FIG. 15 cont.

Antibody	SEQ ID NO:	V_L nucleic acid sequence
847.11D6	677	GACATTGTGATGACACAGTCTCCCGCTTCTTTGGCTGTGTCTCTAGGGCAGAGGGC CACCATATCCTGCAGAGCCAGTGAAAGTGTTGAAAATCATGTCAATAGTTTTATG CACTGGTTCCAACAGAAACCAGGACAGCCACCCAAACTCCTCATCTATCGTGCAT CCAACCTACAATCTGGGATCCCTGCCAGGTTCAGTGGCAGTGGGTCTAGGACAGA CTTCACCCTCACCATTAATCCTGTGGAGGCTGATGATGTTGCAACCTATTACTGTC AGCAAAATAATGAGGTCCCGTACACGTTCGGAGGGGGGACCAAGCTGGAAATAA AA
847.15D12	678	CAGGCTGTTGTGACTCAGGAATCTGCACTCACCACATCACCTGGTGAAACAGTCA CACTCACTTGTCGCTCAAGTACTGGGGCTGTTACAACTAGTAACTATGCCAACTGG GTCCAAGAAAAACCAGATCATTTATTCACTGGTCTAATAGGTGGTACCAACAACC GAGCTCCAGGTGTTCCTGCCAGATTCTCAGGCTCCCTGATTGGAGACAAGGCTGC CCTCACCATCACAGGGGCACAGACTGAGGATGAGGCAATATATTTCTGTGCTCTA TGGTACAGCAACCATTTGGTGTTCGGTGGAGGAACCAAACTGACTGTCCTA
847.15F9	679	CAAATTGTTCTCTCCCAGTCTCCAGCAATCCTGTCTGCATCTCCAGGGGAGAAGGT CACAATGACTTGCAGGGCCAGCTCAAGTGTAACTTACATGTACTGGTACCAGCAG AAGCCAGGATCCTCCCCCCAACCCTGGATTTATGCCACATCCAACCTGGCTTCTGG AGTCCCTGCTCGCTTCAGTGGCAGTGGGTCTGGGACCTCTTACTCTCTCACAATCA GCAGAGTGGAGGCTGAAGATGCTGCCACTTATTACTGCCAGCAGTGGAGTAGTAA CCCACTCACGTTCGGTGCTGGGACCAAGCTGGAGCTGAAA
847.15H11	680	GACATTGTGCTAACACAGTCTCCAGCTTCTTTGGCTGTGTCTCTAGGGCAGAGGGC CACCATCTCCTGCAGAGCCAGCGAAAGTCTTGATAATTCTGGCATTAGTTTTATGA ACTGGTTCCAACAGAGACCAGGACAGCCACCCAAACTCCTCATCTATGCTGCATC CAACCTAGAATCCGGGGTCCCTGCCAGGTTTAGTGGCAGTGGGTCTGGGACAGAC TTCAGCCTCAACATCCATCCTATGGAGGAGGATGATGCTGCAATGTATTTCTGTCA GCACAGTAAGGAGGTTCCGTGGACGTTCGGTGGAGGCACCAAGCTGGAAATCAA A
847.20H7	681	GACATTGTGATGACCCAGTCTCACAAAATCATGTCCACATCAGTAGGAGACAGGG TCAGCATCACCTGCAAGGCCAGTCAGGATGTGAGTACCACTGTGGCCTGGTTTCA GCAAAAACCAGGACAATCTCCTAAACTACTGCTTTACTGGGCATCCACCCGGCAC ACTGGAGTCCCTGATCGCTTCACAGGCAGTGGATCTGGGACAGATTATACTCTCA CCATCAGCAGTGTCCAGGCTGAAGACCTGGCACTTTATTACTGTCAGCAACATTAT AGCCCTCCATTCACGTTCGGCTCGGGGACCAAGCTGGAAATAAAA
847.21B11	682	GACATTGTGATGACTCAGTCTCAAAAATTCATGTCCACATCAGTAGGAGACAGGG TCAGCGTCACCTGCAAGGCCAGTCAGAATGTGGGTATTAATGTAGCCTGGTATCA ACAGAAACCAGGGCAATCTCCTAAAGCACTGATTTACTCGGCATCCTACCGGTAC AGTGGAGTCCCTGATCGCTTCACAGGCAGTGGATCTGGGACAGATTTCACTCTCA CCATCAGCAATGTGCAGTCTGAAGACTTGGCAGAGTATTTCTGTCAGCAATATAA TAGTTATCCGTACACGTTCGGAGGGGGGACCAAGCTGGAAATGAAA
847.27B9	683	GACGTTGTGATGACCCAGACTCCACTCACTTTGTCGGTTACCCTTGGACAACCCGC CTCCATCTCTTGCAGGTCAAGTCAGAGCCTCTTAGATAGTGATGGAAAGACATAT TTGAATTGGTTGTTACAGAGGCCAGGCCAGTCTCCAAAGCGCCTAATCTATTTGGT GTCTAGACTGGACTCTGGAGTCCCTGACAGGTTCACTGGCAGTGGATCAGGGACA GATTTCACACTGAAAATCAGCAGAGTGGAGGCTGAGGATCTGGGAGTTTATTATT GCTGGCAAGGTACACATTTTCCGTTCACGTTCGGAGGGGGGACCAAGCTGGAAAT AAAA

FIG. 15 cont.

Antibody	SEQ ID NO:	V_L nucleic acid sequence
847.28D1	684	GACATCCGGATGACTCAGTCTCCAGCCTCCCTATCTGCATCTGTGGGAGAAACTGT CACCATCACATGTCGAGCAAGTGGGAATATTCACAATTATTTAGCATGGTATCAT CAGAAACAGGGAAAATCTCCTCAGCTCCTGGTCTATAATGTAAAAACCTTAGCAG ATGGTGTGCCATCAAGGTTCAGTGGCAGTGGATCAGGAACACAATTTTCTCTCAA GATCAACAGTTTGCAGCCTGAAGATTTTGGGACTTATTATTGTCAACATTTTTGGA GTATTTTTCCGACGTTCGGTGGAGGCACCAAGCTGGAAATAAAA
847.2B8	685	CAAATTCTTCTCTCCCAGTCTCCAGCAATCCTGTCTGCATCTCCAGGGGAGAAGGT CACAATGACTTGCAGGGCCAGCTCAAGTGTAACTTACATGTACTGGTACCAGCAG AAGCCAGGATCCTCCCCCCAACCCTGGATTTATGCCACATCCAACCTGGCTTCTGG AGTCCCTGCTCGCTTCAGTGGCAGTGGGTCTGGGACCTCTTACTCTCTCACAATCA GCAGAGTGGAGGCTGAAGATGCTGCCACTTATTACTGCCAGCAGTGGAGTAGTAA CCCACTCACGTTCGGTGCTGGGACCAAGCTGGAGCTGAAA
847.3B3	686	GACATTTTGATGACTCAGTCTCCAGCCTCCCTATCTGCATCTGTGGGAGAAACTGT CACCATCACATGTCGAGCAAGTGGGAATATTCACAATTATTTAGCATGGTATCAG CAGAAACAGGGAAAATCTCCTCAACTCCTGGTCTATAGTGCAAAAACCTTAGCAG ATGGTGTGCCATCAAGGTTCAGTGGCAGTGGATCAGGAACACAATTTTCTCTCAA GATCGACAGCCTGCAGCCTGAAGATTTTGGGACTTATTACTGTCAACATTTTTGGA GTCTTTTTCCGACGTTCGGTGGAGGCACCAAGCTGGAA
849.1D2	687	GACGTTGTGATGACCCAGACTCCCAAATTCCTGCTTGTATCAGCAGGAGACAGGG TTACCATAACCTGCAAGGCCAGTCAAAGTGTGAGTAGTGATGTAGCTTGGTACCA ACAGAAGCCAGGGCAGTCTCCTAAACTGCTGATATACTTTGCATCCAATCGCTAC ACTGGAGTCCCTGATCGCTTCACTGGCAGTGGATATGGGACGGATTTCACTTTCAC CATCAGCACTGTCCAGGCTGAAGACCTGGCAGTTTATTTCTGTCAGCATAATTATA TCTCTCCGTTCACGTTCGGAGGGGGGACCAAGCTGGAAATAAAA
849.2D7	688	GACATTGTGATGACCCAGTCTCACAAATTCATGTCCACATCAGTAGGAGACAGGG TCAGCATCACCTGCAAGGCCAGTCAGGATGTGAGTACTGCTGTAGCCTGGTATCA ACAAAAACCAGGGCAATCTCCTAAACTACTGATTTACTGGGCATCCACCCGGCAC ACTGGAGTCCCTGATCGCTTCACAGGCAGTGGATCTGGGACAGATTATACTCTCA CCATCAGCAGTGTGCAGGCTGAAGACCTGGCACTTTATTACTGTCAGCAACATTA TAGCACTCCGTACACGTTCGGAGGGGGGACCAAGCTGGAAATAAAA
849.2F12	689	GACATTGCGATGACCCAGTCTCACAAATTCATGTCCACATCAGTAGGAGACAGGG TCAGCATCACCTGCAAGGCCAGTCAGGATGTGAGTACTGCTGTAGCCTGGTATCA ACAAAAACCAGGGCAATCTCCTAAACTACTGATTTACTGGGCATCCACCCGGCAC ACTGGAGTCCCTGATCGCTTCACAGGCAGTGGATCTGGGACAGATTATACTCTCA CCATCAGCAGTGTGCAGGCTGAAGACCTGGCACTTTATTACTGTCAGCAACATTA TAACACTCCGTACACGTTCGGAGGGGGGACCAAGCTGGAAATAAAA
849.4B2	690	GATGTGGGGATGACCCAGACTCCACTCATTTTGTCGGTTACCATTGGACAACCAG CTTCCATCTCTTGCAAGTCAAGTCAGAGCCTCTTATATATTAATGGAAAAACCTAT TTGAATTGGTTATTACAGAGGCCAGGCCAGTCTCCAAAACGCCTAATCTATCTGGT GTCTAAATTGGACTCTGGAGTCCCTAACAGATTCAGTGGCAGTGGATCAGGGACA GATTTCACACTGAAAATCAGCAGAGTGGAGGCTGAGGATTTGGGAGTTTATTACT GCTTGCAGAGTACACATTTTCCTCAGACGTTCGGTGGAGGCACCAAGCTGGAAAT CAAA

FIG. 15 cont.

Antibody	SEQ ID NO:	V_L nucleic acid sequence
849.4F12	691	GACATCCTGCTGACCCAGTCTCCATCCTCCATGTCTGTATCTCTGGGAGACACAGT CAGCATCACTTGCCATGCAAGTCAGGGCATTAACAGTAATATAGGGTGGTTGCAG CAGAAACCAGGGAAGTCATTTAAGGGCCTGATCTATCATGGAACCAACTTGGAAG ATGGAGTTCCATCAAGGTTCAGTGGCAGTGGATCTGGAGCAGATTATTCTCTCAC CATCAGCAGCCTGGAATCTGAAGATTTTGCGGACTATTACTGTGTACAGTATGATC AGTTTCCGTGGACGTTCGGTGGAGGCACCAAGCTGGAAATCAAA
849.4F2	692	GATGTTGGGATGACCCAGACTCCACTCATTTTGTCGGTTACCATTGGACAACCAGC TTCCATCTCTTGCAAGTCAAGTCAGAGCCTCTTATATATTAATGGAAAAACCTATT TGAATTGGTTATTACAGAGGCCAGGCCAGTCTCCAAAACGCCTAATCTATCTGGT GTCTAAATTGGACTCTGGAGTCCCTAACAGATTCAGTGGCAGTGGATCAGGGACA GATTTCACACTGAAAATCAGCAGAGTGGAGGCTGAGGATTTGGGAGTTTATTACT GCTTGCAGAGTACACATTTTCCTCAGACGTTCGGTGGAGGCACCAAGCTGGAAAT CAAA
849.5C2	693	GATATTGTGATGACTCAGGCTGCACCCTCTGTACCTGTCACTCCTGGAGAGTCAGT ATCCATCTCCTGCAGGTCTAGTAGGAGTCTCCTGCATAGTAATGGCTACACTTACT TGTATTGGTTCCTGCAGAGGCCAGGCCAGTCTCCTCGGCTCCTGATATATCGGATG TCCAACCTTGCCTCAGGAGTCCCAGACAGGTTCAGTGGCAGTGGGTCAGGAACTG CTTTCACACTGAGAATCAGTAGAGTGGAGGCTGAGGATGTGGGTGTTTATTACTG TATGCAACATCTAGAATATCCGTACACGTTCGGAGGGGGGACCAAGCTGGAAATA AAA
849.8D12	694	GACATCCAGATGACACAGACTACATCCTCCCTGTCTGCCTCTCTGGGAGACAGAG TCACCATCAGTTGCAGTGCAAGTCAGGGCATTAGCAATTATTTAAACTGGTATCA GCAGAAACCAGATGGAACTGTTAAACTCCTGATCTATTACACATCAAGTTTACAC TCAGGAGTCCCATCAAGGTTCAGTGGCAGTGGGTCTGGGACAGATTATTCTCTCA CCATCAGCAACCTGGAACCTGAAGATATTGCCACTTACTATTGTCAGCAGTATAG TAAGCTTCCTCGGACGTTCGGTGGAGGCACCAAGCTGGAAATC
F847C.21H6	695	GATGTTGTGATGACCCAGACTCCACTCACTTTGTCGGTTACCATTGGACAACCAGC CTCCATCTCTTGCAAGTCAAGTCGGAGCCTCTTAGATAGTGATGGAAAGACATAT TTGAATTGGTTGTTACAGAGGCCAGGCCAGTCTCCAAAGCGCCTAATCTATCTGGT GTCCAAACTGGACTCTGGAGTCCCTGACAGGTTCACTGGCAGTGGATCAGGGACA GATTTCACACTGAAAATCAGCAGAGTGGAGGCTGAGGATTTGGGAGTTTATTATT GCTGGCAAGGTACACATTTTCCTCAGACGTTCGGTGGAGGCACCAAGCTGGAAAT CAAT
849.5H1	696	GACATCCAGATGAACCAGTCTCCATCCAGTCTGTCTGCATCCCTTGGAGACACAA TTACCATCACTTGCCATGCCAGTCAGAACATTAATGTTTGGTTAAGCTGGTACCAG CAGAAACCAGGAAATATTCCTAAACTATTGATCTATCAGGCTTCCAACTTACACA CAGGCGTCCCATCAAGGTTTAGTGGCCGTGGATCTGGAACAGGTTTCACATTAAC CATCAGCAGCCTGCAGCCTGAAGACATTGCCACTTACTACTGTCAACAGGGTCAA AGTTCTCCATTCACGTTCGGCTCGGGGACAAAGTTGGAAATAAAA
847.23F11	697	GACATTTTGATGACCCAGTCTCACAAATTCATGTCCACATCAGTAGGAGACAGGG TCAGCATCACCTGCAAGGCCAGTCAGGATGTGAGTTCTGTTGTAGTCTGGTATCA ACAAAAACCAGGACAATCTCCTAAACAACTAATTTACTGGGCATCCACCCGGCAC ACTGGAGTCCCTGATCGCTTCACAGGCAGTGGATCTGGGACAGATTATACTCTCA CCATCAGCAGTGTGCAGGCTGAAGACCTGGCACTTTATTACTGTCAGCAACATTA TAGCACGCCGTACACGTTCGGAGGGGGGACCAAGCTGGAAATAAAA

FIG. 15 cont.

Antibody	SEQ ID NO:	V_L nucleic acid sequence
847.16D10	698	CAGGCTGTTGTGACTCAGGAATCTGCACTCACCACATCACCTGGTGAAACAGTCA CACTCACTTGTCGCTCAAGTACTGGGGCTGTTACAACTAGTAACTATGCCAACTGG GACCAAGAAAAACCAGATCATTTATTCACTGGTCTAATAGGTGGTACCAACAACC GAGCTCCAGGTGTTCCTGCCAGATTCTCAGGCTCCCTGATTGGAGACAAGGCTGC CCTCACCATCACAGGGGCACAGACTGAGGATGAGGCAATATATTTCTGTGCTCTA TGGTACAGCAACCATTTGGTGTTCGGTGGAGGAACCAAGGTCACTGTCCTA
847.13E2-mH0mL1	699	GACATTGTGATGACACAGTCTCCTGCTTCCTTACCTGTATCTCTGGGGCAGAGGGC CACCATCTCATGCAGGGCCAGCAAAAGTGTCACTACATCTGCCTATAGTTATATA CACTGGTACCAACAGAGACCAGGACAGCCACCCAAACTCCTCATCTATCTTGCAT CCAACCTAGAATCTGGGGTCCCTGCCAGGTTCAGTGGCAGTGGGTCTGGGACAGA CTTCACCCTCAACATCCATCCTGTGGAGGAGGAGGATGCTGCAACCTATTACTGTC AGCACAATAGGGAGCTTCCTCCGACGTTCGGTGGAGGCACCAAGCTGGAAATCAA T
847.13E2-mH0mL2	700	GATATTGTGCTAACTCAGTCTCCAGCCACCCTGTCTGTGACTCCAGGAGATAGCGT CAGTTTTTCCTGCAGGGCCAGCCAAATTATTAACAACAACCTACACTGGTATCAA CAAAAATCACATGAGTCTCCTAGGCTTCTCATCAGGTATACTTCCCAGTCCATCTC TGGGATCCCCTCCAGGTTCAGTGGCAGTGGATCAGGGACAGATTTCACTCTCAGT ATCAACAATGTGGAGACTGAAGATTTTGGAATGTATTTCTGTCAACAGACTAACA GCTGGCCTCTCACGTTCGGTGCTGGGACCAAGCTGGAGCTGAAA
847.12C4	701	GATGTTGTGATGACCCAGACTCCACTCACTTTGTCGGTTACCATTGAACAAACAGC CTCCATCTCTTGCAAGTCAAGTCAGAGCCTCTTAGATCGTGATGGAAAGACATATT TGAATTGGTTGTTACAGAGGCCAGGCCAGTCTCCAAAGCGCCTAATCTATCTGGT GTCTAAACTGGACTCTGGAGTCCCTGACAGGTTCACTGGCAGTGGATCAGGGACA GATTTCACACTGAAAATCAGCAGAGTGGAGGCTGAGGATTTGGGAGTTTATTATT GCTGGCAAGGTACACATTTTCCGACGTTCGGTGGAGGCACCAAGCTGGAAATCAA A
847.4D3	702	GATGTTGTGATGACCCAAACTCCCAAATTCCTGCCTATAACAGCAGAAGACAGGG TTACCATTACCTGCAAGGCCAGTCAGAGTGTGAGTAATGAAGTAGCTTGGTACCA ACAGAAGCCAGGGCAGTCTCCTAAACTGCTGATATACTATGCATCCAATCGCTAC ACTGGAGTCCCTGATCGCTTCACTGGCAGTGGATCTGGCACGGATTTCACTTTCAC CATCAGAAGTGTGCAACTTGAAGACCTGGCAGTTTATTTCTGTCAGCAGCATTATA GCTCTCCGTGGACGTTCGGTGGAGGCACCAAGCTGGAAATCAAA
2D10.2B2 (murine; mIgG2A (LALAPG))	798	GATATTGTGATGACGCAGGCTGCATTCTCCAATCCAGTCACTCTTGGAACGTCAGC TTCCATCTCCTGCAGGTCTAGTAAGAGTCTCCTACATAGTGATGGCATCACTTATT TGTATTGGTATCTGCAGAGGCCAGGCCAGTCTCCTCAGCTCCTGATATATCGGATG TCCAACCTTGCCTCAGGAGTCCCAGACAGGTTCAGTGGCAGTGGGTCAGGAACTG ATTTCACACTGAGAATCAGCAGAGTGGAGGCTGAGGATGTGGGTGTTTATTACTG TGCTCAAATGATAGAATTCCCGCTCACGTTCGGTGCTGGGACCATCCTGGAGCTG AAA
2D10-hVH4-HVL1	881	GACATCGTGATGACCCAGTCTCCCTTATCCCTGCCAGTGACACCAGGAGAACCAG CCAGCATTTCTTGCCGGTCTAGCAAATCTCTGCTCCACTCTGACGGAATCACGTAT CTGTACTGGTATCTCCAAAAGCCTGGGCAGTCCCCACAGCTGCTCATTTATCGAAT GAGTAACCGTGCATCTGGAGTGCCCGACAGATTTTCAGGCTCTGGCAGTGGGACT GACTTTACACTGAAGATTAGCAGAGTCGAGGCTGAGGATGTGGGGGTGTATTACT GTGCCCAGATGATAGAATTTCCCCTGACTTTCGGACAGGGGACTAAACTTGAGAT CAAA

FIG. 15 cont.

Antibody	SEQ ID NO:	V_L nucleic acid sequence
2D10-hVH4-HVL2	882	GATATCGTGATGACCCAAAGCCCACTGTCTTTGCCTGTTACACCGGGCGAACCAG CTTCCATCAGTTGTCGCTCCAGTAAGTCACTTCTCCACAGTGACGGCATCACATAC CTGTATTGGTACCTCCAGAAGCCAGGCCAATCCCCCCAACTGTTGATTTATAGAAT GTCCAATCTGGCATCCGGAGTGCCTGACCGCTTCTCCGGCTCTGGATCTGGGACA GACTTTACTCTGAAGATCAGCAGAGTGGAGGCGGAAGATGTGGGGGTCTACTATT GCGCTCAAATGATCGAGTTCCCTCTGACTTTTGGACAGGGAACGAAGCTCGAAAT TAAG
2D10-hVH4-HVL3	883	GATGTGGTGATGACTCAAAGCCCACTTAGCCTGCCAGTTACTCTTGGACAGCCAG CCAGTATTTCTTGCCGGAGTTCCAAGAGCCTGTTGCACAGCGACGGGATCACATA TTTATACTGGTACCAACAGAGACCTGGGCAGTCCCCGCGCTTGCTGATCTACAGG ATGTCTAACAGAGACTCAGGGGTCCCCGACAGATTTAGTGGCTCTGGAAGCGGGA CAGATTTCACACTGAAGATCTCAAGGGTCGAAGCCGAGGACGTGGGCGTGTATTA CTGTGCACAGATGATAGAGTTCCCTCTTACATTCGGCCAGGGGACCAAACTTGAA ATCAAG
2D10-hVH4-HVL4	884	GACATAGTGATGACCCAGAGCCCCCTTAGCCTTCCCGTGACACTGGGACAGCCGG CGTCTATTTCTTGTAGGTCCTCTAAATCTTTGTTGCACAGTGATGGAATCACATAT CTGTACTGGTACCAGCAGCGGCCAGGACAGAGCCCTCAGCTGCTGATATATCGAA TGTCAAACCTCGATAGCGGTGTTCCTGACCGCTTTTCCGGAAGCGGCTCCGGCACC GACTTTACCTTAAAGATCTCTCGGGTTGAGGCCGAGGACGTGGGAGTCTACTACT GCGCTCAGATGATCGAATTTCCTCTCACGTTCGGACAAGGTACAAAGTTAGAGAT CAAG
2D10-hVH3-HVL1	885	GACATCGTGATGACCCAGTCTCCCTTATCCCTGCCAGTGACACCAGGAGAACCAG CCAGCATTTCTTGCCGGTCTAGCAAATCTCTGCTCCACTCTGACGGAATCACGTAT CTGTACTGGTATCTCCAAAAGCCTGGGCAGTCCCCACAGCTGCTCATTTATCGAAT GAGTAACCGTGCATCTGGAGTGCCCGACAGATTTTCAGGCTCTGGCAGTGGGACT GACTTTACACTGAAGATTAGCAGAGTCGAGGCTGAGGATGTGGGGGTGTATTACT GTGCCCAGATGATAGAATTTCCCCTGACTTTCGGACAGGGGACTAAACTTGAGAT CAAA
2D10-hVH3-HVL2	886	GATATCGTGATGACCCAAAGCCCACTGTCTTTGCCTGTTACACCGGGCGAACCAG CTTCCATCAGTTGTCGCTCCAGTAAGTCACTTCTCCACAGTGACGGCATCACATAC CTGTATTGGTACCTCCAGAAGCCAGGCCAATCCCCCCAACTGTTGATTTATAGAAT GTCCAATCTGGCATCCGGAGTGCCTGACCGCTTCTCCGGCTCTGGATCTGGGACA GACTTTACTCTGAAGATCAGCAGAGTGGAGGCGGAAGATGTGGGGGTCTACTATT GCGCTCAAATGATCGAGTTCCCTCTGACTTTTGGACAGGGAACGAAGCTCGAAAT TAAG
2D10-hVH3-HVL3	887	GATGTGGTGATGACTCAAAGCCCACTTAGCCTGCCAGTTACTCTTGGACAGCCAG CCAGTATTTCTTGCCGGAGTTCCAAGAGCCTGTTGCACAGCGACGGGATCACATA TTTATACTGGTACCAACAGAGACCTGGGCAGTCCCCGCGCTTGCTGATCTACAGG ATGTCTAACAGAGACTCAGGGGTCCCCGACAGATTTAGTGGCTCTGGAAGCGGGA CAGATTTCACACTGAAGATCTCAAGGGTCGAAGCCGAGGACGTGGGCGTGTATTA CTGTGCACAGATGATAGAGTTCCCTCTTACATTCGGCCAGGGGACCAAACTTGAA ATCAAG
2D10-hVH3-HVL4	888	GACATAGTGATGACCCAGAGCCCCCTTAGCCTTCCCGTGACACTGGGACAGCCGG CGTCTATTTCTTGTAGGTCCTCTAAATCTTTGTTGCACAGTGATGGAATCACATAT CTGTACTGGTACCAGCAGCGGCCAGGACAGAGCCCTCAGCTGCTGATATATCGAA TGTCAAACCTCGATAGCGGTGTTCCTGACCGCTTTTCCGGAAGCGGCTCCGGCACC GACTTTACCTTAAAGATCTCTCGGGTTGAGGCCGAGGACGTGGGAGTCTACTACT GCGCTCAGATGATCGAATTTCCTCTCACGTTCGGACAAGGTACAAAGTTAGAGAT CAAG

FIG. 15 cont.

Antibody	SEQ ID NO:	V_L nucleic acid sequence
20H5.A3-VH3VL1	889	GACATCCAGATGACTCAGTCTCCAAGCAGCCTGTCCGCTTCAGTCGGGGACCGAG TTACAATCACCTGTCAGGCTAGCCAGGACATTAGCAACTATCTGAACTGGTATCA GCAGAAACCCGGAAAGGCCCCTAAACTTCTGATCTACTATACATCTTCACTGCTG ACGGGTGTCCCCTCCCGGTTCTCTGGCTCCGGCTCCGGTACCGACTATACCTTTAC TATCTCATCTCTACAGCCCGAAGACATCGCAACATATTATTGTCAACAATATTCTA AGCTGCCCTACACTTTCGGCCAAGGAACAAAGCTGGAGATTAAG
20H5.A3-VH3VL3	890	GACATTCAGATGACCCAATCCCCTTCCTCCCTAAGCGCCAGCGTGGGCGACCGCG TAACCATCACCTGTCGAGCCAGTCAGGACATTTCAAACTACCTGAACTGGTATCA GCAAAAACCAGGCAAAGCACCTAAACTGCTCATCTACTACACTTCCAGTTTGCTTT CAGGTGTCCCAAGCCGCTTTAGTGGATCAGGTTCCGGTACCGATTACACCCTGAC GATCTCTAGTCTGCAGCCAGAGGACTTCGCTACGTACTATTGCCAGCAATATAGC AAGCTGCCCTACACCTTCGGCCAGGGCACTAAGCTGGAAATCAAG
20H5.A3-VH4VL1	891	GACATCCAGATGACTCAGTCTCCAAGCAGCCTGTCCGCTTCAGTCGGGGACCGAG TTACAATCACCTGTCAGGCTAGCCAGGACATTAGCAACTATCTGAACTGGTATCA GCAGAAACCCGGAAAGGCCCCTAAACTTCTGATCTACTATACATCTTCACTGCTG ACGGGTGTCCCCTCCCGGTTCTCTGGCTCCGGCTCCGGTACCGACTATACCTTTAC TATCTCATCTCTACAGCCCGAAGACATCGCAACATATTATTGTCAACAATATTCTA AGCTGCCCTACACTTTCGGCCAAGGAACAAAGCTGGAGATTAAG
20H5.A3-VH5VL1	892	GACATCCAGATGACTCAGTCTCCAAGCAGCCTGTCCGCTTCAGTCGGGGACCGAG TTACAATCACCTGTCAGGCTAGCCAGGACATTAGCAACTATCTGAACTGGTATCA GCAGAAACCCGGAAAGGCCCCTAAACTTCTGATCTACTATACATCTTCACTGCTG ACGGGTGTCCCCTCCCGGTTCTCTGGCTCCGGCTCCGGTACCGACTATACCTTTAC TATCTCATCTCTACAGCCCGAAGACATCGCAACATATTATTGTCAACAATATTCTA AGCTGCCCTACACTTTCGGCCAAGGAACAAAGCTGGAGATTAAG
20H5.A3-VH5VL3	893	GACATTCAGATGACCCAATCCCCTTCCTCCCTAAGCGCCAGCGTGGGCGACCGCG TAACCATCACCTGTCGAGCCAGTCAGGACATTTCAAACTACCTGAACTGGTATCA GCAAAAACCAGGCAAAGCACCTAAACTGCTCATCTACTACACTTCCAGTTTGCTTT CAGGTGTCCCAAGCCGCTTTAGTGGATCAGGTTCCGGTACCGATTACACCCTGAC GATCTCTAGTCTGCAGCCAGAGGACTTCGCTACGTACTATTGCCAGCAATATAGC AAGCTGCCCTACACCTTCGGCCAGGGCACTAAGCTGGAAATCAAG
20H5.A3-VH6VL1	894	GACATCCAGATGACTCAGTCTCCAAGCAGCCTGTCCGCTTCAGTCGGGGACCGAG TTACAATCACCTGTCAGGCTAGCCAGGACATTAGCAACTATCTGAACTGGTATCA GCAGAAACCCGGAAAGGCCCCTAAACTTCTGATCTACTATACATCTTCACTGCTG ACGGGTGTCCCCTCCCGGTTCTCTGGCTCCGGCTCCGGTACCGACTATACCTTTAC TATCTCATCTCTACAGCCCGAAGACATCGCAACATATTATTGTCAACAATATTCTA AGCTGCCCTACACTTTCGGCCAAGGAACAAAGCTGGAGATTAAG
20H5.A3-VH6VL3	895	GACATTCAGATGACCCAATCCCCTTCCTCCCTAAGCGCCAGCGTGGGCGACCGCG TAACCATCACCTGTCGAGCCAGTCAGGACATTTCAAACTACCTGAACTGGTATCA GCAAAAACCAGGCAAAGCACCTAAACTGCTCATCTACTACACTTCCAGTTTGCTTT CAGGTGTCCCAAGCCGCTTTAGTGGATCAGGTTCCGGTACCGATTACACCCTGAC GATCTCTAGTCTGCAGCCAGAGGACTTCGCTACGTACTATTGCCAGCAATATAGC AAGCTGCCCTACACCTTCGGCCAGGGCACTAAGCTGGAAATCAAG

FIG. 15 cont.

Antibody	SEQ ID NO:	HC nucleic acid sequence
TB001 (IMT001; IMT001-4)	703	CAGGTGCAGCTGGTGCAGTCCGGCTCCGAGCTGAAAAAACCCGGCGCCTCCGT GAAAGTGTCCTGCAAAGCCTCCGGCTACACATTCACAAACTACGGCATGAACTG GGTGAGGCAGGCCCCCGGCCAGGGCCTGAAATGGATGGGCTGGATCAACACAA ACACAGGCGAGCCCACATACGTGGAGGAGTTCACAGGCAGGTTCGTGTTCTCCC TGGAGACATCCGTGTCCACAGCCTACCTGCAGATCTCCTCCCTGAAAGCCGAGG ACACAGCCGTGTACTTCTGCGCCCCCTACGACAACTTCTTCGCCTACTGGGGCC AGGGCACAACAGTGACAGTGTCCTCCGCTTCCACCAAGGGACCCAGCGTGTTCC CTCTGGCTCCTTGCTCCAGATCCACCTCCGAGTCTACAGCTGCTCTGGGCTGCCT GGTCAAGGACTACTTTCCTGAGCCTGTGACCGTGTCCTGGAACTCTGGCGCTCT GACATCTGGCGTGCACACCTTTCCAGCTGTGCTGCAGTCCTCCGGCCTGTACTCT CTGTCCTCTGTCGTGACCGTGCCTTCCTCTAGCCTGGGCACCAAGACCTACACCT GTAATGTGGACCACAAGCCTTCCAACACCAAGGTGGACAAGCGCGTGGAATCT AAGTACGGCCCTCCTTGTCCTCCATGTCCTGCTCCAGAGTTTCTCGGCGGACCCT CCGTGTTCCTGTTTCCTCCAAAGCCTAAGGACACCCTGATGATCTCTCGGACCCC TGAAGTGACCTGCGTGGTGGTGGATGTGTCCCAAGAGGATCCCGAGGTGCAGTT CAATTGGTACGTGGACGGCGTGGAAGTGCACAACGCCAAGACCAAGCCTAGAG AGGAACAGTTCAACTCCACCTACAGAGTGGTGTCCGTGCTGACCGTGCTGCACC AGGATTGGCTGAACGGCAAAGAGTACAAGTGCAAGGTGTCCAACAAGGGCCTG CCTTCCAGCATCGAAAAGACCATCTCCAAGGCCAAGGGCCAGCCTAGGGAACC CCAGGTTTACACCCTGCCTCCAAGCCAAGAGGAAATGACCAAGAACCAGGTGT CCCTGACCTGCCTCGTGAAGGGCTTCTACCCTTCCGATATCGCCGTGGAATGGG AGAGCAATGGCCAGCCTGAGAACAACTACAAGACAACCCCTCCTGTGCTGGAC TCCGACGGCAGCTTCTTCCTGTATTCCCGCCTGACCGTGGACAAGTCCAGATGG CAAGAGGGCAACGTGTTCAGCTGCTCCGTGATGCACGAGGCCCTGCACAATCA CTACACCCAGAAGTCCCTGTCTCTGTCCCTGGGCTGATGA
TB006 (4A11.H3L1; IMT006; IMT006a)	704	CAGATTCAATTGGTTCAGAGCGGCTCAGAACTGAAAAAGCCTGGAGCCAGCGT TAAAGTGAGCTGTAAAGCCAGTGGATACACATTCACCACTTACGTCATGTCCTG GGTTAGACAGGCCCCTGGACAGGGGCTGGAATGGATGGGCTGGATAAACACTC ACTCTGGAGTGCCCACATACGCCGACGACTTTACAGGCAGGTTCGTGTTTTCCC TAGATACTAGTGTGAATACTGCATACTTGCAAATCTCTTCTCTGAAAGCAGAGG ATACCGCCGTGTACTTTTGCACCCGCGATGGGAATGATGGGGATGCCATGGACA ACTGGGGCCAGGGGACGACTGTGACAGTGTCTTCAGCTAGCACCAAGGGCCCC AGCGTGTTTCCTCTCGCTCCCTGCAGCCGGAGCACATCCGAGAGCACCGCTGCT CTGGGCTGTCTCGTGAAGGACTACTTCCCTGAACCCGTCACCGTCAGCTGGAAT AGCGGCGCCCTGACATCCGGCGTCCACACATTCCCCGCTGTCCTGCAGAGCAGC GGCCTGTACAGCCTGAGCTCCGTGGTCACCGTGCCTAGCAGCAGCCTGGGAACA AAGACCTACACCTGCAACGTGGACCATAAGCCCTCCAACACCAAGGTGGACAA GCGGGTGGAATCCAAGTATGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGAATTT CTCGGAGGCCCCTCCGTCTTCCTGTTTCCCCCCAAGCCCAAGGACACCCTGATG ATCTCCCGGACACCCGAAGTCACCTGCGTCGTGGTGGATGTCAGCCAGGAAGAT CCCGAGGTGCAGTTCAACTGGTACGTGGACGGAGTGGAGGTGCATAACGCCAA AACCAAGCCCAGGGAAGAGCAGTTCAACAGCACCTATCGGGTCGTGTCCGTGC TCACCGTCCTGCATCAGGATTGGCTCAACGGCAAGGAGTACAAGTGCAAGGTG TCCAACAAGGGCCTGCCCTCCTCCATCGAGAAGACCATCTCCAAGGCTAAGGGC CAACCTCGGGAGCCCCAAGTGTATACCCTCCCTCCCAGCCAGGAGGAGATGAC CAAGAATCAAGTGAGCCTGACCTGCCTCGTGAAGGGATTTTACCCCTCCGACAT CGCTGTGGAATGGGAAAGCAATGGCCAACCTGAGAACAACTACAAGACCACAC CCCCCGTGCTGGACTCCGATGGCTCCTTCTTCCTGTACAGCAGGCTGACCGTGG ACAAATCCCGGTGGCAAGAGGGAAACGTGTTCAGCTGCTCCGTGATGCACGAG GCTCTCCACAACCACTACACCCAGAAGAGCCTCTCCCTGAGCCTCGGCTAGTAA

FIG. 16

Antibody	SEQ ID NO:	HC nucleic acid sequence
12G5.D7	705	CAGGTGCAGCTGAAGCAGTCTGGGGCTGAGCTGGTGAGGCCTGGGGCTTCAGT GAAGCTGTCCTGCAAGGCTTCTGGCTACACTTTCACTGACTACTATATAAACTG GGTGAAGCAGAGGCCTGGACAGGGACTTGAGTGGATTGCAAGGATTTATCCTG GAACTGGTAATACTGACTACAATGAGAAGTTCAAGGGCAGGGCCACACTGACT GCAGAAAACTCCTCCAGCACTGCCTACATGCAGCTCAGCAGTCTGACATCTGAG GACTCTGCTGTCTATTTCTGTGCAAGATTTGCGTATTACTACGGTAGTGGAGGGT ACTTTGACTACTGGGGCCACGGCACCACTCTCACAGTCTCCTCAGCTAGCACCA AGGGCCCCAGCGTGTTTCCTCTCGCTCCCTGCAGCCGGAGCACATCCGAGAGCA CCGCTGCTCTGGGCTGTCTCGTGAAGGACTACTTCCCTGAACCCGTCACCGTCA GCTGGAATAGCGGCGCCCTGACATCCGGCGTCCACACATTCCCCGCTGTCCTGC AGAGCAGCGGCCTGTACAGCCTGAGCTCCGTGGTCACCGTGCCTAGCAGCAGC CTGGGAACAAAGACCTACACCTGCAACGTGGACCATAAGCCCTCCAACACCAA GGTGGACAAGCGGGTGGAATCCAAGTATGGACCCCCCTGTCCTCCTTGCCCTGC TCCTGAATTTCTCGGAGGCCCCTCCGTCTTCCTGTTTCCCCCCAAGCCCAAGGAC ACCCTGATGATCTCCCGGACACCCGAAGTCACCTGCGTCGTGGTGGATGTCAGC CAGGAAGATCCCGAGGTGCAGTTCAACTGGTACGTGGACGGAGTGGAGGTGCA TAACGCCAAAACCAAGCCCAGGGAAGAGCAGTTCAACAGCACCTATCGGGTCG TGTCCGTGCTCACCGTCCTGCATCAGGATTGGCTCAACGGCAAGGAGTACAAGT GCAAGGTGTCCAACAAGGGCCTGCCCTCCTCCATCGAGAAGACCATCTCCAAG GCTAAGGGCCAACCTCGGGAGCCCCAAGTGTATACCCTCCCTCCCAGCCAGGA GGAGATGACCAAGAATCAAGTGAGCCTGACCTGCCTCGTGAAGGGATTTTACC CCTCCGACATCGCTGTGGAATGGGAAAGCAATGGCCAACCTGAGAACAACTAC AAGACCACACCCCCCGTGCTGGACTCCGATGGCTCCTTCTTCCTGTACAGCAGG CTGACCGTGGACAAATCCCGGTGGCAAGAGGGAAACGTGTTCAGCTGCTCCGT GATGCACGAGGCTCTCCACAACCACTACACCCAGAAGAGCCTCTCCCTGAGCCT CGGCTAGTAA
13A12.2E5	706	CAGATCCAGTTGGTACAGTCTGGACCTGAGCTGAAGAAGCCTGGAGAGACAGT CAAGATCTCCTGCAAGACTTCTGGGTATAAATTCAAAACCTATGTGATGAGCTG GGTGAAACAGGCTCCAGGAAAGGCTTTAAAGTGGATGGGCTGGATAAACACCT ACTCTGGAGTGCCAACATATGCTGATGACTTCAAGGGACGATTTGCCTTCTCTTT GGAAACCTCTGCCAGCACTGCCTATTTGGAGATCATCAACCTCAAAAATGAGGA CACGGCTACATATTTCTGTGCAAGAGATGGTAACTACGGGGATCCTATGGACTA CTGGGGTCAAGGAACCTCAGTCACCGTCTCCTCAGCTAGCACCAAGGGCCCCAG CGTGTTTCCTCTCGCTCCCTGCAGCCGGAGCACATCCGAGAGCACCGCTGCTCT GGGCTGTCTCGTGAAGGACTACTTCCCTGAACCCGTCACCGTCAGCTGGAATAG CGGCGCCCTGACATCCGGCGTCCACACATTCCCCGCTGTCCTGCAGAGCAGCGG CCTGTACAGCCTGAGCTCCGTGGTCACCGTGCCTAGCAGCAGCCTGGGAACAAA GACCTACACCTGCAACGTGGACCATAAGCCCTCCAACACCAAGGTGGACAAGC GGGTGGAATCCAAGTATGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGAATTTCT CGGAGGCCCCTCCGTCTTCCTGTTTCCCCCCAAGCCCAAGGACACCCTGATGAT CTCCCGGACACCCGAAGTCACCTGCGTCGTGGTGGATGTCAGCCAGGAAGATCC CGAGGTGCAGTTCAACTGGTACGTGGACGGAGTGGAGGTGCATAACGCCAAAA CCAAGCCCAGGGAAGAGCAGTTCAACAGCACCTATCGGGTCGTGTCCGTGCTC ACCGTCCTGCATCAGGATTGGCTCAACGGCAAGGAGTACAAGTGCAAGGTGTC CAACAAGGGCCTGCCCTCCTCCATCGAGAAGACCATCTCCAAGGCTAAGGGCC AACCTCGGGAGCCCCAAGTGTATACCCTCCCTCCCAGCCAGGAGGAGATGACC AAGAATCAAGTGAGCCTGACCTGCCTCGTGAAGGGATTTTACCCCTCCGACATC GCTGTGGAATGGGAAAGCAATGGCCAACCTGAGAACAACTACAAGACCACACC CCCCGTGCTGGACTCCGATGGCTCCTTCTTCCTGTACAGCAGGCTGACCGTGGA CAAATCCCGGTGGCAAGAGGGAAACGTGTTCAGCTGCTCCGTGATGCACGAGG CTCTCCACAACCACTACACCCAGAAGAGCCTCTCCCTGAGCCTCGGCTAGTAA

FIG. 16 cont.

Antibody	SEQ ID NO:	HC nucleic acid sequence
14H10.2C9	707	CAGATCCAGTTGGTACAGTCTGGACCTGAGCTGAAGAAGCCTGGAGAGACAGT CAAGATCTCCTGCAAGGCTTCTGGGTATACCTTCACAACCTATGGAATGGGCTG GGTGAAACAGGCTCCAGGAAAGGATTTAAAGTGGATGGGCTGGATAAACACCT ACTCTGGAGTGCCAACATATGCTGATGACTTCAAGGGACGGTTTGCCTTCTCTTT GGAAACCTCTGCCAGCACTGCCTATTTGCAGATCAGCAACCTCAAAAATGAAG ACACGGCTACATATTTCTGTTCAACCCCTTATGAATACGACGGGGCTTACTGGG GCCAGGGGACTCTGGTCACTGTCTCTGCAGCTAGCACCAAGGGCCCCAGCGTGT TTCCTCTCGCTCCCTGCAGCCGGAGCACATCCGAGAGCACCGCTGCTCTGGGCT GTCTCGTGAAGGACTACTTCCCTGAACCCGTCACCGTCAGCTGGAATAGCGGCG CCCTGACATCCGGCGTCCACACATTCCCCGCTGTCCTGCAGAGCAGCGGCCTGT ACAGCCTGAGCTCCGTGGTCACCGTGCCTAGCAGCAGCCTGGGAACAAAGACC TACACCTGCAACGTGGACCATAAGCCCTCCAACACCAAGGTGGACAAGCGGGT GGAATCCAAGTATGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGAATTTCTCGGA GGCCCCTCCGTCTTCCTGTTTCCCCCCAAGCCCAAGGACACCCTGATGATCTCCC GGACACCCGAAGTCACCTGCGTCGTGGTGGATGTCAGCCAGGAAGATCCCGAG GTGCAGTTCAACTGGTACGTGGACGGAGTGGAGGTGCATAACGCCAAAACCAA GCCCAGGGAAGAGCAGTTCAACAGCACCTATCGGGTCGTGTCCGTGCTCACCGT CCTGCATCAGGATTGGCTCAACGGCAAGGAGTACAAGTGCAAGGTGTCCAACA AGGGCCTGCCCTCCTCCATCGAGAAGACCATCTCCAAGGCTAAGGGCCAACCTC GGGAGCCCCAAGTGTATACCCTCCCTCCCAGCCAGGAGGAGATGACCAAGAAT CAAGTGAGCCTGACCTGCCTCGTGAAGGGATTTTACCCCTCCGACATCGCTGTG GAATGGGAAAGCAATGGCCAACCTGAGAACAACTACAAGACCACACCCCCCGT GCTGGACTCCGATGGCTCCTTCTTCCTGTACAGCAGGCTGACCGTGGACAAATC CCGGTGGCAAGAGGGAAACGTGTTCAGCTGCTCCGTGATGCACGAGGCTCTCC ACAACCACTACACCCAGAAGAGCCTCTCCCTGAGCCTCGGCTAGTAA
15F10.2D6	708	GAAGTACAGCTGGTGGAGTCTGGGGGAGGCTTAGTGAAGCCTGGAGGGTCCCT GAAACTCTCCTGTGCAGCCTCTGGATTCGCTTTCAGTTCCTATGCCATGTCTTGG GTTCGCCAGACTCCGGAAAAGAGGCTGGAGTGGGTCGCAACCATTAGTGATGG TGGTGTTTACACCTACTATACAGACCATGTAAAGGGCCGATTCACCATCTCCAG AGACAATGCCGAGGACAACCTGTACCTGCAAATGAGCCATCTGAAGTCTGAGG ACACAGCCATGTATTATTGTGTGAGAGATGGGGGCTACTGGGGCCAAGGCACC ACTCTCACAGTCTCCTCAGCTAGCACCAAGGGCCCCAGCGTGTTTCCTCTCGCTC CCTGCAGCCGGAGCACATCCGAGAGCACCGCTGCTCTGGGCTGTCTCGTGAAGG ACTACTTCCCTGAACCCGTCACCGTCAGCTGGAATAGCGGCGCCCTGACATCCG GCGTCCACACATTCCCCGCTGTCCTGCAGAGCAGCGGCCTGTACAGCCTGAGCT CCGTGGTCACCGTGCCTAGCAGCAGCCTGGGAACAAAGACCTACACCTGCAAC GTGGACCATAAGCCCTCCAACACCAAGGTGGACAAGCGGGTGGAATCCAAGTA TGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGAATTTCTCGGAGGCCCCTCCGTC TTCCTGTTTCCCCCCAAGCCCAAGGACACCCTGATGATCTCCCGGACACCCGAA GTCACCTGCGTCGTGGTGGATGTCAGCCAGGAAGATCCCGAGGTGCAGTTCAAC TGGTACGTGGACGGAGTGGAGGTGCATAACGCCAAAACCAAGCCCAGGGAAGA GCAGTTCAACAGCACCTATCGGGTCGTGTCCGTGCTCACCGTCCTGCATCAGGA TTGGCTCAACGGCAAGGAGTACAAGTGCAAGGTGTCCAACAAGGGCCTGCCCT CCTCCATCGAGAAGACCATCTCCAAGGCTAAGGGCCAACCTCGGGAGCCCCAA GTGTATACCCTCCCTCCCAGCCAGGAGGAGATGACCAAGAATCAAGTGAGCCT GACCTGCCTCGTGAAGGGATTTTACCCCTCCGACATCGCTGTGGAATGGGAAAG CAATGGCCAACCTGAGAACAACTACAAGACCACACCCCCCGTGCTGGACTCCG ATGGCTCCTTCTTCCTGTACAGCAGGCTGACCGTGGACAAATCCCGGTGGCAAG AGGGAAACGTGTTCAGCTGCTCCGTGATGCACGAGGCTCTCCACAACCACTACA CCCAGAAGAGCCTCTCCCTGAGCCTCGGCTAGTAA

FIG. 16 cont.

Antibody	SEQ ID NO:	HC nucleic acid sequence
19B5.2E6	709	CAGATCCAACTTGTTCAGAGCGGGCCTGAATTGAAGAAACCAGGCGAGACTGT AAAGATCTCCTGTAAGGCCAGTGGCTATACATTCACCACCTACGCAATGAGCTG GGTCAAGCAGGCACCCGGAAAGGGTCTGAAGTGGATGGGTTGGATAAATACAT ACTCAGGCGTCCCAACCTACGCTGATGATTTGAAGGGGCGCTTTGCCTTTTCTCT TGAAACCTCAGCATCAACCGCCTACTTGCAGATAAATAACCTCAAAAATGAAG ACACCGCTACCTATTTCTGCGCAAGGGGGCCTTATGCTATGGACTACTGGGGCC AGGGCACCTCTGTGACTGTAAGTTCTGCTAGCACCAAGGGCCCCAGCGTGTTTC CTCTCGCTCCCTGCAGCCGGAGCACATCCGAGAGCACCGCTGCTCTGGGCTGTC TCGTGAAGGACTACTTCCCTGAACCCGTCACCGTCAGCTGGAATAGCGGCGCCC TGACATCCGGCGTCCACACATTCCCCGCTGTCCTGCAGAGCAGCGGCCTGTACA GCCTGAGCTCCGTGGTCACCGTGCCTAGCAGCAGCCTGGGAACAAAGACCTAC ACCTGCAACGTGGACCATAAGCCCTCCAACACCAAGGTGGACAAGCGGGTGGA ATCCAAGTATGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGAATTTCTCGGAGGC CCCTCCGTCTTCCTGTTTCCCCCCAAGCCCAAGGACACCCTGATGATCTCCCGGA CACCCGAAGTCACCTGCGTCGTGGTGGATGTCAGCCAGGAAGATCCCGAGGTG CAGTTCAACTGGTACGTGGACGGAGTGGAGGTGCATAACGCCAAAACCAAGCC CAGGGAAGAGCAGTTCAACAGCACCTATCGGGTCGTGTCCGTGCTCACCGTCCT GCATCAGGATTGGCTCAACGGCAAGGAGTACAAGTGCAAGGTGTCCAACAAGG GCCTGCCCTCCTCCATCGAGAAGACCATCTCCAAGGCTAAGGGCCAACCTCGGG AGCCCCAAGTGTATACCCTCCCTCCCAGCCAGGAGGAGATGACCAAGAATCAA GTGAGCCTGACCTGCCTCGTGAAGGGATTTTACCCCTCCGACATCGCTGTGGAA TGGGAAAGCAATGGCCAACCTGAGAACAACTACAAGACCACACCCCCCGTGCT GGACTCCGATGGCTCCTTCTTCCTGTACAGCAGGCTGACCGTGGACAAATCCCG GTGGCAAGAGGGAAACGTGTTCAGCTGCTCCGTGATGCACGAGGCTCTCCACA ACCACTACACCCAGAAGAGCCTCTCCCTGAGCCTCGGCTAGTAA
20D11.2C6	710	GAGGTCCAGCTGCAACAATCTGGACCTGAACTGGTGAAGCCTGGGGCTTCAGT GAAGATATCCTGTAAGGCTTCTGGATACACGTTCACTGACTTCTACATAAACTG GGTGAAGCAGAGCCATGGAAAGAGCCTTGAGTGGATTGGAGATATTAATCCTA AGAATGGTGGTATTAACTACAACCCGAAGTTCAAGATCAAGGCCACATTGACT GTAGACAAGTCCTCCAGCACATCCTACATGGACCTCCGCGGCCTGACATCTGAG GACTCTGCAGTCTATTACTGCACCTCAGGCTACGGATTTCCTTACTGGGGCCAA GGGACTCTGGTCACTGTCTCTGCAGCTAGCACCAAGGGCCCCAGCGTGTTTCCT CTCGCTCCCTGCAGCCGGAGCACATCCGAGAGCACCGCTGCTCTGGGCTGTCTC GTGAAGGACTACTTCCCTGAACCCGTCACCGTCAGCTGGAATAGCGGCGCCCTG ACATCCGGCGTCCACACATTCCCCGCTGTCCTGCAGAGCAGCGGCCTGTACAGC CTGAGCTCCGTGGTCACCGTGCCTAGCAGCAGCCTGGGAACAAAGACCTACAC CTGCAACGTGGACCATAAGCCCTCCAACACCAAGGTGGACAAGCGGGTGGAAT CCAAGTATGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGAATTTCTCGGAGGCCC CTCCGTCTTCCTGTTTCCCCCCAAGCCCAAGGACACCCTGATGATCTCCCGGAC ACCCGAAGTCACCTGCGTCGTGGTGGATGTCAGCCAGGAAGATCCCGAGGTGC AGTTCAACTGGTACGTGGACGGAGTGGAGGTGCATAACGCCAAAACCAAGCCC AGGGAAGAGCAGTTCAACAGCACCTATCGGGTCGTGTCCGTGCTCACCGTCCTG CATCAGGATTGGCTCAACGGCAAGGAGTACAAGTGCAAGGTGTCCAACAAGGG CCTGCCCTCCTCCATCGAGAAGACCATCTCCAAGGCTAAGGGCCAACCTCGGGA GCCCCAAGTGTATACCCTCCCTCCCAGCCAGGAGGAGATGACCAAGAATCAAG TGAGCCTGACCTGCCTCGTGAAGGGATTTTACCCCTCCGACATCGCTGTGGAAT GGGAAAGCAATGGCCAACCTGAGAACAACTACAAGACCACACCCCCCGTGCTG GACTCCGATGGCTCCTTCTTCCTGTACAGCAGGCTGACCGTGGACAAATCCCGG TGGCAAGAGGGAAACGTGTTCAGCTGCTCCGTGATGCACGAGGCTCTCCACAA CCACTACACCCAGAAGAGCCTCTCCCTGAGCCTCGGCTAGTAA

FIG. 16 cont.

Antibody	SEQ ID NO:	HC nucleic acid sequence
20H5.A3	711	CAGATCCAGTTGGTACAGTCTGGACCTGAGCTGAAGAAGCCTGGAGAGTCAGT CAAGATCTCCTGCAAGGCTTCTGGTTATGCCTTCACAACCTATGGAATGAGCTG GGTGCAACAGGCTCCAGGAAAGGGTTTAAAGTGGATGGGCTGGGTAAACACCT ACTCTGGAGTGCCAACATGTGCTGATGACTTCAAGGGACGGTTTGCCTTCTCTTT GGAAACCTCTGCCAGCACTGCCTATTTGCAGATCAACAACCTCAGAAATGAGG ACACGGCTACATATTTCTGTGCAAGAGGGCCCTATGCTATGGACTACTGGGGTC AAGGAACCTCAGTCACCGTCTCCTCAGCTAGCACCAAGGGCCCCAGCGTGTTTC CTCTCGCTCCCTGCAGCCGGAGCACATCCGAGAGCACCGCTGCTCTGGGCTGTC TCGTGAAGGACTACTTCCCTGAACCCGTCACCGTCAGCTGGAATAGCGGCGCCC TGACATCCGGCGTCCACACATTCCCCGCTGTCCTGCAGAGCAGCGGCCTGTACA GCCTGAGCTCCGTGGTCACCGTGCCTAGCAGCAGCCTGGGAACAAAGACCTAC ACCTGCAACGTGGACCATAAGCCCTCCAACACCAAGGTGGACAAGCGGGTGGA ATCCAAGTATGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGAATTTCTCGGAGGC CCCTCCGTCTTCCTGTTTCCCCCCAAGCCCAAGGACACCCTGATGATCTCCCGGA CACCCGAAGTCACCTGCGTCGTGGTGGATGTCAGCCAGGAAGATCCCGAGGTG CAGTTCAACTGGTACGTGGACGGAGTGGAGGTGCATAACGCCAAAACCAAGCC CAGGGAAGAGCAGTTCAACAGCACCTATCGGGTCGTGTCCGTGCTCACCGTCCT GCATCAGGATTGGCTCAACGGCAAGGAGTACAAGTGCAAGGTGTCCAACAAGG GCCTGCCCTCCTCCATCGAGAAGACCATCTCCAAGGCTAAGGGCCAACCTCGGG AGCCCCAAGTGTATACCCTCCCTCCCAGCCAGGAGGAGATGACCAAGAATCAA GTGAGCCTGACCTGCCTCGTGAAGGGATTTTACCCCTCCGACATCGCTGTGGAA TGGGAAAGCAATGGCCAACCTGAGAACAACTACAAGACCACACCCCCCGTGCT GGACTCCGATGGCTCCTTCTTCCTGTACAGCAGGCTGACCGTGGACAAATCCCG GTGGCAAGAGGGAAACGTGTTCAGCTGCTCCGTGATGCACGAGGCTCTCCACA ACCACTACACCCAGAAGAGCCTCTCCCTGAGCCTCGGCTAGTAA
23H9.2E4	712	CAGATCCAGTTGGTACAGTCTGGACCTGAGCTGAAGAAGCCTGGAGAGACAGT CAAGATCTCCTGCAAGGCTTCTGGGTATACCTTCACAACCTATGCAATGAGCTG GGTGAAACAGGCTCCAGGAAAGGGTTTAAAGTGGATGGGCTGGATAAACACCT ACTCTGGAGTGCCAACATATGCTGATGACCTCAAGGGACGGTTTGCCTTCTCTT TGGAAACCTCTGCCAGCACTGCCTATTTGCAGATCAACAACCTCAAAAATGAGG ACACGGCTACATATTTCTGTGCAAGAGGGCCCTATGCTATGGACTACTGGGGTC AAGGAACCTCAGTCACCGTCTCCTCAGCTAGCACCAAGGGCCCCAGCGTGTTTC CTCTCGCTCCCTGCAGCCGGAGCACATCCGAGAGCACCGCTGCTCTGGGCTGTC TCGTGAAGGACTACTTCCCTGAACCCGTCACCGTCAGCTGGAATAGCGGCGCCC TGACATCCGGCGTCCACACATTCCCCGCTGTCCTGCAGAGCAGCGGCCTGTACA GCCTGAGCTCCGTGGTCACCGTGCCTAGCAGCAGCCTGGGAACAAAGACCTAC ACCTGCAACGTGGACCATAAGCCCTCCAACACCAAGGTGGACAAGCGGGTGGA ATCCAAGTATGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGAATTTCTCGGAGGC CCCTCCGTCTTCCTGTTTCCCCCCAAGCCCAAGGACACCCTGATGATCTCCCGGA CACCCGAAGTCACCTGCGTCGTGGTGGATGTCAGCCAGGAAGATCCCGAGGTG CAGTTCAACTGGTACGTGGACGGAGTGGAGGTGCATAACGCCAAAACCAAGCC CAGGGAAGAGCAGTTCAACAGCACCTATCGGGTCGTGTCCGTGCTCACCGTCCT GCATCAGGATTGGCTCAACGGCAAGGAGTACAAGTGCAAGGTGTCCAACAAGG GCCTGCCCTCCTCCATCGAGAAGACCATCTCCAAGGCTAAGGGCCAACCTCGGG AGCCCCAAGTGTATACCCTCCCTCCCAGCCAGGAGGAGATGACCAAGAATCAA GTGAGCCTGACCTGCCTCGTGAAGGGATTTTACCCCTCCGACATCGCTGTGGAA TGGGAAAGCAATGGCCAACCTGAGAACAACTACAAGACCACACCCCCCGTGCT GGACTCCGATGGCTCCTTCTTCCTGTACAGCAGGCTGACCGTGGACAAATCCCG GTGGCAAGAGGGAAACGTGTTCAGCTGCTCCGTGATGCACGAGGCTCTCCACA ACCACTACACCCAGAAGAGCCTCTCCCTGAGCCTCGGCTAGTAA

FIG. 16 cont.

Antibody	SEQ ID NO:	HC nucleic acid sequence
2D10-VH0-VL0	713	CAAGTACAGCTCCAGCAATCAGGACCTGAACTTGTTAAGCCAGGTGCAAGCGTCA AAATAAGTTGTAAAGCATCAGGTTACACCTTTACAGACTACTATATCAACTGGGT CAAGCAACGGCCTGGTCAGGGACTTGAATGGATAGGTTGGATCTACCCTGGGTCA CAAGACACCAAGTACAATGAAAAATTTAAGGGGAAAGCCACTCTGACAGTAGAT ACTAGCTCAAGTACCGCCTACATGCAGCTCGGCAGCCTCACTTCCGAGGACTCTG CCGTATATTTCTGTGCCAACTACTTCGGGTCTTCTGGGTGGTTCTTTGATGTGTGG GGAACCGGCACCACCGTAACCGTTTCCTCAGCTAGCACCAAGGGCCCCAGCGTGT TTCCTCTCGCTCCCTGCAGCCGGAGCACATCCGAGAGCACCGCTGCTCTGGGCTGT CTCGTGAAGGACTACTTCCCTGAACCCGTCACCGTCAGCTGGAATAGCGGCGCCC TGACATCCGGCGTCCACACATTCCCCGCTGTCCTGCAGAGCAGCGGCCTGTACAG CCTGAGCTCCGTGGTCACCGTGCCTAGCAGCAGCCTGGGAACAAAGACCTACACC TGCAACGTGGACCATAAGCCCTCCAACACCAAGGTGGACAAGCGGGTGGAATCC AAGTATGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGAATTTCTCGGAGGCCCCTC CGTCTTCCTGTTTCCCCCCAAGCCCAAGGACACCCTGATGATCTCCCGGACACCCG AAGTCACCTGCGTCGTGGTGGATGTCAGCCAGGAAGATCCCGAGGTGCAGTTCAA CTGGTACGTGGACGGAGTGGAGGTGCATAACGCCAAAACCAAGCCCAGGGAAGA GCAGTTCAACAGCACCTATCGGGTCGTGTCCGTGCTCACCGTCCTGCATCAGGATT GGCTCAACGGCAAGGAGTACAAGTGCAAGGTGTCCAACAAGGGCCTGCCCTCCTC CATCGAGAAGACCATCTCCAAGGCTAAGGGCCAACCTCGGGAGCCCCAAGTGTAT ACCCTCCCTCCCAGCCAGGAGGAGATGACCAAGAATCAAGTGAGCCTGACCTGCC TCGTGAAGGGATTTTACCCCTCCGACATCGCTGTGGAATGGGAAAGCAATGGCCA ACCTGAGAACAACTACAAGACCACACCCCCCGTGCTGGACTCCGATGGCTCCTTC TTCCTGTACAGCAGGCTGACCGTGGACAAATCCCGGTGGCAAGAGGGAAACGTGT TCAGCTGCTCCGTGATGCACGAGGCTCTCCACAACCACTACACCCAGAAGAGCCT CTCCCTGAGCCTCGGCTAGTAA
3B11.2G2	714	CAGATCCAGTTGGTACAGTCTGGACCTGAGCTGAAGAAGCCTGGAGAGACAGTCA AGATCTCCTGCAAGACTTCTGGGTATAAATTCAAAACCTATGTAATGAGCTGGGT GAAACAGGCTCCAGGAAAGGCTTTAAAGTGGATGGGCTGGATAAACACCTACTCT GGAGTGCCAACATATGCTGATGACTTCAAGGGACGGTTTGCCTTCTCTTTGGAAA CCTCTGCCAGCACTGCCTATTTGGAGATCATCAACCTCAAAAATGAGGACACGGC TACATATTTCTGTGCAAGAGATGGTAATTACGGGGATCCTATGGACTACTGGGGT CAAGGAACCTCAGTCACCGTCTCCTCAGCTAGCACCAAGGGCCCCAGCGTGTTTC CTCTCGCTCCCTGCAGCCGGAGCACATCCGAGAGCACCGCTGCTCTGGGCTGTCTC GTGAAGGACTACTTCCCTGAACCCGTCACCGTCAGCTGGAATAGCGGCGCCCTGA CATCCGGCGTCCACACATTCCCCGCTGTCCTGCAGAGCAGCGGCCTGTACAGCCT GAGCTCCGTGGTCACCGTGCCTAGCAGCAGCCTGGGAACAAAGACCTACACCTGC AACGTGGACCATAAGCCCTCCAACACCAAGGTGGACAAGCGGGTGGAATCCAAG TATGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGAATTTCTCGGAGGCCCCTCCGT CTTCCTGTTTCCCCCCAAGCCCAAGGACACCCTGATGATCTCCCGGACACCCGAA GTCACCTGCGTCGTGGTGGATGTCAGCCAGGAAGATCCCGAGGTGCAGTTCAACT GGTACGTGGACGGAGTGGAGGTGCATAACGCCAAAACCAAGCCCAGGGAAGAGC AGTTCAACAGCACCTATCGGGTCGTGTCCGTGCTCACCGTCCTGCATCAGGATTGG CTCAACGGCAAGGAGTACAAGTGCAAGGTGTCCAACAAGGGCCTGCCCTCCTCCA TCGAGAAGACCATCTCCAAGGCTAAGGGCCAACCTCGGGAGCCCCAAGTGTATAC CCTCCCTCCCAGCCAGGAGGAGATGACCAAGAATCAAGTGAGCCTGACCTGCCTC GTGAAGGGATTTTACCCCTCCGACATCGCTGTGGAATGGGAAAGCAATGGCCAAC CTGAGAACAACTACAAGACCACACCCCCCGTGCTGGACTCCGATGGCTCCTTCTT CCTGTACAGCAGGCTGACCGTGGACAAATCCCGGTGGCAAGAGGGAAACGTGTTC AGCTGCTCCGTGATGCACGAGGCTCTCCACAACCACTACACCCAGAAGAGCCTCT CCCTGAGCCTCGGCTAGTAA

FIG. 16 cont.

Antibody	SEQ ID NO:	HC nucleic acid sequence
7D8.2D8	715	GAAGTGCAGCTGGTGGAGTCTGGGGGAGGCTTAGTGAAGCCTGGAGGGTCCCT GAAACTCTCCTGTGCAGCCTCTGGATTCACTTTCAGTAGCTATGCCATGTCTTGG GTTCGCCAGACTCCGGAAAAGAGGCTGGAGTGGGTCGCAACCATCAGTGATGG TGGTATTTACACCTACTATCCAGACAATGTAAAGGGCCGATTCACCATTTCCAG AGACAATGCCAAGAACAACCTGTTCCTGCAAATGAGCCATCTGAAGTCTGAGG ATACAGCCATGTATTACTGTGTAAGAGATGGGGGCTACTGGGGCCAAGGCACC ACTCTCACAGTCTCCTCAGCTAGCACCAAGGGCCCCAGCGTGTTTCCTCTCGCTC CCTGCAGCCGGAGCACATCCGAGAGCACCGCTGCTCTGGGCTGTCTCGTGAAGG ACTACTTCCCTGAACCCGTCACCGTCAGCTGGAATAGCGGCGCCCTGACATCCG GCGTCCACACATTCCCCGCTGTCCTGCAGAGCAGCGGCCTGTACAGCCTGAGCT CCGTGGTCACCGTGCCTAGCAGCAGCCTGGGAACAAAGACCTACACCTGCAAC GTGGACCATAAGCCCTCCAACACCAAGGTGGACAAGCGGGTGGAATCCAAGTA TGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGAATTTCTCGGAGGCCCCTCCGTC TTCCTGTTTCCCCCCAAGCCCAAGGACACCCTGATGATCTCCCGGACACCCGAA GTCACCTGCGTCGTGGTGGATGTCAGCCAGGAAGATCCCGAGGTGCAGTTCAAC TGGTACGTGGACGGAGTGGAGGTGCATAACGCCAAAACCAAGCCCAGGGAAGA GCAGTTCAACAGCACCTATCGGGTCGTGTCCGTGCTCACCGTCCTGCATCAGGA TTGGCTCAACGGCAAGGAGTACAAGTGCAAGGTGTCCAACAAGGGCCTGCCCT CCTCCATCGAGAAGACCATCTCCAAGGCTAAGGGCCAACCTCGGGAGCCCCAA GTGTATACCCTCCCTCCCAGCCAGGAGGAGATGACCAAGAATCAAGTGAGCCT GACCTGCCTCGTGAAGGGATTTTACCCCTCCGACATCGCTGTGGAATGGGAAAG CAATGGCCAACCTGAGAACAACTACAAGACCACACCCCCCGTGCTGGACTCCG ATGGCTCCTTCTTCCTGTACAGCAGGCTGACCGTGGACAAATCCCGGTGGCAAG AGGGAAACGTGTTCAGCTGCTCCGTGATGCACGAGGCTCTCCACAACCACTACA CCCAGAAGAGCCTCTCCCTGAGCCTCGGCTAGTAA
mTB001 (mIMT001)	716	CAGATCCAACTTGTGCAGTCAGGTCCAGAATTGAAGAAGCCTGGTGAGACCGT CAAGATTTCCTGTAAGGCCTCTGGTTATACTTTTACCAACTATGGCATGAATTGG GTCAAGCAGGCACCTGGGAAGGGTTTGAAATGGATGGGGTGGATAAATACCAA CACAGGGGAACCAACTTACGTTGAAGAGTTTAAGGGTCGTTTTGCATTCAGTCT TGAGACTTCTGCAAGCACAGCTTACCTCCAAATTAACAATCTCAAAAATGAAGA TACTGCTACATATTTCTGTGCTCCTTATGATAATTTTTTCGCCTACTGGGGACAG GGAACTCTGGTCACCGTCTCAGCAGCTAAGACTACTCCTCCCAGTGTCTACCCC CTGGCCCCCGTGTGCGGCGACACAACAGGCTCCTCCGTGACACTGGGCTGCCTG GTGAAAGGCTACTTCCCCGAGCCCGTGACACTGACATGGAACTCCGGCTCCCTG TCCTCCGGCGTGCACACATTCCCCGCCGTGCTGCAGTCCGACCTGTACACACTG TCCTCCTCCGTGACAGTGACATCCTCCACATGGCCCTCCCAGTCCATCACATGC AACGTGGCCCACCCCGCCTCCTCCACAAAAGTGGACAAAAAAATCGAGCCCAG GGGCCCCACAATCAAACCCTGCCCCCCCTGCAAATGCCCCGCCCCCAACGCCGC CGGCGGCCCCTCCGTGTTCATCTTCCCCCCCAAAATCAAAGACGTGCTGATGAT CTCCCTGTCCCCCATCGTGACATGCGTGGTGGTGGACGTGTCCGAGGACGACCC CGACGTGCAGATCTCCTGGTTCGTGAACAACGTGGAGGTGCACACAGCCCAGA CACAGACACACAGGGAGGACTACAACTCCACACTGAGGGTGGTGTCCGCCCTG CCCATCCAGCACCAGGACTGGATGTCCGGCAAAGAGTTCAAATGCAAAGTGAA CAACAAAGACCTGGGCGCCCCCATCGAGAGGACAATCTCCAAACCCAAAGGCT CCGTGAGGGCCCCCCAGGTGTACGTGCTGCCCCCCCCCGAGGAGGAGATGACA AAAAAACAGGTGACACTGACATGCATGGTGACAGACTTCATGCCCGAGGACAT CTACGTGGAGTGGACAAACAACGGCAAAACAGAGCTGAACTACAAAAACACA GAGCCCGTGCTGGACTCCGACGGCTCCTACTTCATGTACTCCAAACTGAGGGTG GAGAAAAAAAACTGGGTGGAGAGGAACTCCTACTCCTGCTCCGTGGTGCACGA GGGCCTGCACAACCACCACACAACAAAATCCTTCTCCAGGACACCCGGCAAAT AGTAA

FIG. 16 cont.

Antibody	SEQ ID NO:	HC nucleic acid sequence
4A11.2B5	717	CAGGTACAACTTCAGCAGAGCGGTCCAGAACTTGTGAAGCCCGGTGCTAGTGTC AAAATATCTTGCAAAGCAAGTGGTTATTCCTTCACCAACTATTACATACACTGG GTAAAACAACGTCCAGGGCAAGGACTCGAATGGATTGGTTGGATCTACCCCGG CAGCGGCAACACTAACTACAACGAGAAGTTTAAAGGCAAAGCTACTCTCACAG CAGACACTTCTAGCAGTACAACAAATATGCAGTTGTCCTCTCTGACTTCCGAAG ACAGCGCCGTCTATTACTGTTCTACTGCACCCGGAGGTTTTGACGTCTGGGGTTC CGGCACCACAGTTACCGTTAGTTCCGCTAGCACCAAGGGCCCCAGCGTGTTTCC TCTCGCTCCCTGCAGCCGGAGCACATCCGAGAGCACCGCTGCTCTGGGCTGTCT CGTGAAGGACTACTTCCCTGAACCCGTCACCGTCAGCTGGAATAGCGGCGCCCT GACATCCGGCGTCCACACATTCCCCGCTGTCCTGCAGAGCAGCGGCCTGTACAG CCTGAGCTCCGTGGTCACCGTGCCTAGCAGCAGCCTGGGAACAAAGACCTACA CCTGCAACGTGGACCATAAGCCCTCCAACACCAAGGTGGACAAGCGGGTGGAA TCCAAGTATGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGAATTTCTCGGAGGCC CCTCCGTCTTCCTGTTTCCCCCCAAGCCCAAGGACACCCTGATGATCTCCCGGAC ACCCGAAGTCACCTGCGTCGTGGTGGATGTCAGCCAGGAAGATCCCGAGGTGC AGTTCAACTGGTACGTGGACGGAGTGGAGGTGCATAACGCCAAAACCAAGCCC AGGGAAGAGCAGTTCAACAGCACCTATCGGGTCGTGTCCGTGCTCACCGTCCTG CATCAGGATTGGCTCAACGGCAAGGAGTACAAGTGCAAGGTGTCCAACAAGGG CCTGCCCTCCTCCATCGAGAAGACCATCTCCAAGGCTAAGGGCCAACCTCGGGA GCCCCAAGTGTATACCCTCCCTCCCAGCCAGGAGGAGATGACCAAGAATCAAG TGAGCCTGACCTGCCTCGTGAAGGGATTTTACCCCTCCGACATCGCTGTGGAAT GGGAAAGCAATGGCCAACCTGAGAACAACTACAAGACCACACCCCCCGTGCTG GACTCCGATGGCTCCTTCTTCCTGTACAGCAGGCTGACCGTGGACAAATCCCGG TGGCAAGAGGGAAACGTGTTCAGCTGCTCCGTGATGCACGAGGCTCTCCACAA CCACTACACCCAGAAGAGCCTCTCCCTGAGCCTCGGCTAGTAA
4A11.H1L1 (IMT006b)	718	CAGGTGCAGCTGGTGCAATCAGGAGCCGAAGTTAAGAAGCCTGGCGCCAGCGT CAAGGTCTCATGTAAAGCCTCCGGTTACAGTTTCACCAACTACTATATGCACTG GGTTAGGCAAGCACCAGGCCAGGGGCTTGAGTGGATGGGATGGATCTATCCAG GGAGCGGTAACACCAATTACAATGAGAAGTTTCAAGGGCGCGTAACCATGACA GCAGATACCAGTATAAGCACCGCCTATATGGAACTCTCTCGGTTGAGATCCGAT GATACCGCTGTTTATTACTGCTCTACCGCACCTGGTGGTTTCGACGTTTGGGGCC AAGGTACTACAGTGACCGTATCATCAGCTAGCACCAAGGGCCCCAGCGTGTTTC CTCTCGCTCCCTGCAGCCGGAGCACATCCGAGAGCACCGCTGCTCTGGGCTGTC TCGTGAAGGACTACTTCCCTGAACCCGTCACCGTCAGCTGGAATAGCGGCGCCC TGACATCCGGCGTCCACACATTCCCCGCTGTCCTGCAGAGCAGCGGCCTGTACA GCCTGAGCTCCGTGGTCACCGTGCCTAGCAGCAGCCTGGGAACAAAGACCTAC ACCTGCAACGTGGACCATAAGCCCTCCAACACCAAGGTGGACAAGCGGGTGGA ATCCAAGTATGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGAATTTCTCGGAGGC CCCTCCGTCTTCCTGTTTCCCCCCAAGCCCAAGGACACCCTGATGATCTCCCGGA CACCCGAAGTCACCTGCGTCGTGGTGGATGTCAGCCAGGAAGATCCCGAGGTG CAGTTCAACTGGTACGTGGACGGAGTGGAGGTGCATAACGCCAAAACCAAGCC CAGGGAAGAGCAGTTCAACAGCACCTATCGGGTCGTGTCCGTGCTCACCGTCCT GCATCAGGATTGGCTCAACGGCAAGGAGTACAAGTGCAAGGTGTCCAACAAGG GCCTGCCCTCCTCCATCGAGAAGACCATCTCCAAGGCTAAGGGCCAACCTCGGG AGCCCCAAGTGTATACCCTCCCTCCCAGCCAGGAGGAGATGACCAAGAATCAA GTGAGCCTGACCTGCCTCGTGAAGGGATTTTACCCCTCCGACATCGCTGTGGAA TGGGAAAGCAATGGCCAACCTGAGAACAACTACAAGACCACACCCCCCGTGCT GGACTCCGATGGCTCCTTCTTCCTGTACAGCAGGCTGACCGTGGACAAATCCCG GTGGCAAGAGGGAAACGTGTTCAGCTGCTCCGTGATGCACGAGGCTCTCCACA ACCACTACACCCAGAAGAGCCTCTCCCTGAGCCTCGGCTAGTAA

FIG. 16 cont.

Antibody	SEQ ID NO:	HC nucleic acid sequence
4A11.H4L2 (IMT006c)	719	CAGGTGCAACTGGTCCAGTCTGGGGCCGAGGTCAAAAAGCCTGGAGCCTCCGT CAAAGTGTCATGTAAAGCCTCAGGGTATAGTTTCACCAACTACTATATACATTG GGTCAGACAAGCCCCAGGCCAGCGTCTTGAGTGGATGGGATGGATTTATCCCG GATCAGGGAATACAAACTATAACGAGAAATTTCAAGGCAGAGTTACTCTCACT GCCGATACCTCTGCAAGTACTACCTATATGGAGCTCTCCAGTCTCAGAAGCGAA GACACAGCAGTATATTACTGTAGCACCGCCCCAGGCGGGTTTGACGTGTGGGGC CAAGGCACTACTGTAACCGTTAGCTCAGCTAGCACCAAGGGCCCCAGCGTGTTT CCTCTCGCTCCCTGCAGCCGGAGCACATCCGAGAGCACCGCTGCTCTGGGCTGT CTCGTGAAGGACTACTTCCCTGAACCCGTCACCGTCAGCTGGAATAGCGGCGCC CTGACATCCGGCGTCCACACATTCCCCGCTGTCCTGCAGAGCAGCGGCCTGTAC AGCCTGAGCTCCGTGGTCACCGTGCCTAGCAGCAGCCTGGGAACAAAGACCTA CACCTGCAACGTGGACCATAAGCCCTCCAACACCAAGGTGGACAAGCGGGTGG AATCCAAGTATGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGAATTTCTCGGAGG CCCCTCCGTCTTCCTGTTTCCCCCCAAGCCCAAGGACACCCTGATGATCTCCCGG ACACCCGAAGTCACCTGCGTCGTGGTGGATGTCAGCCAGGAAGATCCCGAGGT GCAGTTCAACTGGTACGTGGACGGAGTGGAGGTGCATAACGCCAAAACCAAGC CCAGGGAAGAGCAGTTCAACAGCACCTATCGGGTCGTGTCCGTGCTCACCGTCC TGCATCAGGATTGGCTCAACGGCAAGGAGTACAAGTGCAAGGTGTCCAACAAG GGCCTGCCCTCCTCCATCGAGAAGACCATCTCCAAGGCTAAGGGCCAACCTCGG GAGCCCCAAGTGTATACCCTCCCTCCCAGCCAGGAGGAGATGACCAAGAATCA AGTGAGCCTGACCTGCCTCGTGAAGGGATTTTACCCCTCCGACATCGCTGTGGA ATGGGAAAGCAATGGCCAACCTGAGAACAACTACAAGACCACACCCCCCGTGC TGGACTCCGATGGCTCCTTCTTCCTGTACAGCAGGCTGACCGTGGACAAATCCC GGTGGCAAGAGGGAAACGTGTTCAGCTGCTCCGTGATGCACGAGGCTCTCCAC AACCACTACACCCAGAAGAGCCTCTCCCTGAGCCTCGGCTAGTAA
4G2.2G6	720	CAAATACAGCTCGTGCAGTCTGGTCCCGATTTGAAGAAGCCTGGAGAAACCGT AAAGATAAGCTGTAAGGCTAGTGGTTACACTTTCACAACATACGTTATGTCATG GGTTAAACAGGCTCCTGGAAAAGACCTTAAATGGATGGGATGGATTAACACCC ATAGCGGTGTCCCAACTTACGCTGACGATTTTAAGGGACGATTTGACTTTTCTCT CGAAACTTCTGCCAACACAGCTTTTTTGCAGATCAACAATCTCAAGAATGAAGA CACCGCAACCTATTTCTGCACTCGAGATGGGAACGACGGGGATGCAATGGATA ACTGGGGACAAGGCACATCAGTTACCGTGAGCTCTGCTAGCACCAAGGGCCCC AGCGTGTTTCCTCTCGCTCCCTGCAGCCGGAGCACATCCGAGAGCACCGCTGCT CTGGGCTGTCTCGTGAAGGACTACTTCCCTGAACCCGTCACCGTCAGCTGGAAT AGCGGCGCCCTGACATCCGGCGTCCACACATTCCCCGCTGTCCTGCAGAGCAGC GGCCTGTACAGCCTGAGCTCCGTGGTCACCGTGCCTAGCAGCAGCCTGGGAACA AAGACCTACACCTGCAACGTGGACCATAAGCCCTCCAACACCAAGGTGGACAA GCGGGTGGAATCCAAGTATGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGAATTT CTCGGAGGCCCCTCCGTCTTCCTGTTTCCCCCCAAGCCCAAGGACACCCTGATG ATCTCCCGGACACCCGAAGTCACCTGCGTCGTGGTGGATGTCAGCCAGGAAGAT CCCGAGGTGCAGTTCAACTGGTACGTGGACGGAGTGGAGGTGCATAACGCCAA AACCAAGCCCAGGGAAGAGCAGTTCAACAGCACCTATCGGGTCGTGTCCGTGC TCACCGTCCTGCATCAGGATTGGCTCAACGGCAAGGAGTACAAGTGCAAGGTG TCCAACAAGGGCCTGCCCTCCTCCATCGAGAAGACCATCTCCAAGGCTAAGGGC CAACCTCGGGAGCCCCAAGTGTATACCCTCCCTCCCAGCCAGGAGGAGATGAC CAAGAATCAAGTGAGCCTGACCTGCCTCGTGAAGGGATTTTACCCCTCCGACAT CGCTGTGGAATGGGAAAGCAATGGCCAACCTGAGAACAACTACAAGACCACAC CCCCCGTGCTGGACTCCGATGGCTCCTTCTTCCTGTACAGCAGGCTGACCGTGG ACAAATCCCGGTGGCAAGAGGGAAACGTGTTCAGCTGCTCCGTGATGCACGAG GCTCTCCACAACCACTACACCCAGAAGAGCCTCTCCCTGAGCCTCGGCTAGTAA

FIG. 16 cont.

Antibody	SEQ ID NO:	HC nucleic acid sequence
6B3.2D3	721	CAGGTGCAGCTGAAGCAGTCAGGACCTGGCCTAGTGCAGCCCTCACAGAGCCT GTCCATCACCTGCACAGTCTCTGGTTTCTCATTAACTAGTTATGGTGTACACTGG GTTCGCCAGCCTCCAGGAAAGGGTCTGGAGTGGCTGGGAGTGATATGGAGTGG TGGAAGCACAGACTATAATGCTGCTTTCATATCCAGACTGAGCATCAGTAAGGA CAACTCCAAGAGCCAAGTTTTCTTTAAAATGAACAGTCTGCAAGCTGATGACAC TGCCATATACTACTGTGCCAAAGGGCCTTATGATTACGACTTAGGCTGGTTTGC TTACTGGGGCCAAGGGACTCTGGTCACTGTCTCTGCAGCTAGCACCAAGGGCCC CAGCGTGTTTCCTCTCGCTCCCTGCAGCCGGAGCACATCCGAGAGCACCGCTGC TCTGGGCTGTCTCGTGAAGGACTACTTCCCTGAACCCGTCACCGTCAGCTGGAA TAGCGGCGCCCTGACATCCGGCGTCCACACATTCCCCGCTGTCCTGCAGAGCAG CGGCCTGTACAGCCTGAGCTCCGTGGTCACCGTGCCTAGCAGCAGCCTGGGAAC AAAGACCTACACCTGCAACGTGGACCATAAGCCCTCCAACACCAAGGTGGACA AGCGGGTGGAATCCAAGTATGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGAAT TTCTCGGAGGCCCCTCCGTCTTCCTGTTTCCCCCCAAGCCCAAGGACACCCTGAT GATCTCCCGGACACCCGAAGTCACCTGCGTCGTGGTGGATGTCAGCCAGGAAG ATCCCGAGGTGCAGTTCAACTGGTACGTGGACGGAGTGGAGGTGCATAACGCC AAAACCAAGCCCAGGGAAGAGCAGTTCAACAGCACCTATCGGGTCGTGTCCGT GCTCACCGTCCTGCATCAGGATTGGCTCAACGGCAAGGAGTACAAGTGCAAGG TGTCCAACAAGGGCCTGCCCTCCTCCATCGAGAAGACCATCTCCAAGGCTAAGG GCCAACCTCGGGAGCCCCAAGTGTATACCCTCCCTCCCAGCCAGGAGGAGATG ACCAAGAATCAAGTGAGCCTGACCTGCCTCGTGAAGGGATTTTACCCCTCCGAC ATCGCTGTGGAATGGGAAAGCAATGGCCAACCTGAGAACAACTACAAGACCAC ACCCCCCGTGCTGGACTCCGATGGCTCCTTCTTCCTGTACAGCAGGCTGACCGT GGACAAATCCCGGTGGCAAGAGGGAAACGTGTTCAGCTGCTCCGTGATGCACG AGGCTCTCCACAACCACTACACCCAGAAGAGCCTCTCCCTGAGCCTCGGCTAGT AA
6H6.2D6	722	CAGATCCAGCTGGTGCAGTCCGGCCCCGAGCTGAAGAAGCCCGGCGAGACTGT GAAGATCTCCTGCAAGGCCTCCGGCTACACCTTCACCACCTACGGCATGTCCTG GGTGAAGCAGGCCCCCGGCAAGGGCCTGAAGTGGATGGCCTGGATCAACACCT ACTCCGGCGTGCCCACCTACGCCGACGACTTCAAGGGCAGGTTCGCCTTCTCCC TGGAGACTTCCGCCTCCACCGCCTACCTGCAGATCAACAACCTGACCAACGAGG ACACCGCCACCTACTTCTGCGCCAGGGGCCCCTACGCCATGGACTACTGGGGCC AGGGCACCTCCGTGACCGTGTCCTCCGCTAGCACCAAGGGCCCCAGCGTGTTTC CTCTCGCTCCCTGCAGCCGGAGCACATCCGAGAGCACCGCTGCTCTGGGCTGTC TCGTGAAGGACTACTTCCCTGAACCCGTCACCGTCAGCTGGAATAGCGGCGCCC TGACATCCGGCGTCCACACATTCCCCGCTGTCCTGCAGAGCAGCGGCCTGTACA GCCTGAGCTCCGTGGTCACCGTGCCTAGCAGCAGCCTGGGAACAAAGACCTAC ACCTGCAACGTGGACCATAAGCCCTCCAACACCAAGGTGGACAAGCGGGTGGA ATCCAAGTATGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGAATTTCTCGGAGGC CCCTCCGTCTTCCTGTTTCCCCCCAAGCCCAAGGACACCCTGATGATCTCCCGGA CACCCGAAGTCACCTGCGTCGTGGTGGATGTCAGCCAGGAAGATCCCGAGGTG CAGTTCAACTGGTACGTGGACGGAGTGGAGGTGCATAACGCCAAAACCAAGCC CAGGGAAGAGCAGTTCAACAGCACCTATCGGGTCGTGTCCGTGCTCACCGTCCT GCATCAGGATTGGCTCAACGGCAAGGAGTACAAGTGCAAGGTGTCCAACAAGG GCCTGCCCTCCTCCATCGAGAAGACCATCTCCAAGGCTAAGGGCCAACCTCGGG AGCCCCAAGTGTATACCCTCCCTCCCAGCCAGGAGGAGATGACCAAGAATCAA GTGAGCCTGACCTGCCTCGTGAAGGGATTTTACCCCTCCGACATCGCTGTGGAA TGGGAAAGCAATGGCCAACCTGAGAACAACTACAAGACCACACCCCCCGTGCT GGACTCCGATGGCTCCTTCTTCCTGTACAGCAGGCTGACCGTGGACAAATCCCG GTGGCAAGAGGGAAACGTGTTCAGCTGCTCCGTGATGCACGAGGCTCTCCACA ACCACTACACCCAGAAGAGCCTCTCCCTGAGCCTCGGCTAGTAA

FIG. 16 cont.

Antibody	SEQ ID NO:	HC nucleic acid sequence
9H2.2H10	723	CAGGTCCAGCTGCAGCAGCCTGGGGCTGAACTGGTGGGGCCTGGGTCTTCAGTG AAGCTGTCCTGCAAGGCTTCTGGCTACACCTTCACCAACTACTGGATACATTGG GTGAAGCAGAGGCCTCTACAAGGCCTTGAATGGATTGGTAACATTGACCCTTCT GATAGTGAAACTCACTACAATCAAAAGTTCAAGGACAAGGCCACATTGACTGT AGACAAATCCTCCAGCACAGCCTACATGCAACTCAGCAGCCTGACATCTGAGG ACTCTGCGGTCTATTACTGTGCAAGACATGGTTACTACGACTACTGGGGCCAAG GCACCACTCTCACAGTCTCCTCAGCTAGCACCAAGGGCCCCAGCGTGTTTCCTC TCGCTCCCTGCAGCCGGAGCACATCCGAGAGCACCGCTGCTCTGGGCTGTCTCG TGAAGGACTACTTCCCTGAACCCGTCACCGTCAGCTGGAATAGCGGCGCCCTGA CATCCGGCGTCCACACATTCCCCGCTGTCCTGCAGAGCAGCGGCCTGTACAGCC TGAGCTCCGTGGTCACCGTGCCTAGCAGCAGCCTGGGAACAAAGACCTACACCT GCAACGTGGACCATAAGCCCTCCAACACCAAGGTGGACAAGCGGGTGGAATCC AAGTATGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGAATTTCTCGGAGGCCCCT CCGTCTTCCTGTTTCCCCCCAAGCCCAAGGACACCCTGATGATCTCCCGGACAC CCGAAGTCACCTGCGTCGTGGTGGATGTCAGCCAGGAAGATCCCGAGGTGCAG TTCAACTGGTACGTGGACGGAGTGGAGGTGCATAACGCCAAAACCAAGCCCAG GGAAGAGCAGTTCAACAGCACCTATCGGGTCGTGTCCGTGCTCACCGTCCTGCA TCAGGATTGGCTCAACGGCAAGGAGTACAAGTGCAAGGTGTCCAACAAGGGCC TGCCCTCCTCCATCGAGAAGACCATCTCCAAGGCTAAGGGCCAACCTCGGGAGC CCCAAGTGTATACCCTCCCTCCCAGCCAGGAGGAGATGACCAAGAATCAAGTG AGCCTGACCTGCCTCGTGAAGGGATTTTACCCCTCCGACATCGCTGTGGAATGG GAAAGCAATGGCCAACCTGAGAACAACTACAAGACCACACCCCCCGTGCTGGA CTCCGATGGCTCCTTCTTCCTGTACAGCAGGCTGACCGTGGACAAATCCCGGTG GCAAGAGGGAAACGTGTTCAGCTGCTCCGTGATGCACGAGGCTCTCCACAACC ACTACACCCAGAAGAGCCTCTCCCTGAGCCTCGGCTAGTAA
13G4.2F8	724	CAGGTCCAGCTGCAGCAGCCTGGGGCTGAGCTGGTAAAGCCTGGGGCTTCAGT GAAGTTGTCCTGCAAGGCTTCTGGCTACACTTTCACCAGCTACTGGATGCACTG GGTGAAGCAGAGGCCTGGACAAGGCCTTGAGTGGATTGGAATGATTCATCCTA ACAGTGGTAGTACTGACTACAATGAGAAGTTCAAGAACAAGGCCACACTGAAT GTAGACAAATCCTCCAGTACAGCCTACATACAACTCAGCAGCCTGACATCTGAG GACTCTGCGGTCTATTACTGTACAAGATGGGGGATTTATTACTACGCGAGGGAC TACTGGGGCCAAGGCACCACTCTCACAGTCTCCTCAGCTAGCACCAAGGGCCCC AGCGTGTTTCCTCTCGCTCCCTGCAGCCGGAGCACATCCGAGAGCACCGCTGCT CTGGGCTGTCTCGTGAAGGACTACTTCCCTGAACCCGTCACCGTCAGCTGGAAT AGCGGCGCCCTGACATCCGGCGTCCACACATTCCCCGCTGTCCTGCAGAGCAGC GGCCTGTACAGCCTGAGCTCCGTGGTCACCGTGCCTAGCAGCAGCCTGGGAACA AAGACCTACACCTGCAACGTGGACCATAAGCCCTCCAACACCAAGGTGGACAA GCGGGTGGAATCCAAGTATGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGAATTT CTCGGAGGCCCCTCCGTCTTCCTGTTTCCCCCCAAGCCCAAGGACACCCTGATG ATCTCCCGGACACCCGAAGTCACCTGCGTCGTGGTGGATGTCAGCCAGGAAGAT CCCGAGGTGCAGTTCAACTGGTACGTGGACGGAGTGGAGGTGCATAACGCCAA AACCAAGCCCAGGGAAGAGCAGTTCAACAGCACCTATCGGGTCGTGTCCGTGC TCACCGTCCTGCATCAGGATTGGCTCAACGGCAAGGAGTACAAGTGCAAGGTG TCCAACAAGGGCCTGCCCTCCTCCATCGAGAAGACCATCTCCAAGGCTAAGGGC CAACCTCGGGAGCCCCAAGTGTATACCCTCCCTCCCAGCCAGGAGGAGATGAC CAAGAATCAAGTGAGCCTGACCTGCCTCGTGAAGGGATTTTACCCCTCCGACAT CGCTGTGGAATGGGAAAGCAATGGCCAACCTGAGAACAACTACAAGACCACAC CCCCCGTGCTGGACTCCGATGGCTCCTTCTTCCTGTACAGCAGGCTGACCGTGG ACAAATCCCGGTGGCAAGAGGGAAACGTGTTCAGCTGCTCCGTGATGCACGAG GCTCTCCACAACCACTACACCCAGAAGAGCCTCTCCCTGAGCCTCGGCTAGTAA

FIG. 16 cont.

Antibody	SEQ ID NO:	HC nucleic acid sequence
13H12.2F8	725	CAGATCCAGCTGGTCCAATCAGGACCCGAACTGAAAAAACCAGGCGAGACAGT CAAAATCAGCTGTAAGGCCTCAGGCTACACTTTCACAACCTACGGGATGTCATG GGTAAAGCAAGCTCCTGGCAAGGGGCTGAAATGGATGGGTTGGATCAACACAT ACTCTGGAGTGCCCACCTACGCTGACGACTTTAAGGGTAGATTCGCATTTAGCC TGGAAACAAGTGCCAGTACAGCCTACCTCCAGATAAACAACTTGAAAAACGAG GATACCGCAACCTATTTTTGCGCCGTCCCCTACGAGTACGACGGTGCCTATTGG GGTCAGGGTACACTCGTAACAGTTTCCGCCGCTAGCACCAAGGGCCCCAGCGTG TTTCCTCTCGCTCCCTGCAGCCGGAGCACATCCGAGAGCACCGCTGCTCTGGGC TGTCTCGTGAAGGACTACTTCCCTGAACCCGTCACCGTCAGCTGGAATAGCGGC GCCCTGACATCCGGCGTCCACACATTCCCCGCTGTCCTGCAGAGCAGCGGCCTG TACAGCCTGAGCTCCGTGGTCACCGTGCCTAGCAGCAGCCTGGGAACAAAGAC CTACACCTGCAACGTGGACCATAAGCCCTCCAACACCAAGGTGGACAAGCGGG TGGAATCCAAGTATGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGAATTTCTCGG AGGCCCCTCCGTCTTCCTGTTTCCCCCCAAGCCCAAGGACACCCTGATGATCTCC CGGACACCCGAAGTCACCTGCGTCGTGGTGGATGTCAGCCAGGAAGATCCCGA GGTGCAGTTCAACTGGTACGTGGACGGAGTGGAGGTGCATAACGCCAAAACCA AGCCCAGGGAAGAGCAGTTCAACAGCACCTATCGGGTCGTGTCCGTGCTCACC GTCCTGCATCAGGATTGGCTCAACGGCAAGGAGTACAAGTGCAAGGTGTCCAA CAAGGGCCTGCCCTCCTCCATCGAGAAGACCATCTCCAAGGCTAAGGGCCAAC CTCGGGAGCCCCAAGTGTATACCCTCCCTCCCAGCCAGGAGGAGATGACCAAG AATCAAGTGAGCCTGACCTGCCTCGTGAAGGGATTTTACCCCTCCGACATCGCT GTGGAATGGGAAAGCAATGGCCAACCTGAGAACAACTACAAGACCACACCCCC CGTGCTGGACTCCGATGGCTCCTTCTTCCTGTACAGCAGGCTGACCGTGGACAA ATCCCGGTGGCAAGAGGGAAACGTGTTCAGCTGCTCCGTGATGCACGAGGCTCT CCACAACCACTACACCCAGAAGAGCCTCTCCCTGAGCCTCGGCTAGTAA
15G7.2A7	726	GAGGTCCAGCTGCAACAATCTGGACCTGAGCTGGTGAAGCCTGGGGCTTCAGT GAAGATATCCTGTAAGGCTTCTGGATACACGTTCACTGACTACTACATGAACTG GGTGAAGCAGAGCCATGGAAAGAGCCTTGAGTGGATTGGAGATATTAATCCTA ACAATGGTGGTACTAACTACAACCAGAAGTTCAAGGGCAAGGCCACATTGACT GTAGACAAGTCCTCCAGCACAGCCTACATGGAGCTCCGCAGCCTGACATCTGAG GACTCTGCAGTCTATTACTGCACCTCAGGCTACGGGTTTCCTTACTGGGGCCAG GGGACTCTGGTCACTGTCTCTGCAGCTAGCACCAAGGGCCCCAGCGTGTTTCCT CTCGCTCCCTGCAGCCGGAGCACATCCGAGAGCACCGCTGCTCTGGGCTGTCTC GTGAAGGACTACTTCCCTGAACCCGTCACCGTCAGCTGGAATAGCGGCGCCCTG ACATCCGGCGTCCACACATTCCCCGCTGTCCTGCAGAGCAGCGGCCTGTACAGC CTGAGCTCCGTGGTCACCGTGCCTAGCAGCAGCCTGGGAACAAAGACCTACAC CTGCAACGTGGACCATAAGCCCTCCAACACCAAGGTGGACAAGCGGGTGGAAT CCAAGTATGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGAATTTCTCGGAGGCCC CTCCGTCTTCCTGTTTCCCCCCAAGCCCAAGGACACCCTGATGATCTCCCGGAC ACCCGAAGTCACCTGCGTCGTGGTGGATGTCAGCCAGGAAGATCCCGAGGTGC AGTTCAACTGGTACGTGGACGGAGTGGAGGTGCATAACGCCAAAACCAAGCCC AGGGAAGAGCAGTTCAACAGCACCTATCGGGTCGTGTCCGTGCTCACCGTCCTG CATCAGGATTGGCTCAACGGCAAGGAGTACAAGTGCAAGGTGTCCAACAAGGG CCTGCCCTCCTCCATCGAGAAGACCATCTCCAAGGCTAAGGGCCAACCTCGGGA GCCCCAAGTGTATACCCTCCCTCCCAGCCAGGAGGAGATGACCAAGAATCAAG TGAGCCTGACCTGCCTCGTGAAGGGATTTTACCCCTCCGACATCGCTGTGGAAT GGGAAAGCAATGGCCAACCTGAGAACAACTACAAGACCACACCCCCCGTGCTG GACTCCGATGGCTCCTTCTTCCTGTACAGCAGGCTGACCGTGGACAAATCCCGG TGGCAAGAGGGAAACGTGTTCAGCTGCTCCGTGATGCACGAGGCTCTCCACAA CCACTACACCCAGAAGAGCCTCTCCCTGAGCCTCGGCTAGTAA

FIG. 16 cont.

Antibody	SEQ ID NO:	HC nucleic acid sequence
19D9.2E5	727	CAGATCCAGTTGGTACAGTCTGGACCTGAGCTGAAGAAGCCTGGAGAGACAGT CAAGATCTCCTGCAAGGCTTCTGGATATACCTTCACAACCTATGGAATGGGCTG GGTGAAACAGGCTCCAGGAAAGGGTTTGAAGTGGATGGGCTGGATAAACACCT ACTCTGGCGTGCCAACATATGCTGATGACTTCAAGGGACGGTTTGCCTTCTCTTT GGAAACCTCTACCAGCACTGCCTATTTGCAGATCAACAACCTCAAAAATGAGG ACATGGCTACATATTTCTGTGCAACCCCTTATGAATACGACGGGGCTTACTGGG GCCAAGGGACTCTGGTCACTGTCTCTGCAGCTAGCACCAAGGGCCCCAGCGTGT TTCCTCTCGCTCCCTGCAGCCGGAGCACATCCGAGAGCACCGCTGCTCTGGGCT GTCTCGTGAAGGACTACTTCCCTGAACCCGTCACCGTCAGCTGGAATAGCGGCG CCCTGACATCCGGCGTCCACACATTCCCCGCTGTCCTGCAGAGCAGCGGCCTGT ACAGCCTGAGCTCCGTGGTCACCGTGCCTAGCAGCAGCCTGGGAACAAAGACC TACACCTGCAACGTGGACCATAAGCCCTCCAACACCAAGGTGGACAAGCGGGT GGAATCCAAGTATGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGAATTTCTCGGA GGCCCCTCCGTCTTCCTGTTTCCCCCCAAGCCCAAGGACACCCTGATGATCTCCC GGACACCCGAAGTCACCTGCGTCGTGGTGGATGTCAGCCAGGAAGATCCCGAG GTGCAGTTCAACTGGTACGTGGACGGAGTGGAGGTGCATAACGCCAAAACCAA GCCCAGGGAAGAGCAGTTCAACAGCACCTATCGGGTCGTGTCCGTGCTCACCGT CCTGCATCAGGATTGGCTCAACGGCAAGGAGTACAAGTGCAAGGTGTCCAACA AGGGCCTGCCCTCCTCCATCGAGAAGACCATCTCCAAGGCTAAGGGCCAACCTC GGGAGCCCCAAGTGTATACCCTCCCTCCCAGCCAGGAGGAGATGACCAAGAAT CAAGTGAGCCTGACCTGCCTCGTGAAGGGATTTTACCCCTCCGACATCGCTGTG GAATGGGAAAGCAATGGCCAACCTGAGAACAACTACAAGACCACACCCCCCGT GCTGGACTCCGATGGCTCCTTCTTCCTGTACAGCAGGCTGACCGTGGACAAATC CCGGTGGCAAGAGGGAAACGTGTTCAGCTGCTCCGTGATGCACGAGGCTCTCC ACAACCACTACACCCAGAAGAGCCTCTCCCTGAGCCTCGGCTAGTAA
23B10.2B12	728	CAGGTCCAGCTGCAGCAGTCTGGACCTGAACTGGTGAAGCCTGGGGATTCTGTG AAGATATCCTGCAAGGCTGCTGGCTACACCTTCAGTGACTATTATATAAACTGG GTGAAGCAGAGGCCTGGACAGGGACTTGAGTGGATTGGATGGATTTATCCTGT AAGCGTTAATACTAAGTACAATGAGAAGTTCAAGGGCAAGGCCACATTGACTG TAGACACATCCTCCAGCACAGCCTACATGCAGCTCAGCAGCCTGACCTCTGAGG ACTCTGGGGTCTATTTCTGTGCCTACCTTGATTATTGGGGCCAAGGGACTCTGGT CACTGTCTCTGCAGCTAGCACCAAGGGCCCCAGCGTGTTTCCTCTCGCTCCCTGC AGCCGGAGCACATCCGAGAGCACCGCTGCTCTGGGCTGTCTCGTGAAGGACTA CTTCCCTGAACCCGTCACCGTCAGCTGGAATAGCGGCGCCCTGACATCCGGCGT CCACACATTCCCCGCTGTCCTGCAGAGCAGCGGCCTGTACAGCCTGAGCTCCGT GGTCACCGTGCCTAGCAGCAGCCTGGGAACAAAGACCTACACCTGCAACGTGG ACCATAAGCCCTCCAACACCAAGGTGGACAAGCGGGTGGAATCCAAGTATGGA CCCCCCTGTCCTCCTTGCCCTGCTCCTGAATTTCTCGGAGGCCCCTCCGTCTTCC TGTTTCCCCCCAAGCCCAAGGACACCCTGATGATCTCCCGGACACCCGAAGTCA CCTGCGTCGTGGTGGATGTCAGCCAGGAAGATCCCGAGGTGCAGTTCAACTGGT ACGTGGACGGAGTGGAGGTGCATAACGCCAAAACCAAGCCCAGGGAAGAGCA GTTCAACAGCACCTATCGGGTCGTGTCCGTGCTCACCGTCCTGCATCAGGATTG GCTCAACGGCAAGGAGTACAAGTGCAAGGTGTCCAACAAGGGCCTGCCCTCCT CCATCGAGAAGACCATCTCCAAGGCTAAGGGCCAACCTCGGGAGCCCCAAGTG TATACCCTCCCTCCCAGCCAGGAGGAGATGACCAAGAATCAAGTGAGCCTGAC CTGCCTCGTGAAGGGATTTTACCCCTCCGACATCGCTGTGGAATGGGAAAGCAA TGGCCAACCTGAGAACAACTACAAGACCACACCCCCCGTGCTGGACTCCGATG GCTCCTTCTTCCTGTACAGCAGGCTGACCGTGGACAAATCCCGGTGGCAAGAGG GAAACGTGTTCAGCTGCTCCGTGATGCACGAGGCTCTCCACAACCACTACACCC AGAAGAGCCTCTCCCTGAGCCTCGGCTAGTAA

FIG. 16 cont.

Antibody	SEQ ID NO:	HC nucleic acid sequence
24D12.2H9	729	CAGGTGCAGCTGAAGCAGTCAGGACCTGGCCTAGTGCAGCCCTCACAGAGCCTGT CCATCACCTGCACAGTCTCTGGTTTCTCATTAACTAGCTATGGTGTACACTGGGTT CGCCAGGCTCCAGGAAAGGGTCTGGAATGGCTGGGAGTGATATGGAGTGGTGGA AGCACAGACTATAATGCTGCTTTCATGTCCAGACTGAGCATCAGCAAGGACAACT CCAAGAGCCAAGTTTTCTTTAAAATGAACAGTCTGCAAGCTGATGACACTGCCAT ATACTACTGTGCCAAAAGCCCTGATGGTTACGACGTCGCCTGGTTTGGTTACTGGG GCCAAGGGACTCTGGTCACTGTCTCTGCAGCTAGCACCAAGGGCCCCAGCGTGTT TCCTCTCGCTCCCTGCAGCCGGAGCACATCCGAGAGCACCGCTGCTCTGGGCTGTC TCGTGAAGGACTACTTCCCTGAACCCGTCACCGTCAGCTGGAATAGCGGCGCCCT GACATCCGGCGTCCACACATTCCCCGCTGTCCTGCAGAGCAGCGGCCTGTACAGC CTGAGCTCCGTGGTCACCGTGCCTAGCAGCAGCCTGGGAACAAAGACCTACACCT GCAACGTGGACCATAAGCCCTCCAACACCAAGGTGGACAAGCGGGTGGAATCCA AGTATGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGAATTTCTCGGAGGCCCCTCC GTCTTCCTGTTTCCCCCCAAGCCCAAGGACACCCTGATGATCTCCCGGACACCCGA AGTCACCTGCGTCGTGGTGGATGTCAGCCAGGAAGATCCCGAGGTGCAGTTCAAC TGGTACGTGGACGGAGTGGAGGTGCATAACGCCAAAACCAAGCCCAGGGAAGAG CAGTTCAACAGCACCTATCGGGTCGTGTCCGTGCTCACCGTCCTGCATCAGGATTG GCTCAACGGCAAGGAGTACAAGTGCAAGGTGTCCAACAAGGGCCTGCCCTCCTCC ATCGAGAAGACCATCTCCAAGGCTAAGGGCCAACCTCGGGAGCCCCAAGTGTATA CCCTCCCTCCCAGCCAGGAGGAGATGACCAAGAATCAAGTGAGCCTGACCTGCCT CGTGAAGGGATTTTACCCCTCCGACATCGCTGTGGAATGGGAAAGCAATGGCCAA CCTGAGAACAACTACAAGACCACACCCCCCGTGCTGGACTCCGATGGCTCCTTCT TCCTGTACAGCAGGCTGACCGTGGACAAATCCCGGTGGCAAGAGGGAAACGTGTT CAGCTGCTCCGTGATGCACGAGGCTCTCCACAACCACTACACCCAGAAGAGCCTC TCCCTGAGCCTCGGCTAGTAA
F846C.1B2	730	CAGATCCAGTTGGTGCAGTCTGGACCTGAGCTGAAGAAGCCTGGAGAGACAGTCA AGATCTCCTGCAAGGCTTCTGGGTATACCTTCACAAACTATGGAATGAATTGGGT GAAGCAGGCTCCAGGAAAGGGTTTAAAGTGGATGGGCTGGATAAACACCTACAC TGGAGAGCCATCATATGCTGATGACTTCAAGGGACGGTTTGCCTTCTCTTTGGAAA CCTCTGCCAGCACTGCCTATTTGCAGATCAACAACCTCAAAAATGAGGACATGGC TACATATTTCTGTGCAAGATGGGGGGGTTACGCTGGGGATTACTATGCTATGGAC TTCTGGGGTCAAGGAACCTCAGTCACCGTCTCCTCAGCTAGCACCAAGGGCCCCA GCGTGTTTCCTCTCGCTCCCTGCAGCCGGAGCACATCCGAGAGCACCGCTGCTCTG GGCTGTCTCGTGAAGGACTACTTCCCTGAACCCGTCACCGTCAGCTGGAATAGCG GCGCCCTGACATCCGGCGTCCACACATTCCCCGCTGTCCTGCAGAGCAGCGGCCT GTACAGCCTGAGCTCCGTGGTCACCGTGCCTAGCAGCAGCCTGGGAACAAAGACC TACACCTGCAACGTGGACCATAAGCCCTCCAACACCAAGGTGGACAAGCGGGTG GAATCCAAGTATGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGAATTTCTCGGAGG CCCCTCCGTCTTCCTGTTTCCCCCCAAGCCCAAGGACACCCTGATGATCTCCCGGA CACCCGAAGTCACCTGCGTCGTGGTGGATGTCAGCCAGGAAGATCCCGAGGTGCA GTTCAACTGGTACGTGGACGGAGTGGAGGTGCATAACGCCAAAACCAAGCCCAG GGAAGAGCAGTTCAACAGCACCTATCGGGTCGTGTCCGTGCTCACCGTCCTGCAT CAGGATTGGCTCAACGGCAAGGAGTACAAGTGCAAGGTGTCCAACAAGGGCCTG CCCTCCTCCATCGAGAAGACCATCTCCAAGGCTAAGGGCCAACCTCGGGAGCCCC AAGTGTATACCCTCCCTCCCAGCCAGGAGGAGATGACCAAGAATCAAGTGAGCCT GACCTGCCTCGTGAAGGGATTTTACCCCTCCGACATCGCTGTGGAATGGGAAAGC AATGGCCAACCTGAGAACAACTACAAGACCACACCCCCCGTGCTGGACTCCGATG GCTCCTTCTTCCTGTACAGCAGGCTGACCGTGGACAAATCCCGGTGGCAAGAGGG AAACGTGTTCAGCTGCTCCGTGATGCACGAGGCTCTCCACAACCACTACACCCAG AAGAGCCTCTCCCTGAGCCTCGGCTAGTAA

FIG. 16 cont.

Antibody	SEQ ID NO:	HC nucleic acid sequence
F846C.1F5	731	CAGATCCAGTTGGTGCAGTCTGGACCTGAGCTGAAGAAGCCTGGAGAGACAGTC AAGATCTCCTGCAAGGCTTCTGGGTATACCTTCACAAACTATGGAATGAACTGGG TGAAGCAGGCTCCAGGAAAGGGTTTAAAGTGGATGGGCTGGATAAACACCTACA CTGGAGAGCCATCATATGCTGATGACTTCAAGGGACGGTTTGCCTTCTCTTTGGA AACCTCTGCCAGCACTGCCTATTTGCAGATCAACAACCTCAAAAATGAGGACAT GGCTACATATTTCTGTGCAAGATGGGGGGGTTACGATGGGGATTACTATGCTATG GACTACTGGGGTCAAGGAACCTCAGTCACCGTCTCCTCAGCTAGCACCAAGGGC CCCAGCGTGTTTCCTCTCGCTCCCTGCAGCCGGAGCACATCCGAGAGCACCGCTG CTCTGGGCTGTCTCGTGAAGGACTACTTCCCTGAACCCGTCACCGTCAGCTGGAA TAGCGGCGCCCTGACATCCGGCGTCCACACATTCCCCGCTGTCCTGCAGAGCAGC GGCCTGTACAGCCTGAGCTCCGTGGTCACCGTGCCTAGCAGCAGCCTGGGAACA AAGACCTACACCTGCAACGTGGACCATAAGCCCTCCAACACCAAGGTGGACAAG CGGGTGGAATCCAAGTATGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGAATTTC TCGGAGGCCCCTCCGTCTTCCTGTTTCCCCCCAAGCCCAAGGACACCCTGATGAT CTCCCGGACACCCGAAGTCACCTGCGTCGTGGTGGATGTCAGCCAGGAAGATCC CGAGGTGCAGTTCAACTGGTACGTGGACGGAGTGGAGGTGCATAACGCCAAAAC CAAGCCCAGGGAAGAGCAGTTCAACAGCACCTATCGGGTCGTGTCCGTGCTCAC CGTCCTGCATCAGGATTGGCTCAACGGCAAGGAGTACAAGTGCAAGGTGTCCAA CAAGGGCCTGCCCTCCTCCATCGAGAAGACCATCTCCAAGGCTAAGGGCCAACC TCGGGAGCCCCAAGTGTATACCCTCCCTCCCAGCCAGGAGGAGATGACCAAGAA TCAAGTGAGCCTGACCTGCCTCGTGAAGGGATTTTACCCCTCCGACATCGCTGTG GAATGGGAAAGCAATGGCCAACCTGAGAACAACTACAAGACCACACCCCCCGT GCTGGACTCCGATGGCTCCTTCTTCCTGTACAGCAGGCTGACCGTGGACAAATCC CGGTGGCAAGAGGGAAACGTGTTCAGCTGCTCCGTGATGCACGAGGCTCTCCAC AACCACTACACCCAGAAGAGCCTCTCCCTGAGCCTCGGCTAGTAA
F846C.1H12	732	CAGATCCAGTTGGTGCAGTCTGGACCTGAGCTGAAGAAGCCTGGAGAGACAGTC AAGATCTCCTGCAAGGCTTCTGGGTATACCTTCACAAACTTTGGAATGAACTGGG TGAAGCAGGCTCCAGGAAAGGGTTTAAAGTGGATGGGCTGGATAAACACCTACA CTGGAGAGCCATCATATGCTGATGACTTCAAGGGACGGTTTGCCTTCTCTTTGGA AACCTCTGCCAGCACTGCCTATTTGCAGATCAACAACCTCAAAAATGAGGACAT TGCTACATATTTCTGTGCAAGATGGGGGGGTTACGCTGGGGATTACTATGCTATG GACTACTGGGGTCAAGGAACCTCAGTCACCGTCTCCTCAGCTAGCACCAAGGGC CCCAGCGTGTTTCCTCTCGCTCCCTGCAGCCGGAGCACATCCGAGAGCACCGCTG CTCTGGGCTGTCTCGTGAAGGACTACTTCCCTGAACCCGTCACCGTCAGCTGGAA TAGCGGCGCCCTGACATCCGGCGTCCACACATTCCCCGCTGTCCTGCAGAGCAGC GGCCTGTACAGCCTGAGCTCCGTGGTCACCGTGCCTAGCAGCAGCCTGGGAACA AAGACCTACACCTGCAACGTGGACCATAAGCCCTCCAACACCAAGGTGGACAAG CGGGTGGAATCCAAGTATGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGAATTTC TCGGAGGCCCCTCCGTCTTCCTGTTTCCCCCCAAGCCCAAGGACACCCTGATGAT CTCCCGGACACCCGAAGTCACCTGCGTCGTGGTGGATGTCAGCCAGGAAGATCC CGAGGTGCAGTTCAACTGGTACGTGGACGGAGTGGAGGTGCATAACGCCAAAAC CAAGCCCAGGGAAGAGCAGTTCAACAGCACCTATCGGGTCGTGTCCGTGCTCAC CGTCCTGCATCAGGATTGGCTCAACGGCAAGGAGTACAAGTGCAAGGTGTCCAA CAAGGGCCTGCCCTCCTCCATCGAGAAGACCATCTCCAAGGCTAAGGGCCAACC TCGGGAGCCCCAAGTGTATACCCTCCCTCCCAGCCAGGAGGAGATGACCAAGAA TCAAGTGAGCCTGACCTGCCTCGTGAAGGGATTTTACCCCTCCGACATCGCTGTG GAATGGGAAAGCAATGGCCAACCTGAGAACAACTACAAGACCACACCCCCCGT GCTGGACTCCGATGGCTCCTTCTTCCTGTACAGCAGGCTGACCGTGGACAAATCC CGGTGGCAAGAGGGAAACGTGTTCAGCTGCTCCGTGATGCACGAGGCTCTCCAC AACCACTACACCCAGAAGAGCCTCTCCCTGAGCCTCGGCTAGTAA

FIG. 16 cont.

Antibody	SEQ ID NO:	HC nucleic acid sequence
F846C.1H5	733	GAGGTCCAGCTGTTGGAGTCTGGGGGAGGCTTAGTGAAGCCTGGAGGGTCCCT GAAACTCTCCTGTGCAGCCTCTGGATTCACTTTCAGCAGCTATGCCATGTCTTGG GTTCGCCAGACTCCAGAGAAGAGGCTGGAGTGGGTCGCATCCATTAGTAGTGG TGGTGACACCTACTATCCAGACAGTGTGAAGGGCCGATTCACCATCTCTAGAGA TAATGCCAGGAACATCCTGTACCTGCAAATGAGCAGTCTGAGGTCTGAGGACA CGGCCATGTATTACTGTGCAAGTTATGGTAACTCCCTCTTTGACTACTGGGGCC AAGGCACCACTCTCACAGTCTCCTCAGCTAGCACCAAGGGCCCCAGCGTGTTTC CTCTCGCTCCCTGCAGCCGGAGCACATCCGAGAGCACCGCTGCTCTGGGCTGTC TCGTGAAGGACTACTTCCCTGAACCCGTCACCGTCAGCTGGAATAGCGGCGCCC TGACATCCGGCGTCCACACATTCCCCGCTGTCCTGCAGAGCAGCGGCCTGTACA GCCTGAGCTCCGTGGTCACCGTGCCTAGCAGCAGCCTGGGAACAAAGACCTAC ACCTGCAACGTGGACCATAAGCCCTCCAACACCAAGGTGGACAAGCGGGTGGA ATCCAAGTATGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGAATTTCTCGGAGGC CCCTCCGTCTTCCTGTTTCCCCCCAAGCCCAAGGACACCCTGATGATCTCCCGGA CACCCGAAGTCACCTGCGTCGTGGTGGATGTCAGCCAGGAAGATCCCGAGGTG CAGTTCAACTGGTACGTGGACGGAGTGGAGGTGCATAACGCCAAAACCAAGCC CAGGGAAGAGCAGTTCAACAGCACCTATCGGGTCGTGTCCGTGCTCACCGTCCT GCATCAGGATTGGCTCAACGGCAAGGAGTACAAGTGCAAGGTGTCCAACAAGG GCCTGCCCTCCTCCATCGAGAAGACCATCTCCAAGGCTAAGGGCCAACCTCGGG AGCCCCAAGTGTATACCCTCCCTCCCAGCCAGGAGGAGATGACCAAGAATCAA GTGAGCCTGACCTGCCTCGTGAAGGGATTTTACCCCTCCGACATCGCTGTGGAA TGGGAAAGCAATGGCCAACCTGAGAACAACTACAAGACCACACCCCCCGTGCT GGACTCCGATGGCTCCTTCTTCCTGTACAGCAGGCTGACCGTGGACAAATCCCG GTGGCAAGAGGGAAACGTGTTCAGCTGCTCCGTGATGCACGAGGCTCTCCACA ACCACTACACCCAGAAGAGCCTCTCCCTGAGCCTCGGCTAGTAA
F846C.2H3	734	CAGATCCAGTTGGTGCAGTCTGGACCTGAGCTGAAGAAGCCTGGAGAGACAGT CAAGATCTCCTGCAAGGCTTCTGGGTATACCTTCACAAACTATGGAATGAACTG GGTGAAGCAGGCTCCAGGAAAGGGTTTAAAGTGGATGGGCTGGATAAACACCT ACACTGGAGAGCCATCATATGCTGATGACTTCAAGGGACGGTTTGCCTTCTCTT TGGAAACCTCTGCCAGCACTGCCTATTTGCAGATCAACAACCTCAAAAATGAGG ACATGGCTACATATTTCTGTGCAAGATGGGGGGGTTACGATGGGGATTACTATG CTATGGACTACTGGGGTCAAGGAACCTCAGTCACCGTCTCCTCAGCTAGCACCA AGGGCCCCAGCGTGTTTCCTCTCGCTCCCTGCAGCCGGAGCACATCCGAGAGCA CCGCTGCTCTGGGCTGTCTCGTGAAGGACTACTTCCCTGAACCCGTCACCGTCA GCTGGAATAGCGGCGCCCTGACATCCGGCGTCCACACATTCCCCGCTGTCCTGC AGAGCAGCGGCCTGTACAGCCTGAGCTCCGTGGTCACCGTGCCTAGCAGCAGC CTGGGAACAAAGACCTACACCTGCAACGTGGACCATAAGCCCTCCAACACCAA GGTGGACAAGCGGGTGGAATCCAAGTATGGACCCCCCTGTCCTCCTTGCCCTGC TCCTGAATTTCTCGGAGGCCCCTCCGTCTTCCTGTTTCCCCCCAAGCCCAAGGAC ACCCTGATGATCTCCCGGACACCCGAAGTCACCTGCGTCGTGGTGGATGTCAGC CAGGAAGATCCCGAGGTGCAGTTCAACTGGTACGTGGACGGAGTGGAGGTGCA TAACGCCAAAACCAAGCCCAGGGAAGAGCAGTTCAACAGCACCTATCGGGTCG TGTCCGTGCTCACCGTCCTGCATCAGGATTGGCTCAACGGCAAGGAGTACAAGT GCAAGGTGTCCAACAAGGGCCTGCCCTCCTCCATCGAGAAGACCATCTCCAAG GCTAAGGGCCAACCTCGGGAGCCCCAAGTGTATACCCTCCCTCCCAGCCAGGA GGAGATGACCAAGAATCAAGTGAGCCTGACCTGCCTCGTGAAGGGATTTTACC CCTCCGACATCGCTGTGGAATGGGAAAGCAATGGCCAACCTGAGAACAACTAC AAGACCACACCCCCCGTGCTGGACTCCGATGGCTCCTTCTTCCTGTACAGCAGG CTGACCGTGGACAAATCCCGGTGGCAAGAGGGAAACGTGTTCAGCTGCTCCGT GATGCACGAGGCTCTCCACAACCACTACACCCAGAAGAGCCTCTCCCTGAGCCT CGGCTAGTAA

FIG. 16 cont.

Antibody	SEQ ID NO:	HC nucleic acid sequence
F846TC.14A2	735	CAGATCCAGTTGGTGCAGTCTGGACCTGAGCTGAAGAAGCCTGGAGAGACAGT CAAGATCTCCTGCAAGGCTTCTGGGTATACCTTCACAAACTATGGAATGAACTG GGTGAAGCAGGCTCCAGGAAAGGGTTTAAAGTGGATGGGCTGGATAAACACCT ACACTGGAGAGCCAACATATGCTGGTGACCTCAAGGGACGGTTTGCCTTCTCTT TGGAAACCTCTGCCAGCACTGCCTATTTGCAGATCAACAACCTCAAAAATGAGG ACACGGCTACATATTTCTGTGTAAGATATACTATGGACTACTGGGGTCAAGGAA CCTCAGTCACCGTCTCCTCAGCTAGCACCAAGGGCCCCAGCGTGTTTCCTCTCG CTCCCTGCAGCCGGAGCACATCCGAGAGCACCGCTGCTCTGGGCTGTCTCGTGA AGGACTACTTCCCTGAACCCGTCACCGTCAGCTGGAATAGCGGCGCCCTGACAT CCGGCGTCCACACATTCCCCGCTGTCCTGCAGAGCAGCGGCCTGTACAGCCTGA GCTCCGTGGTCACCGTGCCTAGCAGCAGCCTGGGAACAAAGACCTACACCTGC AACGTGGACCATAAGCCCTCCAACACCAAGGTGGACAAGCGGGTGGAATCCAA GTATGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGAATTTCTCGGAGGCCCCTCC GTCTTCCTGTTTCCCCCCAAGCCCAAGGACACCCTGATGATCTCCCGGACACCC GAAGTCACCTGCGTCGTGGTGGATGTCAGCCAGGAAGATCCCGAGGTGCAGTT CAACTGGTACGTGGACGGAGTGGAGGTGCATAACGCCAAAACCAAGCCCAGGG AAGAGCAGTTCAACAGCACCTATCGGGTCGTGTCCGTGCTCACCGTCCTGCATC AGGATTGGCTCAACGGCAAGGAGTACAAGTGCAAGGTGTCCAACAAGGGCCTG CCCTCCTCCATCGAGAAGACCATCTCCAAGGCTAAGGGCCAACCTCGGGAGCCC CAAGTGTATACCCTCCCTCCCAGCCAGGAGGAGATGACCAAGAATCAAGTGAG CCTGACCTGCCTCGTGAAGGGATTTTACCCCTCCGACATCGCTGTGGAATGGGA AAGCAATGGCCAACCTGAGAACAACTACAAGACCACACCCCCCGTGCTGGACT CCGATGGCTCCTTCTTCCTGTACAGCAGGCTGACCGTGGACAAATCCCGGTGGC AAGAGGGAAACGTGTTCAGCTGCTCCGTGATGCACGAGGCTCTCCACAACCACT ACACCCAGAAGAGCCTCTCCCTGAGCCTCGGCTAGTAA
F846TC.14E4	736	CAGGTTACTCTGAAAGAGTCTGGCCCTGGGATATTGCAGCCCTCCCAGACCCTC AGTCTGACTTGTTCTTTCTCTGGGTTTTCACTGAGCACTTCTGGTATGGGTGTAG GCTGGATTCGTCAGCCTTCAGGGAAGGGTCTGGAGTGGCTGGCACACATTTGGT GGGATGATGATAAGTACTATAACACAGCCCTGAAGAGCGGGCTCACAATCTCC AAGGATGCCTCCAAAAACCAGGTCTTCCTCAAGATCGCCAGTATGGACACTGCA GATACTGCCACATACTACTGTGCTCGAAACCTCTATGATGGTTCCTACGGGTAC TATGCTATGGACTACTGGGGTCAAGGAACCTCAGTCACCGTCTCCTCAGCTAGC ACCAAGGGCCCCAGCGTGTTTCCTCTCGCTCCCTGCAGCCGGAGCACATCCGAG AGCACCGCTGCTCTGGGCTGTCTCGTGAAGGACTACTTCCCTGAACCCGTCACC GTCAGCTGGAATAGCGGCGCCCTGACATCCGGCGTCCACACATTCCCCGCTGTC CTGCAGAGCAGCGGCCTGTACAGCCTGAGCTCCGTGGTCACCGTGCCTAGCAGC AGCCTGGGAACAAAGACCTACACCTGCAACGTGGACCATAAGCCCTCCAACAC CAAGGTGGACAAGCGGGTGGAATCCAAGTATGGACCCCCCTGTCCTCCTTGCCC TGCTCCTGAATTTCTCGGAGGCCCCTCCGTCTTCCTGTTTCCCCCCAAGCCCAAG GACACCCTGATGATCTCCCGGACACCCGAAGTCACCTGCGTCGTGGTGGATGTC AGCCAGGAAGATCCCGAGGTGCAGTTCAACTGGTACGTGGACGGAGTGGAGGT GCATAACGCCAAAACCAAGCCCAGGGAAGAGCAGTTCAACAGCACCTATCGGG TCGTGTCCGTGCTCACCGTCCTGCATCAGGATTGGCTCAACGGCAAGGAGTACA AGTGCAAGGTGTCCAACAAGGGCCTGCCCTCCTCCATCGAGAAGACCATCTCCA AGGCTAAGGGCCAACCTCGGGAGCCCCAAGTGTATACCCTCCCTCCCAGCCAG GAGGAGATGACCAAGAATCAAGTGAGCCTGACCTGCCTCGTGAAGGGATTTTA CCCCTCCGACATCGCTGTGGAATGGGAAAGCAATGGCCAACCTGAGAACAACT ACAAGACCACACCCCCCGTGCTGGACTCCGATGGCTCCTTCTTCCTGTACAGCA GGCTGACCGTGGACAAATCCCGGTGGCAAGAGGGAAACGTGTTCAGCTGCTCC GTGATGCACGAGGCTCTCCACAACCACTACACCCAGAAGAGCCTCTCCCTGAGC CTCGGCTAGTAA

FIG. 16 cont.

Antibody	SEQ ID NO:	HC nucleic acid sequence
F846TC.16B5	737	CAGATCCAGTTGGTGCAGTCTGGACCTGAGCTGAAGAAGCCTGGAGAGACAGTC AAGATCTCCTGCAAGGCTTCTGGGTATACCTTCACAAACTATGGAATGAACTGGG TGAAGCAGGCTCCAGGAAAGGGTTTAAAGTGGATGGGCTGGATAAACACCTACA CTGGAGAGCCAGCATATGCTGATGACTTCAAGGGACGGTTTGCCTTCTCTTTGGA AACCTCTGCCAGCACTGCCTATTTGCAGATCAACAACCTCAAAAATGAGGACAT GGCTACATATTTCTGTGCAAGATGGGGGGGTTACGATGGGGATTACTATGCTATG GACTACTGGGGTCAAGGAACCTCAGTCACCGTCTCCTCAGCTAGCACCAAGGGC CCCAGCGTGTTTCCTCTCGCTCCCTGCAGCCGGAGCACATCCGAGAGCACCGCTG CTCTGGGCTGTCTCGTGAAGGACTACTTCCCTGAACCCGTCACCGTCAGCTGGAA TAGCGGCGCCCTGACATCCGGCGTCCACACATTCCCCGCTGTCCTGCAGAGCAGC GGCCTGTACAGCCTGAGCTCCGTGGTCACCGTGCCTAGCAGCAGCCTGGGAACA AAGACCTACACCTGCAACGTGGACCATAAGCCCTCCAACACCAAGGTGGACAAG CGGGTGGAATCCAAGTATGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGAATTTC TCGGAGGCCCCTCCGTCTTCCTGTTTCCCCCCAAGCCCAAGGACACCCTGATGAT CTCCCGGACACCCGAAGTCACCTGCGTCGTGGTGGATGTCAGCCAGGAAGATCC CGAGGTGCAGTTCAACTGGTACGTGGACGGAGTGGAGGTGCATAACGCCAAAAC CAAGCCCAGGGAAGAGCAGTTCAACAGCACCTATCGGGTCGTGTCCGTGCTCAC CGTCCTGCATCAGGATTGGCTCAACGGCAAGGAGTACAAGTGCAAGGTGTCCAA CAAGGGCCTGCCCTCCTCCATCGAGAAGACCATCTCCAAGGCTAAGGGCCAACC TCGGGAGCCCCAAGTGTATACCCTCCCTCCCAGCCAGGAGGAGATGACCAAGAA TCAAGTGAGCCTGACCTGCCTCGTGAAGGGATTTTACCCCTCCGACATCGCTGTG GAATGGGAAAGCAATGGCCAACCTGAGAACAACTACAAGACCACACCCCCCGT GCTGGACTCCGATGGCTCCTTCTTCCTGTACAGCAGGCTGACCGTGGACAAATCC CGGTGGCAAGAGGGAAACGTGTTCAGCTGCTCCGTGATGCACGAGGCTCTCCAC AACCACTACACCCAGAAGAGCCTCTCCCTGAGCCTCGGCTAGTAA
F846TC.7F10	738	GAAGTGCAGCTGGTGGAGTCTGGGGGAGACTTAGTGAAGCCTGGAGGGTCCCTG AAACTCTCCTGTGCAGCCTCTGGATTCACTTTCAGTAACTATGGCTTGTCTTGGAT TCGCCAGACTCCAGACAAGAGGCTGGAGTGGGTCGCAACCATTAGTAGTGGTGG TAGTTACACCTACTATCCTGACAGTGTGAAGGGGCGATTCACCATCTCCAGAGAC AGTGCCAAGAACACCCTGTACCTGCAAATGAGCAGTCTGAAGTCTGAGGACACA GCCATGTATTACTGTGCAAGACATGCGCATTACTACGGTGTTAGCCCGTACTACT TTGACTACTGGGGCCAAGGCACCTGTCTCACAGTCTCCTCAGCTAGCACCAAGG GCCCCAGCGTGTTTCCTCTCGCTCCCTGCAGCCGGAGCACATCCGAGAGCACCGC TGCTCTGGGCTGTCTCGTGAAGGACTACTTCCCTGAACCCGTCACCGTCAGCTGG AATAGCGGCGCCCTGACATCCGGCGTCCACACATTCCCCGCTGTCCTGCAGAGC AGCGGCCTGTACAGCCTGAGCTCCGTGGTCACCGTGCCTAGCAGCAGCCTGGGA ACAAAGACCTACACCTGCAACGTGGACCATAAGCCCTCCAACACCAAGGTGGAC AAGCGGGTGGAATCCAAGTATGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGAAT TTCTCGGAGGCCCCTCCGTCTTCCTGTTTCCCCCCAAGCCCAAGGACACCCTGAT GATCTCCCGGACACCCGAAGTCACCTGCGTCGTGGTGGATGTCAGCCAGGAAGA TCCCGAGGTGCAGTTCAACTGGTACGTGGACGGAGTGGAGGTGCATAACGCCAA AACCAAGCCCAGGGAAGAGCAGTTCAACAGCACCTATCGGGTCGTGTCCGTGCT CACCGTCCTGCATCAGGATTGGCTCAACGGCAAGGAGTACAAGTGCAAGGTGTC CAACAAGGGCCTGCCCTCCTCCATCGAGAAGACCATCTCCAAGGCTAAGGGCCA ACCTCGGGAGCCCCAAGTGTATACCCTCCCTCCCAGCCAGGAGGAGATGACCAA GAATCAAGTGAGCCTGACCTGCCTCGTGAAGGGATTTTACCCCTCCGACATCGCT GTGGAATGGGAAAGCAATGGCCAACCTGAGAACAACTACAAGACCACACCCCC CGTGCTGGACTCCGATGGCTCCTTCTTCCTGTACAGCAGGCTGACCGTGGACAAA TCCCGGTGGCAAGAGGGAAACGTGTTCAGCTGCTCCGTGATGCACGAGGCTCTC CACAACCACTACACCCAGAAGAGCCTCTCCCTGAGCCTCGGCTAGTAA

FIG. 16 cont.

Antibody	SEQ ID NO:	HC nucleic acid sequence
F847C.10B9	739	CAGATCCAGTTGGTGCAGTCTGGACCTGAGGTGAAGAAGCCTGGAGAGACAGT CAAGATCTCCTGCAAGGCTTCTGGGTATATCTTCACAAACTATGGAATGAACTG GGTGAAGCAGGCTCCAGGAAAGGGTTTAAAGTGGATGGGCTGGATAAACACCT ACACTGGAGAGCCAACATATACTGATGACTTCAAGGGACGGTTTGCCTTCTCTT TGGAAACCTCTGCCAGCACTGCCTATTTGCAGATCAACAACCTCAAAAATGAGG ACACGGCTACATATTTCTGTGCAAAGTTTGGTAACTACGTGGGAGCTATGGACT ACTGGGGTCAAGGAACCTCAGTCACCGTCTCCTCAGCTAGCACCAAGGGCCCCA GCGTGTTTCCTCTCGCTCCCTGCAGCCGGAGCACATCCGAGAGCACCGCTGCTC TGGGCTGTCTCGTGAAGGACTACTTCCCTGAACCCGTCACCGTCAGCTGGAATA GCGGCGCCCTGACATCCGGCGTCCACACATTCCCCGCTGTCCTGCAGAGCAGCG GCCTGTACAGCCTGAGCTCCGTGGTCACCGTGCCTAGCAGCAGCCTGGGAACAA AGACCTACACCTGCAACGTGGACCATAAGCCCTCCAACACCAAGGTGGACAAG CGGGTGGAATCCAAGTATGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGAATTTC TCGGAGGCCCCTCCGTCTTCCTGTTTCCCCCCAAGCCCAAGGACACCCTGATGA TCTCCCGGACACCCGAAGTCACCTGCGTCGTGGTGGATGTCAGCCAGGAAGATC CCGAGGTGCAGTTCAACTGGTACGTGGACGGAGTGGAGGTGCATAACGCCAAA ACCAAGCCCAGGGAAGAGCAGTTCAACAGCACCTATCGGGTCGTGTCCGTGCT CACCGTCCTGCATCAGGATTGGCTCAACGGCAAGGAGTACAAGTGCAAGGTGT CCAACAAGGGCCTGCCCTCCTCCATCGAGAAGACCATCTCCAAGGCTAAGGGC CAACCTCGGGAGCCCCAAGTGTATACCCTCCCTCCCAGCCAGGAGGAGATGAC CAAGAATCAAGTGAGCCTGACCTGCCTCGTGAAGGGATTTTACCCCTCCGACAT CGCTGTGGAATGGGAAAGCAATGGCCAACCTGAGAACAACTACAAGACCACAC CCCCCGTGCTGGACTCCGATGGCTCCTTCTTCCTGTACAGCAGGCTGACCGTGG ACAAATCCCGGTGGCAAGAGGGAAACGTGTTCAGCTGCTCCGTGATGCACGAG GCTCTCCACAACCACTACACCCAGAAGAGCCTCTCCCTGAGCCTCGGCTAGTAA
F847C.11B1	740	GAGGTCCAGCTTCAGCAGTCTGGACCTGAGCTGGTGAAACCTGGGGCCTCAGTG AAGATATCCTGCAAGGCTTCTGGAAACACATTCACTGACCACAACATGCACTGG GTGAAGCAGAGCCATGGAAAGAGCCTTGAGTGGATTGGATATATTTATCCTTAC AATGGTGGTACTGGCTACAACCAGAAGTTCAAGAGCAAGGCCACATTGACTGT AGACAATTCCTCCAGCACAGTCTACATGGAGCTCCGCAGCCTGACATCTGAGGA CTCTGCAGTCTATTACTGTGCAAGAGGGGAGTATGATTACCTGGCCTGGTTTGC TTACTGGGGCCAAGGGACTCTGGTCACTGTCTCTGCAGCTAGCACCAAGGGCCC CAGCGTGTTTCCTCTCGCTCCCTGCAGCCGGAGCACATCCGAGAGCACCGCTGC TCTGGGCTGTCTCGTGAAGGACTACTTCCCTGAACCCGTCACCGTCAGCTGGAA TAGCGGCGCCCTGACATCCGGCGTCCACACATTCCCCGCTGTCCTGCAGAGCAG CGGCCTGTACAGCCTGAGCTCCGTGGTCACCGTGCCTAGCAGCAGCCTGGGAAC AAAGACCTACACCTGCAACGTGGACCATAAGCCCTCCAACACCAAGGTGGACA AGCGGGTGGAATCCAAGTATGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGAAT TTCTCGGAGGCCCCTCCGTCTTCCTGTTTCCCCCCAAGCCCAAGGACACCCTGAT GATCTCCCGGACACCCGAAGTCACCTGCGTCGTGGTGGATGTCAGCCAGGAAG ATCCCGAGGTGCAGTTCAACTGGTACGTGGACGGAGTGGAGGTGCATAACGCC AAAACCAAGCCCAGGGAAGAGCAGTTCAACAGCACCTATCGGGTCGTGTCCGT GCTCACCGTCCTGCATCAGGATTGGCTCAACGGCAAGGAGTACAAGTGCAAGG TGTCCAACAAGGGCCTGCCCTCCTCCATCGAGAAGACCATCTCCAAGGCTAAGG GCCAACCTCGGGAGCCCCAAGTGTATACCCTCCCTCCCAGCCAGGAGGAGATG ACCAAGAATCAAGTGAGCCTGACCTGCCTCGTGAAGGGATTTTACCCCTCCGAC ATCGCTGTGGAATGGGAAAGCAATGGCCAACCTGAGAACAACTACAAGACCAC ACCCCCCGTGCTGGACTCCGATGGCTCCTTCTTCCTGTACAGCAGGCTGACCGT GGACAAATCCCGGTGGCAAGAGGGAAACGTGTTCAGCTGCTCCGTGATGCACG AGGCTCTCCACAACCACTACACCCAGAAGAGCCTCTCCCTGAGCCTCGGCTAGT AA

FIG. 16 cont.

Antibody	SEQ ID NO:	HC nucleic acid sequence
F847C.12F12	741	CAGATCCAGTTGGTGCAGTCTGGACCTGAGCTGAAGAAGCCTGGAGAGACAGT CAAGATCTCCTGCAAGGCTTCTGGGTATACCTTCACAAACTATGGAATGAACTG GGTGAAGCAGGCTCCAGGAAAGGGTTTAAAGTGGATGGGCTGGATAAACACCT ACACTGGAGAGCCAACATATGTTGATGACTTCAAGGGACGGTTTGCCTTCTCTT TGGAAACCTCTGCCAGCACTGCCTATTTGCGGATCAACAACCTCAAAAATGAGG ACACGGCTACATATTTCTGTGCAAAGTTTGGTAACTACGTGGGAGCTATGGACT ACTGGGGTCAAGGAACCTCAGTCACCGTCTCCTCAGCTAGCACCAAGGGCCCCA GCGTGTTTCCTCTCGCTCCCTGCAGCCGGAGCACATCCGAGAGCACCGCTGCTC TGGGCTGTCTCGTGAAGGACTACTTCCCTGAACCCGTCACCGTCAGCTGGAATA GCGGCGCCCTGACATCCGGCGTCCACACATTCCCCGCTGTCCTGCAGAGCAGCG GCCTGTACAGCCTGAGCTCCGTGGTCACCGTGCCTAGCAGCAGCCTGGGAACAA AGACCTACACCTGCAACGTGGACCATAAGCCCTCCAACACCAAGGTGGACAAG CGGGTGGAATCCAAGTATGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGAATTTC TCGGAGGCCCCTCCGTCTTCCTGTTTCCCCCCAAGCCCAAGGACACCCTGATGA TCTCCCGGACACCCGAAGTCACCTGCGTCGTGGTGGATGTCAGCCAGGAAGATC CCGAGGTGCAGTTCAACTGGTACGTGGACGGAGTGGAGGTGCATAACGCCAAA ACCAAGCCCAGGGAAGAGCAGTTCAACAGCACCTATCGGGTCGTGTCCGTGCT CACCGTCCTGCATCAGGATTGGCTCAACGGCAAGGAGTACAAGTGCAAGGTGT CCAACAAGGGCCTGCCCTCCTCCATCGAGAAGACCATCTCCAAGGCTAAGGGC CAACCTCGGGAGCCCCAAGTGTATACCCTCCCTCCCAGCCAGGAGGAGATGAC CAAGAATCAAGTGAGCCTGACCTGCCTCGTGAAGGGATTTTACCCCTCCGACAT CGCTGTGGAATGGGAAAGCAATGGCCAACCTGAGAACAACTACAAGACCACAC CCCCCGTGCTGGACTCCGATGGCTCCTTCTTCCTGTACAGCAGGCTGACCGTGG ACAAATCCCGGTGGCAAGAGGGAAACGTGTTCAGCTGCTCCGTGATGCACGAG GCTCTCCACAACCACTACACCCAGAAGAGCCTCTCCCTGAGCCTCGGCTAGTAA
F847C.26F5	742	CAGATCCAGTTGGTGCAGTCTGGACCTGAGGTGAAGAAGCCTGGAGAGACAGT CAAGATCTCCTGCAAGGCTTCTGGGTATATCTTCACAAACTATGGAATGAACTG GGTGAAGCAGGCTCCAGGAAAGGGTTTAAAGTGGATGGGCTGGATAAACACCT ACACTGGAGAGCCAACATATACTGATGACTTCAAGGGACGGTTTGCCTTCTCTT TGGAAACCTCTGCCAGCACTGCCTATTTGCAGATCAACAACCTCAAAAATGAGG ACACGGCTACATATTTCTGTGCAAAGTTTGGTAACTACGTGGGAGCTATGGACT ACTGGGGTCAAGGAACCTCAGTCACCGTCTCCTCAGCTAGCACCAAGGGCCCCA GCGTGTTTCCTCTCGCTCCCTGCAGCCGGAGCACATCCGAGAGCACCGCTGCTC TGGGCTGTCTCGTGAAGGACTACTTCCCTGAACCCGTCACCGTCAGCTGGAATA GCGGCGCCCTGACATCCGGCGTCCACACATTCCCCGCTGTCCTGCAGAGCAGCG GCCTGTACAGCCTGAGCTCCGTGGTCACCGTGCCTAGCAGCAGCCTGGGAACAA AGACCTACACCTGCAACGTGGACCATAAGCCCTCCAACACCAAGGTGGACAAG CGGGTGGAATCCAAGTATGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGAATTTC TCGGAGGCCCCTCCGTCTTCCTGTTTCCCCCCAAGCCCAAGGACACCCTGATGA TCTCCCGGACACCCGAAGTCACCTGCGTCGTGGTGGATGTCAGCCAGGAAGATC CCGAGGTGCAGTTCAACTGGTACGTGGACGGAGTGGAGGTGCATAACGCCAAA ACCAAGCCCAGGGAAGAGCAGTTCAACAGCACCTATCGGGTCGTGTCCGTGCT CACCGTCCTGCATCAGGATTGGCTCAACGGCAAGGAGTACAAGTGCAAGGTGT CCAACAAGGGCCTGCCCTCCTCCATCGAGAAGACCATCTCCAAGGCTAAGGGC CAACCTCGGGAGCCCCAAGTGTATACCCTCCCTCCCAGCCAGGAGGAGATGAC CAAGAATCAAGTGAGCCTGACCTGCCTCGTGAAGGGATTTTACCCCTCCGACAT CGCTGTGGAATGGGAAAGCAATGGCCAACCTGAGAACAACTACAAGACCACAC CCCCCGTGCTGGACTCCGATGGCTCCTTCTTCCTGTACAGCAGGCTGACCGTGG ACAAATCCCGGTGGCAAGAGGGAAACGTGTTCAGCTGCTCCGTGATGCACGAG GCTCTCCACAACCACTACACCCAGAAGAGCCTCTCCCTGAGCCTCGGCTAGTAA

FIG. 16 cont.

Antibody	SEQ ID NO:	HC nucleic acid sequence
F847C.4B10	743	GAGGTGCAGCTTGTTGAGACTGGGGGAGGCTTAGTGAAGCCTGGAGGGTCCCT GAAACTCTCCTGTGCAGCCTCTGGATTCACTTTCAGTAGCTATGCCATGTCTTGG GTTCGCCAGACTCCAGAGAAGAGGCTGGAGTGGGTCGCATCCATTAGTAGTGG TGGTAGCACCTACTATCCAGACAGTGTGAAGGGCCGATTCACCATCTCCAGAGA TAATGCCAGGAACATCCTGTACCTGCAAATGAGCAGTCTGAGGTCTGAGGACA CGGCCATGTATTACTGTACAAGGTTTACTACGGTAGTAGAGATGGACTACTGGG GTCAAGGAACCTCAGTCACCGTCTCCTCAGCTAGCACCAAGGGCCCCAGCGTGT TTCCTCTCGCTCCCTGCAGCCGGAGCACATCCGAGAGCACCGCTGCTCTGGGCT GTCTCGTGAAGGACTACTTCCCTGAACCCGTCACCGTCAGCTGGAATAGCGGCG CCCTGACATCCGGCGTCCACACATTCCCCGCTGTCCTGCAGAGCAGCGGCCTGT ACAGCCTGAGCTCCGTGGTCACCGTGCCTAGCAGCAGCCTGGGAACAAAGACC TACACCTGCAACGTGGACCATAAGCCCTCCAACACCAAGGTGGACAAGCGGGT GGAATCCAAGTATGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGAATTTCTCGGA GGCCCCTCCGTCTTCCTGTTTCCCCCCAAGCCCAAGGACACCCTGATGATCTCCC GGACACCCGAAGTCACCTGCGTCGTGGTGGATGTCAGCCAGGAAGATCCCGAG GTGCAGTTCAACTGGTACGTGGACGGAGTGGAGGTGCATAACGCCAAAACCAA GCCCAGGGAAGAGCAGTTCAACAGCACCTATCGGGTCGTGTCCGTGCTCACCGT CCTGCATCAGGATTGGCTCAACGGCAAGGAGTACAAGTGCAAGGTGTCCAACA AGGGCCTGCCCTCCTCCATCGAGAAGACCATCTCCAAGGCTAAGGGCCAACCTC GGGAGCCCCAAGTGTATACCCTCCCTCCCAGCCAGGAGGAGATGACCAAGAAT CAAGTGAGCCTGACCTGCCTCGTGAAGGGATTTTACCCCTCCGACATCGCTGTG GAATGGGAAAGCAATGGCCAACCTGAGAACAACTACAAGACCACACCCCCCGT GCTGGACTCCGATGGCTCCTTCTTCCTGTACAGCAGGCTGACCGTGGACAAATC CCGGTGGCAAGAGGGAAACGTGTTCAGCTGCTCCGTGATGCACGAGGCTCTCC ACAACCACTACACCCAGAAGAGCCTCTCCCTGAGCCTCGGCTAGTAA
F849C.8D10	744	CAGGTCCAACTGCAGCAGACTGGTGCTGAGCTTGTGAAGCCTGGGGCCTCAGTG AAGCTGTCCTGCAAGGCTTCTGGCTATACTTTCACCAGCTACTGGATAAACTGG GTGAAGCAGAGGCCTGGACAAGGCCTTGAGTGGATTGGAAACATTTATCCTGG TAGTAGTAGTATTTACTACAGTGAGAAGTTCAAGAGTAAGGCCACACTGACTGT AGACACATCCTCCAGCACAGCCTACATGCAGCTCAGCAGCCTGACATCTGACGA CTCTGCGGTCTATTATTGTGCAAGATGGGGCTACTGGGGCCAAGGCACCACTCT CACAGTCTCCTCAGCTAGCACCAAGGGCCCCAGCGTGTTTCCTCTCGCTCCCTG CAGCCGGAGCACATCCGAGAGCACCGCTGCTCTGGGCTGTCTCGTGAAGGACT ACTTCCCTGAACCCGTCACCGTCAGCTGGAATAGCGGCGCCCTGACATCCGGCG TCCACACATTCCCCGCTGTCCTGCAGAGCAGCGGCCTGTACAGCCTGAGCTCCG TGGTCACCGTGCCTAGCAGCAGCCTGGGAACAAAGACCTACACCTGCAACGTG GACCATAAGCCCTCCAACACCAAGGTGGACAAGCGGGTGGAATCCAAGTATGG ACCCCCCTGTCCTCCTTGCCCTGCTCCTGAATTTCTCGGAGGCCCCTCCGTCTTC CTGTTTCCCCCCAAGCCCAAGGACACCCTGATGATCTCCCGGACACCCGAAGTC ACCTGCGTCGTGGTGGATGTCAGCCAGGAAGATCCCGAGGTGCAGTTCAACTG GTACGTGGACGGAGTGGAGGTGCATAACGCCAAAACCAAGCCCAGGGAAGAG CAGTTCAACAGCACCTATCGGGTCGTGTCCGTGCTCACCGTCCTGCATCAGGAT TGGCTCAACGGCAAGGAGTACAAGTGCAAGGTGTCCAACAAGGGCCTGCCCTC CTCCATCGAGAAGACCATCTCCAAGGCTAAGGGCCAACCTCGGGAGCCCCAAG TGTATACCCTCCCTCCCAGCCAGGAGGAGATGACCAAGAATCAAGTGAGCCTG ACCTGCCTCGTGAAGGGATTTTACCCCTCCGACATCGCTGTGGAATGGGAAAGC AATGGCCAACCTGAGAACAACTACAAGACCACACCCCCCGTGCTGGACTCCGA TGGCTCCTTCTTCCTGTACAGCAGGCTGACCGTGGACAAATCCCGGTGGCAAGA GGGAAACGTGTTCAGCTGCTCCGTGATGCACGAGGCTCTCCACAACCACTACAC CCAGAAGAGCCTCTCCCTGAGCCTCGGCTAGTAA

FIG. 16 cont.

Antibody	SEQ ID NO:	HC nucleic acid sequence
F849C.8H3	745	CAGGTTACTCTGAAAGAGTCTGGCCCTGGGATATTGCAGCCCTCCCAGACCCTC AGTCTGACTTGTTCTTTCTCTGGGTTTTCACTGAGCACTTTTGGTATGGGTGTAG GCTGGATTCGTCAGCCTTCAGGGAAGGGTCTGGAGTGGCTGGCACACATTTGGT GGGATGATGATAAACACTATAACCCAGCCCTGAAGAGCCGGCTCACAATCTCC AAGGATACCTCCAAAAACCAGGTCTTCCTCAGGATCGCCAATGTGGACACTGCA GATAATGCCACATATTACTGTGCTCGAATCGACTATGGTGACTACGTCGGGTTT GCTTATTGGGGCCAAGGGACTCTGGTCACTGTCTCTGCAGCTAGCACCAAGGGC CCCAGCGTGTTTCCTCTCGCTCCCTGCAGCCGGAGCACATCCGAGAGCACCGCT GCTCTGGGCTGTCTCGTGAAGGACTACTTCCCTGAACCCGTCACCGTCAGCTGG AATAGCGGCGCCCTGACATCCGGCGTCCACACATTCCCCGCTGTCCTGCAGAGC AGCGGCCTGTACAGCCTGAGCTCCGTGGTCACCGTGCCTAGCAGCAGCCTGGGA ACAAAGACCTACACCTGCAACGTGGACCATAAGCCCTCCAACACCAAGGTGGA CAAGCGGGTGGAATCCAAGTATGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGA ATTTCTCGGAGGCCCCTCCGTCTTCCTGTTTCCCCCCAAGCCCAAGGACACCCTG ATGATCTCCCGGACACCCGAAGTCACCTGCGTCGTGGTGGATGTCAGCCAGGAA GATCCCGAGGTGCAGTTCAACTGGTACGTGGACGGAGTGGAGGTGCATAACGC CAAAACCAAGCCCAGGGAAGAGCAGTTCAACAGCACCTATCGGGTCGTGTCCG TGCTCACCGTCCTGCATCAGGATTGGCTCAACGGCAAGGAGTACAAGTGCAAG GTGTCCAACAAGGGCCTGCCCTCCTCCATCGAGAAGACCATCTCCAAGGCTAAG GGCCAACCTCGGGAGCCCCAAGTGTATACCCTCCCTCCCAGCCAGGAGGAGAT GACCAAGAATCAAGTGAGCCTGACCTGCCTCGTGAAGGGATTTTACCCCTCCGA CATCGCTGTGGAATGGGAAAGCAATGGCCAACCTGAGAACAACTACAAGACCA CACCCCCCGTGCTGGACTCCGATGGCTCCTTCTTCCTGTACAGCAGGCTGACCG TGGACAAATCCCGGTGGCAAGAGGGAAACGTGTTCAGCTGCTCCGTGATGCAC GAGGCTCTCCACAACCACTACACCCAGAAGAGCCTCTCCCTGAGCCTCGGCTAG TAA
846.2B11	746	CAGGTCCAGCTACAGCAGTCTGGACCTGAGCTGGTGAGGCCTGGGGCTTTAGTG AAGATTTCCTGCAAGGCTTCTGGTTACACCTTCACAAGCTACGATATAAACTGG GTGAAGCAGAGGCCTGGACAGGGACTTGAGTGGATTGGATGGATTTATCCTGG AGATGGTAGTACTAAATATAATGAGAAATTCAAGGGCAAGGCCACACTGACTG CAGACAAATCCTCCAGCACAGCCTACATGCAGCTCAGCAGCCTGACTTCTGAGA ACTCTGCAGTCTATTTCTGTGCAAGAGAGGCGGCTTCTAATGCTATGGACTACT GGGGTCAAGGAACCTCAGTCACCGTCTCCTCAGCTAGCACCAAGGGCCCCAGC GTGTTTCCTCTCGCTCCCTGCAGCCGGAGCACATCCGAGAGCACCGCTGCTCTG GGCTGTCTCGTGAAGGACTACTTCCCTGAACCCGTCACCGTCAGCTGGAATAGC GGCGCCCTGACATCCGGCGTCCACACATTCCCCGCTGTCCTGCAGAGCAGCGGC CTGTACAGCCTGAGCTCCGTGGTCACCGTGCCTAGCAGCAGCCTGGGAACAAA GACCTACACCTGCAACGTGGACCATAAGCCCTCCAACACCAAGGTGGACAAGC GGGTGGAATCCAAGTATGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGAATTTCT CGGAGGCCCCTCCGTCTTCCTGTTTCCCCCCAAGCCCAAGGACACCCTGATGAT CTCCCGGACACCCGAAGTCACCTGCGTCGTGGTGGATGTCAGCCAGGAAGATCC CGAGGTGCAGTTCAACTGGTACGTGGACGGAGTGGAGGTGCATAACGCCAAAA CCAAGCCCAGGGAAGAGCAGTTCAACAGCACCTATCGGGTCGTGTCCGTGCTC ACCGTCCTGCATCAGGATTGGCTCAACGGCAAGGAGTACAAGTGCAAGGTGTC CAACAAGGGCCTGCCCTCCTCCATCGAGAAGACCATCTCCAAGGCTAAGGGCC AACCTCGGGAGCCCCAAGTGTATACCCTCCCTCCCAGCCAGGAGGAGATGACC AAGAATCAAGTGAGCCTGACCTGCCTCGTGAAGGGATTTTACCCCTCCGACATC GCTGTGGAATGGGAAAGCAATGGCCAACCTGAGAACAACTACAAGACCACACC CCCCGTGCTGGACTCCGATGGCTCCTTCTTCCTGTACAGCAGGCTGACCGTGGA CAAATCCCGGTGGCAAGAGGGAAACGTGTTCAGCTGCTCCGTGATGCACGAGG CTCTCCACAACCACTACACCCAGAAGAGCCTCTCCCTGAGCCTCGGCTAGTAA

FIG. 16 cont.

Antibody	SEQ ID NO:	HC nucleic acid sequence
846.4D5	747	GAAGTGAAGCTTGAGGAGTCTGGAGGAGGCTTGGTGCAACCTGGAGGATCCAT GAAACTCTCCTGTGTTGCCTCTGGATTCACTTTCAGTAACTACTGGATGAACTGG GTCCGCCAGTCTCCAGAGAAGGGGCTTGAGTGGGTTGCTGAAATTAGATTGAA ATCTAATAATTATGCAACACATTATGCGGAGTCTGTGAAAGGGAGGTTCACCAT CTCAAGAGATGATTCCAAAAGTAGTGTCTACCTGCAAATGAACAACTTAAGAG CTGAAGACACTGGCATTTATTACTGTACCAGGCACTACGGCTTTCCCTACTGGT ACTTCGATGTCTGGGGCGCAGGGACCACGGTCACCGTCTCCTCAGCTAGCACCA AGGGCCCCAGCGTGTTTCCTCTCGCTCCCTGCAGCCGGAGCACATCCGAGAGCA CCGCTGCTCTGGGCTGTCTCGTGAAGGACTACTTCCCTGAACCCGTCACCGTCA GCTGGAATAGCGGCGCCCTGACATCCGGCGTCCACACATTCCCCGCTGTCCTGC AGAGCAGCGGCCTGTACAGCCTGAGCTCCGTGGTCACCGTGCCTAGCAGCAGC CTGGGAACAAAGACCTACACCTGCAACGTGGACCATAAGCCCTCCAACACCAA GGTGGACAAGCGGGTGGAATCCAAGTATGGACCCCCCTGTCCTCCTTGCCCTGC TCCTGAATTTCTCGGAGGCCCCTCCGTCTTCCTGTTTCCCCCCAAGCCCAAGGAC ACCCTGATGATCTCCCGGACACCCGAAGTCACCTGCGTCGTGGTGGATGTCAGC CAGGAAGATCCCGAGGTGCAGTTCAACTGGTACGTGGACGGAGTGGAGGTGCA TAACGCCAAAACCAAGCCCAGGGAAGAGCAGTTCAACAGCACCTATCGGGTCG TGTCCGTGCTCACCGTCCTGCATCAGGATTGGCTCAACGGCAAGGAGTACAAGT GCAAGGTGTCCAACAAGGGCCTGCCCTCCTCCATCGAGAAGACCATCTCCAAG GCTAAGGGCCAACCTCGGGAGCCCCAAGTGTATACCCTCCCTCCCAGCCAGGA GGAGATGACCAAGAATCAAGTGAGCCTGACCTGCCTCGTGAAGGGATTTTACC CCTCCGACATCGCTGTGGAATGGGAAAGCAATGGCCAACCTGAGAACAACTAC AAGACCACACCCCCCGTGCTGGACTCCGATGGCTCCTTCTTCCTGTACAGCAGG CTGACCGTGGACAAATCCCGGTGGCAAGAGGGAAACGTGTTCAGCTGCTCCGT GATGCACGAGGCTCTCCACAACCACTACACCCAGAAGAGCCTCTCCCTGAGCCT CGGCTAGTAA
846T.1H2	748	CAGATCCAGTTGGTGCAGTCTGGACCTGAGCTGAAGAAGCCTGGAGAGACAGT CAAGATCTCCTGCAAGGCTTCTGGGTATACCTTCACAAACTATGGAATGAACTG GGTGAAGCAGGCTCCAGGAAAGGGTTTAAAGTGGATGGGCTGGATAAACACCA ACACTGGAGAGCCAACATATGCTGAAGAGTTCAAGGGACGGTTTGCCTTCTCTT TGGAAACCTCTGCCAGCACTGCCTATTTGCAGATCAACAACCTCAAAAATGAGG ACACGGCTACATATTTCTGTGCAACCGGGGGGGGTAACTGGGACTTTGACTACT GGGGCCAAGGCACCACTCTCACAGTCTCCTCAGCTAGCACCAAGGGCCCCAGC GTGTTTCCTCTCGCTCCCTGCAGCCGGAGCACATCCGAGAGCACCGCTGCTCTG GGCTGTCTCGTGAAGGACTACTTCCCTGAACCCGTCACCGTCAGCTGGAATAGC GGCGCCCTGACATCCGGCGTCCACACATTCCCCGCTGTCCTGCAGAGCAGCGGC CTGTACAGCCTGAGCTCCGTGGTCACCGTGCCTAGCAGCAGCCTGGGAACAAA GACCTACACCTGCAACGTGGACCATAAGCCCTCCAACACCAAGGTGGACAAGC GGGTGGAATCCAAGTATGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGAATTTCT CGGAGGCCCCTCCGTCTTCCTGTTTCCCCCCAAGCCCAAGGACACCCTGATGAT CTCCCGGACACCCGAAGTCACCTGCGTCGTGGTGGATGTCAGCCAGGAAGATCC CGAGGTGCAGTTCAACTGGTACGTGGACGGAGTGGAGGTGCATAACGCCAAAA CCAAGCCCAGGGAAGAGCAGTTCAACAGCACCTATCGGGTCGTGTCCGTGCTC ACCGTCCTGCATCAGGATTGGCTCAACGGCAAGGAGTACAAGTGCAAGGTGTC CAACAAGGGCCTGCCCTCCTCCATCGAGAAGACCATCTCCAAGGCTAAGGGCC AACCTCGGGAGCCCCAAGTGTATACCCTCCCTCCCAGCCAGGAGGAGATGACC AAGAATCAAGTGAGCCTGACCTGCCTCGTGAAGGGATTTTACCCCTCCGACATC GCTGTGGAATGGGAAAGCAATGGCCAACCTGAGAACAACTACAAGACCACACC CCCCGTGCTGGACTCCGATGGCTCCTTCTTCCTGTACAGCAGGCTGACCGTGGA CAAATCCCGGTGGCAAGAGGGAAACGTGTTCAGCTGCTCCGTGATGCACGAGG CTCTCCACAACCACTACACCCAGAAGAGCCTCTCCCTGAGCCTCGGCTAGTAA

FIG. 16 cont.

Antibody	SEQ ID NO:	HC nucleic acid sequence
847.14H4	749	CAGATCCAGTTGGTGCAGTCTGGACCTGAACTGACGAAGCCTGGAGAGACAGT CAAGATCTCCTGTAAGGCTTCTGGCTATACCTTCACAGACTATGGAATGAACTG GGTGAGGCAGGCTCCAGGAGAGACTTTAAAGTGGATGGGCTGGATAAACACCT ACACTGGAGAGCCAACATATGCTGATGACTTCAAGGGGCGGTTTGCCTTCTCTT TGGAATCCTCTGCCAGCACTGCCTATTTGCAGATCAACAACCTCAAAAATGAGG ACGTGGCTACATATTTCTGTGCAAGATACCCTATGGACTACTGGGGTCAAGGAA CCTCAGTCACCGTCTCCTCAGCTAGCACCAAGGGCCCCAGCGTGTTTCCTCTCG CTCCCTGCAGCCGGAGCACATCCGAGAGCACCGCTGCTCTGGGCTGTCTCGTGA AGGACTACTTCCCTGAACCCGTCACCGTCAGCTGGAATAGCGGCGCCCTGACAT CCGGCGTCCACACATTCCCCGCTGTCCTGCAGAGCAGCGGCCTGTACAGCCTGA GCTCCGTGGTCACCGTGCCTAGCAGCAGCCTGGGAACAAAGACCTACACCTGC AACGTGGACCATAAGCCCTCCAACACCAAGGTGGACAAGCGGGTGGAATCCAA GTATGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGAATTTCTCGGAGGCCCCTCC GTCTTCCTGTTTCCCCCCAAGCCCAAGGACACCCTGATGATCTCCCGGACACCC GAAGTCACCTGCGTCGTGGTGGATGTCAGCCAGGAAGATCCCGAGGTGCAGTT CAACTGGTACGTGGACGGAGTGGAGGTGCATAACGCCAAAACCAAGCCCAGGG AAGAGCAGTTCAACAGCACCTATCGGGTCGTGTCCGTGCTCACCGTCCTGCATC AGGATTGGCTCAACGGCAAGGAGTACAAGTGCAAGGTGTCCAACAAGGGCCTG CCCTCCTCCATCGAGAAGACCATCTCCAAGGCTAAGGGCCAACCTCGGGAGCCC CAAGTGTATACCCTCCCTCCCAGCCAGGAGGAGATGACCAAGAATCAAGTGAG CCTGACCTGCCTCGTGAAGGGATTTTACCCCTCCGACATCGCTGTGGAATGGGA AAGCAATGGCCAACCTGAGAACAACTACAAGACCACACCCCCCGTGCTGGACT CCGATGGCTCCTTCTTCCTGTACAGCAGGCTGACCGTGGACAAATCCCGGTGGC AAGAGGGAAACGTGTTCAGCTGCTCCGTGATGCACGAGGCTCTCCACAACCACT ACACCCAGAAGAGCCTCTCCCTGAGCCTCGGCTAGTAA
2D10.2B2 (murine; mIgG2A (LALAPG))	799	CAGGTCCAGCTGCAGCAGTCTGGACCTGAGCTGGTGAAGCCTGGGGCTTCAGTG AAGATATCCTGCAAGGCTTCTGGCTACACCTTCACTGACTACTATATAAACTGG GTGAAGCAGAGGCCTGGACAGGGACTTGAGTGGATTGGATGGATTTATCCTGG AAGCAATGATACCAAGTACAATGAGAAGTTCAAGGGCAAGGCCACATTGACTG TAGACACATCCTCCAGCACGGCCTACATGCAGCTCGGCAGCCTGACCTCTGAGG ACTCTGCGGTCTATTTCTGTGCGAATTACTTCGGTTGTAGCGGGTGGTTCTTCGA TGTCTGGGGCACAGGGACCACAGTCACCGTCTCCTCAGCTAAGACTACTCCTCC CAGTGTCTACCCCCTGGCCCCCGTGTGCGGCGACACAACAGGCTCCTCCGTGAC ACTGGGCTGCCTGGTGAAAGGCTACTTCCCCGAGCCCGTGACACTGACATGGAA CTCCGGCTCCCTGTCCTCCGGCGTGCACACATTCCCCGCCGTGCTGCAGTCCGA CCTGTACACACTGTCCTCCTCCGTGACAGTGACATCCTCCACATGGCCCTCCCA GTCCATCACATGCAACGTGGCCCACCCCGCCTCCTCCACAAAAGTGGACAAAA AAATCGAGCCCAGGGGCCCCACAATCAAACCCTGCCCCCCCTGCAAATGCCCC GCCCCCAACGCCGCCGGCGGCCCCTCCGTGTTCATCTTCCCCCCCAAAATCAAA GACGTGCTGATGATCTCCCTGTCCCCCATCGTGACATGCGTGGTGGTGGACGTG TCCGAGGACGACCCCGACGTGCAGATCTCCTGGTTCGTGAACAACGTGGAGGT GCACACAGCCCAGACACAGACACACAGGGAGGACTACAACTCCACACTGAGGG TGGTGTCCGCCCTGCCCATCCAGCACCAGGACTGGATGTCCGGCAAAGAGTTCA AATGCAAAGTGAACAACAAAGACCTGGGCGCCCCCATCGAGAGGACAATCTCC AAACCCAAAGGCTCCGTGAGGGCCCCCCAGGTGTACGTGCTGCCCCCCCCCGA GGAGGAGATGACAAAAAAACAGGTGACACTGACATGCATGGTGACAGACTTCA TGCCCGAGGACATCTACGTGGAGTGGACAAACAACGGCAAAACAGAGCTGAAC TACAAAAACACAGAGCCCGTGCTGGACTCCGACGGCTCCTACTTCATGTACTCC AAACTGAGGGTGGAGAAAAAAAACTGGGTGGAGAGGAACTCCTACTCCTGCTC CGTGGTGCACGAGGGCCTGCACAACCACCACACAACAAAATCCTTCTCCAGGA CACCCGGCAAATAGTAA

FIG. 16 cont.

Antibody	SEQ ID NO:	HC nucleic acid sequence
2D10-hVH4-HVL1	896	CAGGTACAGTTGGTTCAATCTGGGGCTGAGGTGAAAAAGCCAGGGGCCTCCGT TAAGGTAAGCTGCAAGGCAAGCGGCTACACATTTACAGACTATTATATCAACTG GGTGAGGCAAGCTCCTGGCCAGCGGCTTGAGTGGATGGGGTGGATCTATCCGG GGAGTCAAGACACCAAATATAATGAGAAGTTCCAGGGACGGGTGACCCTTACA GTAGACACGTCTGCAAGCACTGCCTACATGGAGTTGTCATCCCTCCGCTCTGAA GATACTGCCGTCTACTTTTGCGCTAATTACTTCGGAAGCAGCGGGTGGTTCTTCG ACGTTTGGGGCCAGGGAACTATGGTCACAGTGTCATCAGCTAGCACCAAGGGC CCCAGCGTGTTTCCTCTCGCTCCCTGCAGCCGGAGCACATCCGAGAGCACCGCT GCTCTGGGCTGTCTCGTGAAGGACTACTTCCCTGAACCCGTCACCGTCAGCTGG AATAGCGGCGCCCTGACATCCGGCGTCCACACATTCCCCGCTGTCCTGCAGAGC AGCGGCCTGTACAGCCTGAGCTCCGTGGTCACCGTGCCTAGCAGCAGCCTGGGA ACAAAGACCTACACCTGCAACGTGGACCATAAGCCCTCCAACACCAAGGTGGA CAAGCGGGTGGAATCCAAGTATGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGA ATTTCTCGGAGGCCCCTCCGTCTTCCTGTTTCCCCCCAAGCCCAAGGACACCCTG ATGATCTCCCGGACACCCGAAGTCACCTGCGTCGTGGTGGATGTCAGCCAGGAA GATCCCGAGGTGCAGTTCAACTGGTACGTGGACGGAGTGGAGGTGCATAACGC CAAAACCAAGCCCAGGGAAGAGCAGTTCAACAGCACCTATCGGGTCGTGTCCG TGCTCACCGTCCTGCATCAGGATTGGCTCAACGGCAAGGAGTACAAGTGCAAG GTGTCCAACAAGGGCCTGCCCTCCTCCATCGAGAAGACCATCTCCAAGGCTAAG GGCCAACCTCGGGAGCCCCAAGTGTATACCCTCCCTCCCAGCCAGGAGGAGAT GACCAAGAATCAAGTGAGCCTGACCTGCCTCGTGAAGGGATTTTACCCCTCCGA CATCGCTGTGGAATGGGAAAGCAATGGCCAACCTGAGAACAACTACAAGACCA CACCCCCCGTGCTGGACTCCGATGGCTCCTTCTTCCTGTACAGCAGGCTGACCG TGGACAAATCCCGGTGGCAAGAGGGAAACGTGTTCAGCTGCTCCGTGATGCAC GAGGCTCTCCACAACCACTACACCCAGAAGAGCCTCTCCCTGAGCCTCGGCTAG TAA
2D10-hVH4-HVL2	897	CAGGTACAGTTGGTTCAATCTGGGGCTGAGGTGAAAAAGCCAGGGGCCTCCGT TAAGGTAAGCTGCAAGGCAAGCGGCTACACATTTACAGACTATTATATCAACTG GGTGAGGCAAGCTCCTGGCCAGCGGCTTGAGTGGATGGGGTGGATCTATCCGG GGAGTCAAGACACCAAATATAATGAGAAGTTCCAGGGACGGGTGACCCTTACA GTAGACACGTCTGCAAGCACTGCCTACATGGAGTTGTCATCCCTCCGCTCTGAA GATACTGCCGTCTACTTTTGCGCTAATTACTTCGGAAGCAGCGGGTGGTTCTTCG ACGTTTGGGGCCAGGGAACTATGGTCACAGTGTCATCAGCTAGCACCAAGGGC CCCAGCGTGTTTCCTCTCGCTCCCTGCAGCCGGAGCACATCCGAGAGCACCGCT GCTCTGGGCTGTCTCGTGAAGGACTACTTCCCTGAACCCGTCACCGTCAGCTGG AATAGCGGCGCCCTGACATCCGGCGTCCACACATTCCCCGCTGTCCTGCAGAGC AGCGGCCTGTACAGCCTGAGCTCCGTGGTCACCGTGCCTAGCAGCAGCCTGGGA ACAAAGACCTACACCTGCAACGTGGACCATAAGCCCTCCAACACCAAGGTGGA CAAGCGGGTGGAATCCAAGTATGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGA ATTTCTCGGAGGCCCCTCCGTCTTCCTGTTTCCCCCCAAGCCCAAGGACACCCTG ATGATCTCCCGGACACCCGAAGTCACCTGCGTCGTGGTGGATGTCAGCCAGGAA GATCCCGAGGTGCAGTTCAACTGGTACGTGGACGGAGTGGAGGTGCATAACGC CAAAACCAAGCCCAGGGAAGAGCAGTTCAACAGCACCTATCGGGTCGTGTCCG TGCTCACCGTCCTGCATCAGGATTGGCTCAACGGCAAGGAGTACAAGTGCAAG GTGTCCAACAAGGGCCTGCCCTCCTCCATCGAGAAGACCATCTCCAAGGCTAAG GGCCAACCTCGGGAGCCCCAAGTGTATACCCTCCCTCCCAGCCAGGAGGAGAT GACCAAGAATCAAGTGAGCCTGACCTGCCTCGTGAAGGGATTTTACCCCTCCGA CATCGCTGTGGAATGGGAAAGCAATGGCCAACCTGAGAACAACTACAAGACCA CACCCCCCGTGCTGGACTCCGATGGCTCCTTCTTCCTGTACAGCAGGCTGACCG TGGACAAATCCCGGTGGCAAGAGGGAAACGTGTTCAGCTGCTCCGTGATGCAC GAGGCTCTCCACAACCACTACACCCAGAAGAGCCTCTCCCTGAGCCTCGGCTAG TAA

FIG. 16 cont.

Antibody	SEQ ID NO:	HC nucleic acid sequence
2D10-hVH4-HVL3	898	CAGGTACAGTTGGTTCAATCTGGGGCTGAGGTGAAAAAGCCAGGGGCCTCCGT TAAGGTAAGCTGCAAGGCAAGCGGCTACACATTTACAGACTATTATATCAACTG GGTGAGGCAAGCTCCTGGCCAGCGGCTTGAGTGGATGGGGTGGATCTATCCGG GGAGTCAAGACACCAAATATAATGAGAAGTTCCAGGGACGGGTGACCCTTACA GTAGACACGTCTGCAAGCACTGCCTACATGGAGTTGTCATCCCTCCGCTCTGAA GATACTGCCGTCTACTTTTGCGCTAATTACTTCGGAAGCAGCGGGTGGTTCTTCG ACGTTTGGGGCCAGGGAACTATGGTCACAGTGTCATCAGCTAGCACCAAGGGC CCCAGCGTGTTTCCTCTCGCTCCCTGCAGCCGGAGCACATCCGAGAGCACCGCT GCTCTGGGCTGTCTCGTGAAGGACTACTTCCCTGAACCCGTCACCGTCAGCTGG AATAGCGGCGCCCTGACATCCGGCGTCCACACATTCCCCGCTGTCCTGCAGAGC AGCGGCCTGTACAGCCTGAGCTCCGTGGTCACCGTGCCTAGCAGCAGCCTGGGA ACAAAGACCTACACCTGCAACGTGGACCATAAGCCCTCCAACACCAAGGTGGA CAAGCGGGTGGAATCCAAGTATGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGA ATTTCTCGGAGGCCCCTCCGTCTTCCTGTTTCCCCCCAAGCCCAAGGACACCCTG ATGATCTCCCGGACACCCGAAGTCACCTGCGTCGTGGTGGATGTCAGCCAGGAA GATCCCGAGGTGCAGTTCAACTGGTACGTGGACGGAGTGGAGGTGCATAACGC CAAAACCAAGCCCAGGGAAGAGCAGTTCAACAGCACCTATCGGGTCGTGTCCG TGCTCACCGTCCTGCATCAGGATTGGCTCAACGGCAAGGAGTACAAGTGCAAG GTGTCCAACAAGGGCCTGCCCTCCTCCATCGAGAAGACCATCTCCAAGGCTAAG GGCCAACCTCGGGAGCCCCAAGTGTATACCCTCCCTCCCAGCCAGGAGGAGAT GACCAAGAATCAAGTGAGCCTGACCTGCCTCGTGAAGGGATTTTACCCCTCCGA CATCGCTGTGGAATGGGAAAGCAATGGCCAACCTGAGAACAACTACAAGACCA CACCCCCCGTGCTGGACTCCGATGGCTCCTTCTTCCTGTACAGCAGGCTGACCG TGGACAAATCCCGGTGGCAAGAGGGAAACGTGTTCAGCTGCTCCGTGATGCAC GAGGCTCTCCACAACCACTACACCCAGAAGAGCCTCTCCCTGAGCCTCGGCTAG TAA
2D10-hVH4-HVL4	899	CAGGTACAGTTGGTTCAATCTGGGGCTGAGGTGAAAAAGCCAGGGGCCTCCGT TAAGGTAAGCTGCAAGGCAAGCGGCTACACATTTACAGACTATTATATCAACTG GGTGAGGCAAGCTCCTGGCCAGCGGCTTGAGTGGATGGGGTGGATCTATCCGG GGAGTCAAGACACCAAATATAATGAGAAGTTCCAGGGACGGGTGACCCTTACA GTAGACACGTCTGCAAGCACTGCCTACATGGAGTTGTCATCCCTCCGCTCTGAA GATACTGCCGTCTACTTTTGCGCTAATTACTTCGGAAGCAGCGGGTGGTTCTTCG ACGTTTGGGGCCAGGGAACTATGGTCACAGTGTCATCAGCTAGCACCAAGGGC CCCAGCGTGTTTCCTCTCGCTCCCTGCAGCCGGAGCACATCCGAGAGCACCGCT GCTCTGGGCTGTCTCGTGAAGGACTACTTCCCTGAACCCGTCACCGTCAGCTGG AATAGCGGCGCCCTGACATCCGGCGTCCACACATTCCCCGCTGTCCTGCAGAGC AGCGGCCTGTACAGCCTGAGCTCCGTGGTCACCGTGCCTAGCAGCAGCCTGGGA ACAAAGACCTACACCTGCAACGTGGACCATAAGCCCTCCAACACCAAGGTGGA CAAGCGGGTGGAATCCAAGTATGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGA ATTTCTCGGAGGCCCCTCCGTCTTCCTGTTTCCCCCCAAGCCCAAGGACACCCTG ATGATCTCCCGGACACCCGAAGTCACCTGCGTCGTGGTGGATGTCAGCCAGGAA GATCCCGAGGTGCAGTTCAACTGGTACGTGGACGGAGTGGAGGTGCATAACGC CAAAACCAAGCCCAGGGAAGAGCAGTTCAACAGCACCTATCGGGTCGTGTCCG TGCTCACCGTCCTGCATCAGGATTGGCTCAACGGCAAGGAGTACAAGTGCAAG GTGTCCAACAAGGGCCTGCCCTCCTCCATCGAGAAGACCATCTCCAAGGCTAAG GGCCAACCTCGGGAGCCCCAAGTGTATACCCTCCCTCCCAGCCAGGAGGAGAT GACCAAGAATCAAGTGAGCCTGACCTGCCTCGTGAAGGGATTTTACCCCTCCGA CATCGCTGTGGAATGGGAAAGCAATGGCCAACCTGAGAACAACTACAAGACCA CACCCCCCGTGCTGGACTCCGATGGCTCCTTCTTCCTGTACAGCAGGCTGACCG TGGACAAATCCCGGTGGCAAGAGGGAAACGTGTTCAGCTGCTCCGTGATGCAC GAGGCTCTCCACAACCACTACACCCAGAAGAGCCTCTCCCTGAGCCTCGGCTAG TAA

FIG. 16 cont.

Antibody	SEQ ID NO:	HC nucleic acid sequence
2D10-hVH3-HVL1	900	CAAGTCCAGCTGGTTCAGTCTGGTGCGGAGGTCAAGAAGCCAGGGGCAAGCGT GAAAGTCTCCTGTAAGGCAAGTGGATATACTTTCACGGATTACTATATTAACTG GGTCAGACAGGCACCAGGTCAACGCCTCGAATGGATGGGCTGGATATACCCAG GTAGCCAAGATACCAAGTACTCCCAGAAATTTCAGGGCAGGGTGACCATTACT GTGGATACTTCCGCTTCTACCGCCTACATGGAACTCAGTAGCCTGCGTTCAGAG GACACCGCCGTGTACTATTGCGCTAACTATTTCGGATCCTCCGGATGGTTCTTCG ATGTGTGGGGCCAGGGGACGATGGTGACAGTTAGCTCCGCTAGCACCAAGGGC CCCAGCGTGTTTCCTCTCGCTCCCTGCAGCCGGAGCACATCCGAGAGCACCGCT GCTCTGGGCTGTCTCGTGAAGGACTACTTCCCTGAACCCGTCACCGTCAGCTGG AATAGCGGCGCCCTGACATCCGGCGTCCACACATTCCCCGCTGTCCTGCAGAGC AGCGGCCTGTACAGCCTGAGCTCCGTGGTCACCGTGCCTAGCAGCAGCCTGGGA ACAAAGACCTACACCTGCAACGTGGACCATAAGCCCTCCAACACCAAGGTGGA CAAGCGGGTGGAATCCAAGTATGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGA ATTTCTCGGAGGCCCCTCCGTCTTCCTGTTTCCCCCCAAGCCCAAGGACACCCTG ATGATCTCCCGGACACCCGAAGTCACCTGCGTCGTGGTGGATGTCAGCCAGGAA GATCCCGAGGTGCAGTTCAACTGGTACGTGGACGGAGTGGAGGTGCATAACGC CAAAACCAAGCCCAGGGAAGAGCAGTTCAACAGCACCTATCGGGTCGTGTCCG TGCTCACCGTCCTGCATCAGGATTGGCTCAACGGCAAGGAGTACAAGTGCAAG GTGTCCAACAAGGGCCTGCCCTCCTCCATCGAGAAGACCATCTCCAAGGCTAAG GGCCAACCTCGGGAGCCCCAAGTGTATACCCTCCCTCCCAGCCAGGAGGAGAT GACCAAGAATCAAGTGAGCCTGACCTGCCTCGTGAAGGGATTTTACCCCTCCGA CATCGCTGTGGAATGGGAAAGCAATGGCCAACCTGAGAACAACTACAAGACCA CACCCCCCGTGCTGGACTCCGATGGCTCCTTCTTCCTGTACAGCAGGCTGACCG TGGACAAATCCCGGTGGCAAGAGGGAAACGTGTTCAGCTGCTCCGTGATGCAC GAGGCTCTCCACAACCACTACACCCAGAAGAGCCTCTCCCTGAGCCTCGGCTAG TAA
2D10-hVH3-HVL2	901	CAAGTCCAGCTGGTTCAGTCTGGTGCGGAGGTCAAGAAGCCAGGGGCAAGCGT GAAAGTCTCCTGTAAGGCAAGTGGATATACTTTCACGGATTACTATATTAACTG GGTCAGACAGGCACCAGGTCAACGCCTCGAATGGATGGGCTGGATATACCCAG GTAGCCAAGATACCAAGTACTCCCAGAAATTTCAGGGCAGGGTGACCATTACT GTGGATACTTCCGCTTCTACCGCCTACATGGAACTCAGTAGCCTGCGTTCAGAG GACACCGCCGTGTACTATTGCGCTAACTATTTCGGATCCTCCGGATGGTTCTTCG ATGTGTGGGGCCAGGGGACGATGGTGACAGTTAGCTCCGCTAGCACCAAGGGC CCCAGCGTGTTTCCTCTCGCTCCCTGCAGCCGGAGCACATCCGAGAGCACCGCT GCTCTGGGCTGTCTCGTGAAGGACTACTTCCCTGAACCCGTCACCGTCAGCTGG AATAGCGGCGCCCTGACATCCGGCGTCCACACATTCCCCGCTGTCCTGCAGAGC AGCGGCCTGTACAGCCTGAGCTCCGTGGTCACCGTGCCTAGCAGCAGCCTGGGA ACAAAGACCTACACCTGCAACGTGGACCATAAGCCCTCCAACACCAAGGTGGA CAAGCGGGTGGAATCCAAGTATGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGA ATTTCTCGGAGGCCCCTCCGTCTTCCTGTTTCCCCCCAAGCCCAAGGACACCCTG ATGATCTCCCGGACACCCGAAGTCACCTGCGTCGTGGTGGATGTCAGCCAGGAA GATCCCGAGGTGCAGTTCAACTGGTACGTGGACGGAGTGGAGGTGCATAACGC CAAAACCAAGCCCAGGGAAGAGCAGTTCAACAGCACCTATCGGGTCGTGTCCG TGCTCACCGTCCTGCATCAGGATTGGCTCAACGGCAAGGAGTACAAGTGCAAG GTGTCCAACAAGGGCCTGCCCTCCTCCATCGAGAAGACCATCTCCAAGGCTAAG GGCCAACCTCGGGAGCCCCAAGTGTATACCCTCCCTCCCAGCCAGGAGGAGAT GACCAAGAATCAAGTGAGCCTGACCTGCCTCGTGAAGGGATTTTACCCCTCCGA CATCGCTGTGGAATGGGAAAGCAATGGCCAACCTGAGAACAACTACAAGACCA CACCCCCCGTGCTGGACTCCGATGGCTCCTTCTTCCTGTACAGCAGGCTGACCG TGGACAAATCCCGGTGGCAAGAGGGAAACGTGTTCAGCTGCTCCGTGATGCAC GAGGCTCTCCACAACCACTACACCCAGAAGAGCCTCTCCCTGAGCCTCGGCTAG TAA

FIG. 16 cont.

Antibody	SEQ ID NO:	HC nucleic acid sequence
2D10-hVH3-HVL3	902	CAAGTCCAGCTGGTTCAGTCTGGTGCGGAGGTCAAGAAGCCAGGGGCAAGCGT GAAAGTCTCCTGTAAGGCAAGTGGATATACTTTCACGGATTACTATATTAACTG GGTCAGACAGGCACCAGGTCAACGCCTCGAATGGATGGGCTGGATATACCCAG GTAGCCAAGATACCAAGTACTCCCAGAAATTTCAGGGCAGGGTGACCATTACT GTGGATACTTCCGCTTCTACCGCCTACATGGAACTCAGTAGCCTGCGTTCAGAG GACACCGCCGTGTACTATTGCGCTAACTATTTCGGATCCTCCGGATGGTTCTTCG ATGTGTGGGGCCAGGGGACGATGGTGACAGTTAGCTCCGCTAGCACCAAGGGC CCCAGCGTGTTTCCTCTCGCTCCCTGCAGCCGGAGCACATCCGAGAGCACCGCT GCTCTGGGCTGTCTCGTGAAGGACTACTTCCCTGAACCCGTCACCGTCAGCTGG AATAGCGGCGCCCTGACATCCGGCGTCCACACATTCCCCGCTGTCCTGCAGAGC AGCGGCCTGTACAGCCTGAGCTCCGTGGTCACCGTGCCTAGCAGCAGCCTGGGA ACAAAGACCTACACCTGCAACGTGGACCATAAGCCCTCCAACACCAAGGTGGA CAAGCGGGTGGAATCCAAGTATGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGA ATTTCTCGGAGGCCCCTCCGTCTTCCTGTTTCCCCCCAAGCCCAAGGACACCCTG ATGATCTCCCGGACACCCGAAGTCACCTGCGTCGTGGTGGATGTCAGCCAGGAA GATCCCGAGGTGCAGTTCAACTGGTACGTGGACGGAGTGGAGGTGCATAACGC CAAAACCAAGCCCAGGGAAGAGCAGTTCAACAGCACCTATCGGGTCGTGTCCG TGCTCACCGTCCTGCATCAGGATTGGCTCAACGGCAAGGAGTACAAGTGCAAG GTGTCCAACAAGGGCCTGCCCTCCTCCATCGAGAAGACCATCTCCAAGGCTAAG GGCCAACCTCGGGAGCCCCAAGTGTATACCCTCCCTCCCAGCCAGGAGGAGAT GACCAAGAATCAAGTGAGCCTGACCTGCCTCGTGAAGGGATTTTACCCCTCCGA CATCGCTGTGGAATGGGAAAGCAATGGCCAACCTGAGAACAACTACAAGACCA CACCCCCCGTGCTGGACTCCGATGGCTCCTTCTTCCTGTACAGCAGGCTGACCG TGGACAAATCCCGGTGGCAAGAGGGAAACGTGTTCAGCTGCTCCGTGATGCAC GAGGCTCTCCACAACCACTACACCCAGAAGAGCCTCTCCCTGAGCCTCGGCTAG TAA
2D10-hVH3-HVL4	903	CAAGTCCAGCTGGTTCAGTCTGGTGCGGAGGTCAAGAAGCCAGGGGCAAGCGT GAAAGTCTCCTGTAAGGCAAGTGGATATACTTTCACGGATTACTATATTAACTG GGTCAGACAGGCACCAGGTCAACGCCTCGAATGGATGGGCTGGATATACCCAG GTAGCCAAGATACCAAGTACTCCCAGAAATTTCAGGGCAGGGTGACCATTACT GTGGATACTTCCGCTTCTACCGCCTACATGGAACTCAGTAGCCTGCGTTCAGAG GACACCGCCGTGTACTATTGCGCTAACTATTTCGGATCCTCCGGATGGTTCTTCG ATGTGTGGGGCCAGGGGACGATGGTGACAGTTAGCTCCGCTAGCACCAAGGGC CCCAGCGTGTTTCCTCTCGCTCCCTGCAGCCGGAGCACATCCGAGAGCACCGCT GCTCTGGGCTGTCTCGTGAAGGACTACTTCCCTGAACCCGTCACCGTCAGCTGG AATAGCGGCGCCCTGACATCCGGCGTCCACACATTCCCCGCTGTCCTGCAGAGC AGCGGCCTGTACAGCCTGAGCTCCGTGGTCACCGTGCCTAGCAGCAGCCTGGGA ACAAAGACCTACACCTGCAACGTGGACCATAAGCCCTCCAACACCAAGGTGGA CAAGCGGGTGGAATCCAAGTATGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGA ATTTCTCGGAGGCCCCTCCGTCTTCCTGTTTCCCCCCAAGCCCAAGGACACCCTG ATGATCTCCCGGACACCCGAAGTCACCTGCGTCGTGGTGGATGTCAGCCAGGAA GATCCCGAGGTGCAGTTCAACTGGTACGTGGACGGAGTGGAGGTGCATAACGC CAAAACCAAGCCCAGGGAAGAGCAGTTCAACAGCACCTATCGGGTCGTGTCCG TGCTCACCGTCCTGCATCAGGATTGGCTCAACGGCAAGGAGTACAAGTGCAAG GTGTCCAACAAGGGCCTGCCCTCCTCCATCGAGAAGACCATCTCCAAGGCTAAG GGCCAACCTCGGGAGCCCCAAGTGTATACCCTCCCTCCCAGCCAGGAGGAGAT GACCAAGAATCAAGTGAGCCTGACCTGCCTCGTGAAGGGATTTTACCCCTCCGA CATCGCTGTGGAATGGGAAAGCAATGGCCAACCTGAGAACAACTACAAGACCA CACCCCCCGTGCTGGACTCCGATGGCTCCTTCTTCCTGTACAGCAGGCTGACCG TGGACAAATCCCGGTGGCAAGAGGGAAACGTGTTCAGCTGCTCCGTGATGCAC GAGGCTCTCCACAACCACTACACCCAGAAGAGCCTCTCCCTGAGCCTCGGCTAG TAA

FIG. 16 cont.

Antibody	SEQ ID NO:	HC nucleic acid sequence
20H5.A3-VH3VL1	904	CAAATCCAGCTTGTTCAGAGTGGATCAGAACTCAAGAAGCCCGGAGCATCCGT GAAAGTGTCATGCAAGGCCAGTGGCTACGCTTTTACTACATATGGGATGTCTTG GGTTCGGCAGGCCCCCGGCCAGGGACTAGAGTGGATGGGCTGGGTTAACACCT ATAGCGGAGTGCCTACGTACGCCGATGATTTTACAGGCAGGTTCGTATTTTCTC TCGAAACGTCCGTCAGTACCGCCTACCTCCAAATTAGCTCTCTGAAAGCAGAGG ACACCGCAGTCTACTTTTGCGCCAGAGGTCCGTATGCTATGGATTATTGGGGAC AGGGCACCCTGGTGACAGTATCCTCCGCTAGCACCAAGGGCCCCAGCGTGTTTC CTCTCGCTCCCTGCAGCCGGAGCACATCCGAGAGCACCGCTGCTCTGGGCTGTC TCGTGAAGGACTACTTCCCTGAACCCGTCACCGTCAGCTGGAATAGCGGCGCCC TGACATCCGGCGTCCACACATTCCCCGCTGTCCTGCAGAGCAGCGGCCTGTACA GCCTGAGCTCCGTGGTCACCGTGCCTAGCAGCAGCCTGGGAACAAAGACCTAC ACCTGCAACGTGGACCATAAGCCCTCCAACACCAAGGTGGACAAGCGGGTGGA ATCCAAGTATGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGAATTTCTCGGAGGC CCCTCCGTCTTCCTGTTTCCCCCCAAGCCCAAGGACACCCTGATGATCTCCCGGA CACCCGAAGTCACCTGCGTCGTGGTGGATGTCAGCCAGGAAGATCCCGAGGTG CAGTTCAACTGGTACGTGGACGGAGTGGAGGTGCATAACGCCAAAACCAAGCC CAGGGAAGAGCAGTTCAACAGCACCTATCGGGTCGTGTCCGTGCTCACCGTCCT GCATCAGGATTGGCTCAACGGCAAGGAGTACAAGTGCAAGGTGTCCAACAAGG GCCTGCCCTCCTCCATCGAGAAGACCATCTCCAAGGCTAAGGGCCAACCTCGGG AGCCCCAAGTGTATACCCTCCCTCCCAGCCAGGAGGAGATGACCAAGAATCAA GTGAGCCTGACCTGCCTCGTGAAGGGATTTTACCCCTCCGACATCGCTGTGGAA TGGGAAAGCAATGGCCAACCTGAGAACAACTACAAGACCACACCCCCCGTGCT GGACTCCGATGGCTCCTTCTTCCTGTACAGCAGGCTGACCGTGGACAAATCCCG GTGGCAAGAGGGAAACGTGTTCAGCTGCTCCGTGATGCACGAGGCTCTCCACA ACCACTACACCCAGAAGAGCCTCTCCCTGAGCCTCGGCTAGTAA
20H5.A3-VH3VL3	905	CAAATCCAGCTTGTTCAGAGTGGATCAGAACTCAAGAAGCCCGGAGCATCCGT GAAAGTGTCATGCAAGGCCAGTGGCTACGCTTTTACTACATATGGGATGTCTTG GGTTCGGCAGGCCCCCGGCCAGGGACTAGAGTGGATGGGCTGGGTTAACACCT ATAGCGGAGTGCCTACGTACGCCGATGATTTTACAGGCAGGTTCGTATTTTCTC TCGAAACGTCCGTCAGTACCGCCTACCTCCAAATTAGCTCTCTGAAAGCAGAGG ACACCGCAGTCTACTTTTGCGCCAGAGGTCCGTATGCTATGGATTATTGGGGAC AGGGCACCCTGGTGACAGTATCCTCCGCTAGCACCAAGGGCCCCAGCGTGTTTC CTCTCGCTCCCTGCAGCCGGAGCACATCCGAGAGCACCGCTGCTCTGGGCTGTC TCGTGAAGGACTACTTCCCTGAACCCGTCACCGTCAGCTGGAATAGCGGCGCCC TGACATCCGGCGTCCACACATTCCCCGCTGTCCTGCAGAGCAGCGGCCTGTACA GCCTGAGCTCCGTGGTCACCGTGCCTAGCAGCAGCCTGGGAACAAAGACCTAC ACCTGCAACGTGGACCATAAGCCCTCCAACACCAAGGTGGACAAGCGGGTGGA ATCCAAGTATGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGAATTTCTCGGAGGC CCCTCCGTCTTCCTGTTTCCCCCCAAGCCCAAGGACACCCTGATGATCTCCCGGA CACCCGAAGTCACCTGCGTCGTGGTGGATGTCAGCCAGGAAGATCCCGAGGTG CAGTTCAACTGGTACGTGGACGGAGTGGAGGTGCATAACGCCAAAACCAAGCC CAGGGAAGAGCAGTTCAACAGCACCTATCGGGTCGTGTCCGTGCTCACCGTCCT GCATCAGGATTGGCTCAACGGCAAGGAGTACAAGTGCAAGGTGTCCAACAAGG GCCTGCCCTCCTCCATCGAGAAGACCATCTCCAAGGCTAAGGGCCAACCTCGGG AGCCCCAAGTGTATACCCTCCCTCCCAGCCAGGAGGAGATGACCAAGAATCAA GTGAGCCTGACCTGCCTCGTGAAGGGATTTTACCCCTCCGACATCGCTGTGGAA TGGGAAAGCAATGGCCAACCTGAGAACAACTACAAGACCACACCCCCCGTGCT GGACTCCGATGGCTCCTTCTTCCTGTACAGCAGGCTGACCGTGGACAAATCCCG GTGGCAAGAGGGAAACGTGTTCAGCTGCTCCGTGATGCACGAGGCTCTCCACA ACCACTACACCCAGAAGAGCCTCTCCCTGAGCCTCGGCTAGTAA

FIG. 16 cont.

Antibody	SEQ ID NO:	HC nucleic acid sequence
20H5.A3-VH4VL1	906	CAAATCCAGTTGGTGCAGAGTGGTTCTGAGCTGAAGAAACCTGGTGCTTCAGTT AAGGTCTCTTGCAAAGCATCCGGTTATGCATTTACTACCTACGGAATGTCTTGG GTAAGGCAAGCTCCCGGACAGGGTCTCGAGTGGATGGGGTGGGTGAACACCTA TTCCGGCGTGCCTACGTCAGCCGACGACTTTACTGGGCGTTTTGTATTTAGTCTA GAGACGTCTGTTTCAACCGCCTACCTGCAGATCTCTAGCCTGAAAGCTGAAGAT ACAGCCGTATATTTCTGTGCCCGGGGACCATACGCCATGGACTACTGGGGCCAA GGGACTCTGGTGACCGTTTCTAGCGCTAGCACCAAGGGCCCCAGCGTGTTTCCT CTCGCTCCCTGCAGCCGGAGCACATCCGAGAGCACCGCTGCTCTGGGCTGTCTC GTGAAGGACTACTTCCCTGAACCCGTCACCGTCAGCTGGAATAGCGGCGCCCTG ACATCCGGCGTCCACACATTCCCCGCTGTCCTGCAGAGCAGCGGCCTGTACAGC CTGAGCTCCGTGGTCACCGTGCCTAGCAGCAGCCTGGGAACAAAGACCTACAC CTGCAACGTGGACCATAAGCCCTCCAACACCAAGGTGGACAAGCGGGTGGAAT CCAAGTATGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGAATTTCTCGGAGGCCC CTCCGTCTTCCTGTTTCCCCCCAAGCCCAAGGACACCCTGATGATCTCCCGGAC ACCCGAAGTCACCTGCGTCGTGGTGGATGTCAGCCAGGAAGATCCCGAGGTGC AGTTCAACTGGTACGTGGACGGAGTGGAGGTGCATAACGCCAAAACCAAGCCC AGGGAAGAGCAGTTCAACAGCACCTATCGGGTCGTGTCCGTGCTCACCGTCCTG CATCAGGATTGGCTCAACGGCAAGGAGTACAAGTGCAAGGTGTCCAACAAGGG CCTGCCCTCCTCCATCGAGAAGACCATCTCCAAGGCTAAGGGCCAACCTCGGGA GCCCCAAGTGTATACCCTCCCTCCCAGCCAGGAGGAGATGACCAAGAATCAAG TGAGCCTGACCTGCCTCGTGAAGGGATTTTACCCCTCCGACATCGCTGTGGAAT GGGAAAGCAATGGCCAACCTGAGAACAACTACAAGACCACACCCCCCGTGCTG GACTCCGATGGCTCCTTCTTCCTGTACAGCAGGCTGACCGTGGACAAATCCCGG TGGCAAGAGGGAAACGTGTTCAGCTGCTCCGTGATGCACGAGGCTCTCCACAA CCACTACACCCAGAAGAGCCTCTCCCTGAGCCTCGGCTAGTA
20H5.A3-VH5VL1	907	CAAGTGCAACTGGTGCAGAGCGGCTTTGAGCTGAAAAAGCCCGGCGCCTCTGT GAAGATCAGTTGCAAAGCTTCCGGCTACGCCTTTACCACCTATGGTATGTCTTG GGTTAGACAGGCTCCAGGACAGGGCCTGGAGTGGATGGGTTGGGTCAATACCT ACTCTGGAGTGCCAACCTATGCTCAGGCATTCACAGGCCGGTTTGTCTTCAGTC TCGATACCAGCGTGTCAACCGCATACCTGCAGATCAGCTCTCTTAAAGCCGAGG ATACCGCTGTCTACTACTGTGCCAGAGGACCTTATGCCATGGATTACTGGGGGC AAGGCACCCTCGTCACAGTGTCTTCTGCTAGCACCAAGGGCCCCAGCGTGTTTC CTCTCGCTCCCTGCAGCCGGAGCACATCCGAGAGCACCGCTGCTCTGGGCTGTC TCGTGAAGGACTACTTCCCTGAACCCGTCACCGTCAGCTGGAATAGCGGCGCCC TGACATCCGGCGTCCACACATTCCCCGCTGTCCTGCAGAGCAGCGGCCTGTACA GCCTGAGCTCCGTGGTCACCGTGCCTAGCAGCAGCCTGGGAACAAAGACCTAC ACCTGCAACGTGGACCATAAGCCCTCCAACACCAAGGTGGACAAGCGGGTGGA ATCCAAGTATGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGAATTTCTCGGAGGC CCCTCCGTCTTCCTGTTTCCCCCCAAGCCCAAGGACACCCTGATGATCTCCCGGA CACCCGAAGTCACCTGCGTCGTGGTGGATGTCAGCCAGGAAGATCCCGAGGTG CAGTTCAACTGGTACGTGGACGGAGTGGAGGTGCATAACGCCAAAACCAAGCC CAGGGAAGAGCAGTTCAACAGCACCTATCGGGTCGTGTCCGTGCTCACCGTCCT GCATCAGGATTGGCTCAACGGCAAGGAGTACAAGTGCAAGGTGTCCAACAAGG GCCTGCCCTCCTCCATCGAGAAGACCATCTCCAAGGCTAAGGGCCAACCTCGGG AGCCCCAAGTGTATACCCTCCCTCCCAGCCAGGAGGAGATGACCAAGAATCAA GTGAGCCTGACCTGCCTCGTGAAGGGATTTTACCCCTCCGACATCGCTGTGGAA TGGGAAAGCAATGGCCAACCTGAGAACAACTACAAGACCACACCCCCCGTGCT GGACTCCGATGGCTCCTTCTTCCTGTACAGCAGGCTGACCGTGGACAAATCCCG GTGGCAAGAGGGAAACGTGTTCAGCTGCTCCGTGATGCACGAGGCTCTCCACA ACCACTACACCCAGAAGAGCCTCTCCCTGAGCCTCGGCTAGTAA

FIG. 16 cont.

Antibody	SEQ ID NO:	HC nucleic acid sequence
20H5.A3-VH5VL3	908	CAAGTGCAACTGGTGCAGAGCGGCTTTGAGCTGAAAAAGCCCGGCGCCTCTGT GAAGATCAGTTGCAAAGCTTCCGGCTACGCCTTTACCACCTATGGTATGTCTTG GGTTAGACAGGCTCCAGGACAGGGCCTGGAGTGGATGGGTTGGGTCAATACCT ACTCTGGAGTGCCAACCTATGCTCAGGCATTCACAGGCCGGTTTGTCTTCAGTC TCGATACCAGCGTGTCAACCGCATACCTGCAGATCAGCTCTCTTAAAGCCGAGG ATACCGCTGTCTACTACTGTGCCAGAGGACCTTATGCCATGGATTACTGGGGGC AAGGCACCCTCGTCACAGTGTCTTCTGCTAGCACCAAGGGCCCCAGCGTGTTTC CTCTCGCTCCCTGCAGCCGGAGCACATCCGAGAGCACCGCTGCTCTGGGCTGTC TCGTGAAGGACTACTTCCCTGAACCCGTCACCGTCAGCTGGAATAGCGGCGCCC TGACATCCGGCGTCCACACATTCCCCGCTGTCCTGCAGAGCAGCGGCCTGTACA GCCTGAGCTCCGTGGTCACCGTGCCTAGCAGCAGCCTGGGAACAAAGACCTAC ACCTGCAACGTGGACCATAAGCCCTCCAACACCAAGGTGGACAAGCGGGTGGA ATCCAAGTATGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGAATTTCTCGGAGGC CCCTCCGTCTTCCTGTTTCCCCCCAAGCCCAAGGACACCCTGATGATCTCCCGGA CACCCGAAGTCACCTGCGTCGTGGTGGATGTCAGCCAGGAAGATCCCGAGGTG CAGTTCAACTGGTACGTGGACGGAGTGGAGGTGCATAACGCCAAAACCAAGCC CAGGGAAGAGCAGTTCAACAGCACCTATCGGGTCGTGTCCGTGCTCACCGTCCT GCATCAGGATTGGCTCAACGGCAAGGAGTACAAGTGCAAGGTGTCCAACAAGG GCCTGCCCTCCTCCATCGAGAAGACCATCTCCAAGGCTAAGGGCCAACCTCGGG AGCCCCAAGTGTATACCCTCCCTCCCAGCCAGGAGGAGATGACCAAGAATCAA GTGAGCCTGACCTGCCTCGTGAAGGGATTTTACCCCTCCGACATCGCTGTGGAA TGGGAAAGCAATGGCCAACCTGAGAACAACTACAAGACCACACCCCCCGTGCT GGACTCCGATGGCTCCTTCTTCCTGTACAGCAGGCTGACCGTGGACAAATCCCG GTGGCAAGAGGGAAACGTGTTCAGCTGCTCCGTGATGCACGAGGCTCTCCACA ACCACTACACCCAGAAGAGCCTCTCCCTGAGCCTCGGCTAGTAA
20H5.A3-VH6VL1	909	CAGGTTCAGCTTGTCCAATCAGGCTTTGAGCTGAAGAAGCCTGGAGCTAGCGTC AAGATTAGTTGTAAGGCCTCAGGCTACGCTTTCACCACCTACGGAATGTCCTGG GTGCGGCAAGCCCCAGGCCAGGGCCTGGAGTGGATGGGATGGGTGAATACGTA CAGTGGCGTCCCCACTAGCGCCCAGGCTTTTACTGGAAGATTCGTGTTCTCTCTT GATACCTCCGTATCAACCGCTTACCTGCAGATAAGTTCACTCAAGGCTGAGGAT ACCGCCGTGTATTATTGTGCCCGAGGGCCCTACGCTATGGATTACTGGGGACAG GGCACACTCGTAACAGTGAGCTCTGCTAGCACCAAGGGCCCCAGCGTGTTTCCT CTCGCTCCCTGCAGCCGGAGCACATCCGAGAGCACCGCTGCTCTGGGCTGTCTC GTGAAGGACTACTTCCCTGAACCCGTCACCGTCAGCTGGAATAGCGGCGCCCTG ACATCCGGCGTCCACACATTCCCCGCTGTCCTGCAGAGCAGCGGCCTGTACAGC CTGAGCTCCGTGGTCACCGTGCCTAGCAGCAGCCTGGGAACAAAGACCTACAC CTGCAACGTGGACCATAAGCCCTCCAACACCAAGGTGGACAAGCGGGTGGAAT CCAAGTATGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGAATTTCTCGGAGGCCC CTCCGTCTTCCTGTTTCCCCCCAAGCCCAAGGACACCCTGATGATCTCCCGGAC ACCCGAAGTCACCTGCGTCGTGGTGGATGTCAGCCAGGAAGATCCCGAGGTGC AGTTCAACTGGTACGTGGACGGAGTGGAGGTGCATAACGCCAAAACCAAGCCC AGGGAAGAGCAGTTCAACAGCACCTATCGGGTCGTGTCCGTGCTCACCGTCCTG CATCAGGATTGGCTCAACGGCAAGGAGTACAAGTGCAAGGTGTCCAACAAGGG CCTGCCCTCCTCCATCGAGAAGACCATCTCCAAGGCTAAGGGCCAACCTCGGGA GCCCCAAGTGTATACCCTCCCTCCCAGCCAGGAGGAGATGACCAAGAATCAAG TGAGCCTGACCTGCCTCGTGAAGGGATTTTACCCCTCCGACATCGCTGTGGAAT GGGAAAGCAATGGCCAACCTGAGAACAACTACAAGACCACACCCCCCGTGCTG GACTCCGATGGCTCCTTCTTCCTGTACAGCAGGCTGACCGTGGACAAATCCCGG TGGCAAGAGGGAAACGTGTTCAGCTGCTCCGTGATGCACGAGGCTCTCCACAA CCACTACACCCAGAAGAGCCTCTCCCTGAGCCTCGGCTAGTAA

FIG. 16 cont.

Antibody	SEQ ID NO:	HC nucleic acid sequence
20H5.A3-VH6VL3	910	CAGGTTCAGCTTGTCCAATCAGGCTTTGAGCTGAAGAAGCCTGGAGCTAGCGTC AAGATTAGTTGTAAGGCCTCAGGCTACGCTTTCACCACCTACGGAATGTCCTGG GTGCGGCAAGCCCCAGGCCAGGGCCTGGAGTGGATGGGATGGGTGAATACGTA CAGTGGCGTCCCCACTAGCGCCCAGGCTTTTACTGGAAGATTCGTGTTCTCTCTT GATACCTCCGTATCAACCGCTTACCTGCAGATAAGTTCACTCAAGGCTGAGGAT ACCGCCGTGTATTATTGTGCCCGAGGGCCCTACGCTATGGATTACTGGGGACAG GGCACACTCGTAACAGTGAGCTCTGCTAGCACCAAGGGCCCCAGCGTGTTTCCT CTCGCTCCCTGCAGCCGGAGCACATCCGAGAGCACCGCTGCTCTGGGCTGTCTC GTGAAGGACTACTTCCCTGAACCCGTCACCGTCAGCTGGAATAGCGGCGCCCTG ACATCCGGCGTCCACACATTCCCCGCTGTCCTGCAGAGCAGCGGCCTGTACAGC CTGAGCTCCGTGGTCACCGTGCCTAGCAGCAGCCTGGGAACAAAGACCTACAC CTGCAACGTGGACCATAAGCCCTCCAACACCAAGGTGGACAAGCGGGTGGAAT CCAAGTATGGACCCCCCTGTCCTCCTTGCCCTGCTCCTGAATTTCTCGGAGGCCC CTCCGTCTTCCTGTTTCCCCCCAAGCCCAAGGACACCCTGATGATCTCCCGGAC ACCCGAAGTCACCTGCGTCGTGGTGGATGTCAGCCAGGAAGATCCCGAGGTGC AGTTCAACTGGTACGTGGACGGAGTGGAGGTGCATAACGCCAAAACCAAGCCC AGGGAAGAGCAGTTCAACAGCACCTATCGGGTCGTGTCCGTGCTCACCGTCCTG CATCAGGATTGGCTCAACGGCAAGGAGTACAAGTGCAAGGTGTCCAACAAGGG CCTGCCCTCCTCCATCGAGAAGACCATCTCCAAGGCTAAGGGCCAACCTCGGGA GCCCCAAGTGTATACCCTCCCTCCCAGCCAGGAGGAGATGACCAAGAATCAAG TGAGCCTGACCTGCCTCGTGAAGGGATTTTACCCCTCCGACATCGCTGTGGAAT GGGAAAGCAATGGCCAACCTGAGAACAACTACAAGACCACACCCCCCGTGCTG GACTCCGATGGCTCCTTCTTCCTGTACAGCAGGCTGACCGTGGACAAATCCCGG TGGCAAGAGGGAAACGTGTTCAGCTGCTCCGTGATGCACGAGGCTCTCCACAA CCACTACACCCAGAAGAGCCTCTCCCTGAGCCTCGGCTAGTAA

FIG. 16 cont.

Antibody	SEQ ID NO:	LC nucleic acid sequence
TB001 (IMT001; IMT001-4)	750	GACATCGTGCTGACCCAGTCTCCACTGAGCCTGCCTGTTACACCTGGCGAGCCAGC CTCCATCTCCTGCAGATCCTCTAAGTCCCTGCTGTACAAGGACGGCAAGACCTACC TGAACTGGTTCCTGCAGAAGCCCGGCCAGTCTCCTCAGCTCCTGATCTACCTGATG AGCACCCATGCCTCTGGCGTGCCCGATAGATTTTCCGGCTCTGGCTCTGGCACCGA CTTCACCCTGAAGATCTCCAGAGTGGAAGCCGAGGACGTGGGCGTGTACTACTGTC AGCAGCTGGTGGACTACCCTCTGACCTTTGGCGGCGGAACAAAGCTGGAAATCAA GCGGACAGTGGCCGCTCCTTCCGTGTTCATCTTCCCACCTTCCGACGAGCAGCTGA AGTCCGGCACAGCTTCTGTCGTGTGCCTGCTGAACAACTTCTACCCTCGGGAAGCC AAGGTGCAGTGGAAGGTGGACAATGCCCTGCAGTCCGGCAACTCCCAAGAGTCTG TGACCGAGCAGGACTCCAAGGACAGCACCTACAGCCTGTCCTCCACACTGACCCTG TCCAAGGCCGACTACGAGAAGCACAAGGTGTACGCCTGCGAAGTGACCCATCAGG GCCTGTCTAGCCCTGTGACCAAGTCTTTCAACCGGGGCGAGTGCTGATGA
TB006 (4A11.H3L1; IMT006; IMT006a)	751	GATATAGTGATGACCCAAACACCTTTGTCCCTGTCAGTCACCCCAGGCCAACCCGC ATCTATCTCATGCAAATCCTCAAAAAGTCTTTTGCACTCTGACGGGATAACATATCT CTACTGGTATCTTCAAAAACCTGGTCAGTCCCCCCAGCTCTTGATCTATAGAATGA GTAACCTTGCCTCTGGTGTCCCCGACCGGTTTAGTGGAAGCGGGTCTGGGACCGAC TTCACCCTCAAGATTAGTCGCGTCGAAGCCGAAGATGTGGGAGTGTATTACTGTGC CCAGATGCTCGAATTTCCCCTGACATTTGGTCAAGGAACTAAATTGGAGATTAAGC GGACCGTGGCCGCCCCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAAG TCTGGCACCGCCAGCGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCAA GGTGCAGTGGAAGGTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCGT GACCGAGCAGGACTCCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCTG AGCAAGGCCGACTACGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAGG GACTGTCTAGCCCCGTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA
12G5.D7	752	GACATCCTGATGACCCAATCTCCATCCTCCATGTCTGTATCTCTGGGAGACACAGT CAGCATCACTTGCCATGCAAGTCAGGGCATTAACTCTAATATGGGGTGGTTGCAGC AGAAACCAGGGAAATCATTTAAGGGCCTGATCTATCATGCAACCAACTTGGAAGA TGGAGTTCCATCAAGGTTCAGTGGCAGTGGATCTGGAGCAGATTATTCTCTCACCA TCAGCAGCCTGGAATCTGAAGATTTTGCAGACTATTACTGTGTACAGTATGCTCAG TTTCCTCCTACGTTCGGATCGGGGACCAAGCTGGAAATAAAACGGACCGTGGCCGC CCCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAAGTCTGGCACCGCCA GCGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCAAGGTGCAGTGGAA GGTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCGTGACCGAGCAGGA CTCCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCTGAGCAAGGCCGAC TACGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAGGGACTGTCTAGCC CCGTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA
13A12.2E5	753	GATGTTGTGATGACCCAGACTCCACTCACTTTGTCGGTTGCCATTGGACAACCAGC TTCCATCTCTTGCAAGTCGAGTCAGAGCCTCTTATATACTAATGGAAAAACCTATTT GAATTGGTTATTACAGAGGCCAGGCCAGTCTCCAAAACGCCTAATCTATCTGCTGT CTAAATTGGACTCTGGAGTCCCTGACAGGTTCAGTGCCAGTGGATCAGGGACAGAT TTCACACTGAAAATCAGCAGAGTGGAGGCTGAGGATTTGGGAGTTTATTACTGCTT GCAGAGTACACATTTTCCGCTCACGTTCGGTGCTGGGACCAAGCTGGAGATGAAAC GGACCGTGGCCGCCCCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAAG TCTGGCACCGCCAGCGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCAA GGTGCAGTGGAAGGTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCGT GACCGAGCAGGACTCCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCTG AGCAAGGCCGACTACGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAGG GACTGTCTAGCCCCGTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA

FIG. 17

Antibody	SEQ ID NO:	LC nucleic acid sequence
14H10.2C9	754	GATGTTGTGATGACCCAGACTCCACTCACTTTGTCGGTTACCATTGGACAACCAGC CTCCATCTCTTGCAAGTCAAGTCAGAGCCTCTTCGATAGTGATGGAAAGACATATT TGAATTGGTTGTTACAGAGGCCAGGCCAGTCTCCAAAGCGCCTAATCTATCTGGTG TCTAAACTGGACTCTGGAGTCCCTGACAGGTTCACTGGCAGTGGATCAGGGACAGA TTTCACACTGAAAATCAGCAGAGTGGAGGCTGAGGATTTGGGAGTTTATTATTGCT GGCAAGGTACACATTTTCCTCTCACGTTCGGTGCTGGGACCAAGCTGGAAATGAAA CGGACCGTGGCCGCCCCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAA GTCTGGCACCGCCAGCGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCA AGGTGCAGTGGAAGGTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCG TGACCGAGCAGGACTCCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCT GAGCAAGGCCGACTACGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAG GGACTGTCTAGCCCCGTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA
15F10.2D6	755	GATGTTTTGATGACCCAAACTCCACTCTCCCTGCCTGTCAGTCTTGGAGATCAAGCC TCCATCTCTTGCAGATCTAGTCAGAGCATTGTACATAATAATGGAAACACCTATTT AGAATGGTACCTGCAGAAACCAGGCCAGTCTCCAAAACTCCTGATCTACAAAGTTT CCAACCGATTTTCTGGGGTCCCAGACAGGTTCAGTGGCAGTGGATCAGGGACAGAT TTCACACTCAAGATCAGCAGAGTGGAGGCTGAGGATCTGGGAGTTTATTACTGCTT TCAAGGTTCACATGTTCCGCTCACGTTCGGTGGTGGGACCAAGTTGGAGCTGAAAC GGACCGTGGCCGCCCCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAAG TCTGGCACCGCCAGCGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCAA GGTGCAGTGGAAGGTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCGT GACCGAGCAGGACTCCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCTG AGCAAGGCCGACTACGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAGG GACTGTCTAGCCCCGTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA
19B5.2E6	756	GATATACAAATGACTCAAACTACCTCTTCTCTTTCCGCATCTTTGGGTGATCGGGTC ACTATATCCTGCTCCGCCTCTCAAGGCATAAACAATTACCTGAATTGGTATCAGCA AAAACCAGACGGAACTGTAAAATTGCTTATCTACTACGCTTCAAGTCTGCATAGTG GGGTTCCCAGCAGATTTTCCGGTTCCGGGTCCGGCACTGATTATTCTCTCACAATTA GTAACCTGGAACCTGAGGACATTGCAACTTATTACTGTCAACAATACAGTCAGGTA CCTTACACTTTCGGATCAGGAACAAAGTTGGAAATCAAGAGGACCGTGGCCGCCC CCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAAGTCTGGCACCGCCAGC GTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCAAGGTGCAGTGGAAGGT GGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCGTGACCGAGCAGGACTCC AAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCTGAGCAAGGCCGACTACG AGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAGGGACTGTCTAGCCCCGT GACCAAGAGCTTCAACCGGGGCGAGTGCTAA
20D11.2C6	757	GACATCCAGATGAACCAGTCTCCATCCAGTCTGTCTGCATCCCTCGGAGACACAAT TACCATCACTTGCCGTGCCAGTCAGAACATTTATATTTGGTTAAGTTGGTACCAGC AGAAACCAGGAAATATTCCTAAACTCTTGATCTATAAGGCTTCCAACTTGCACACA GGCGTCCCATCAAGGTTTAGTGGCAGTGGATCTGGAACAGATTTCACATTAACCAT CAGCACTCTGCAGCCTGAAGACATTGCCACTTACTTCTGTCTCCAGGGTCAAAGTT ATCCTCTCACGTTCGGTGCTGGGACCAAGCTGGAGATGAAACGGACCGTGGCCGCC CCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAAGTCTGGCACCGCCAG CGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCAAGGTGCAGTGGAAG GTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCGTGACCGAGCAGGACT CCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCTGAGCAAGGCCGACTA CGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAGGGACTGTCTAGCCCC GTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA

FIG. 17 cont.

Antibody	SEQ ID NO:	LC nucleic acid sequence
20H5.A3	758	GATATCCAGATGACACAGACTACATCCTCCCTGTCTGCCTCTCTGGGAGACAGAGT CACCATCAATTGCAGTGCAAGTCAGGACATTAGCAATTATTTAAACTGGTATCAGC AGAAACCAGATGGAACTGTTAAACTCCTGATCTATTACACATCAAGTTTACTCTCA GGAGTCCCATCAAGGTTCAGTGGCAGTGGGTCTGGGACAGATTATTCTCTCACCAT CAGCAACCTGGAACCTGAAGATATTGCCACTTACTTTTGTCAGCAATATAGTAAGC TTCCCTATACGTTCGGATCGGGGACCCACCTGGAAATAAAACGGACCGTGGCCGCC CCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAAGTCTGGCACCGCCAG CGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCAAGGTGCAGTGGAAG GTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCGTGACCGAGCAGGACT CCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCTGAGCAAGGCCGACTA CGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAGGGACTGTCTAGCCCC GTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA
23H9.2E4	759	GATATCCAGATGACACAGACTACATCCTCCCTGTCTGCCTCTCTGGGAGACAGAGT CACCATCAGTTGCAGTGCAAGTCAGGGCATTAACAATTATTTAAACTGGTATCAGC AGAAACCAGATGGAACTGTTAAACTCCTGATCTATTACGCATCAAGTTTACACTCA GGAGTCCCATCAAGGTTCAGTGGCAGTGGGTCTGGGACAGATTATTCTCTCACCAT CAGCAACCTGGAACCTGAAGATATTGCCACTTACTATTGTCAGCAGTATAGTCAGG TTCCGTATACGTTCGGATCGGGGACCAAGTTGGAAATAAAACGGACCGTGGCCGC CCCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAAGTCTGGCACCGCCA GCGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCAAGGTGCAGTGGAA GGTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCGTGACCGAGCAGGA CTCCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCTGAGCAAGGCCGAC TACGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAGGGACTGTCTAGCC CCGTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA
2D10-VH0-VL0	760	GACATAGTAATGACACAGGCCGCATTTAGCAATCCAGTAACCTTGGGCACATCCGC CTCCATATCTTGCAGGTCATCCAAAAGCTTGCTGCACTCTGACGGTATTACTTACCT GTACTGGTATTTGCAGCGACCTGGGCAATCCCCTCAACTCCTGATTTACCGCATGA GCAACCTGGCCTCAGGGGTGCCTGACCGCTTTTCAGGATCAGGGAGCGGCACTGAC TTCACCTTGCGAATCAGCAGAGTAGAAGCAGAGGATGTTGGAGTTTACTACTGTGC CCAGATGATCGAATTTCCACTTACTTTTGGGGCCGGGACCATTCTGGAGCTTAAAC GGACCGTGGCCGCCCCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAAG TCTGGCACCGCCAGCGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCAA GGTGCAGTGGAAGGTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCGT GACCGAGCAGGACTCCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCTG AGCAAGGCCGACTACGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAGG GACTGTCTAGCCCCGTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA
3B11.2G2	761	GATGTTGTGATGACCCAGACTCCACTCACTTTGTCGGTTGCCATTGGACAACCAGC TTCCATCTCTTGCAAGTCGAGTCAGAGCCTCTTATATACTAATGGAAAAACCTATTT GAATTGGTTATTACAGAGGCCAGGCCAGTCTCCAAAACGCCTAATCTATCTGGTGT CTAAATTGGACTCTGGAGTCCCTGACAGGTTCAGTGGCAGTGGATCAGGGACAGAT TTCACACTGAAAATCAGCAGAGTGGAGGCTGAGGATTTGGGAGTTTATTACTGCTT GCAGAGTACACATTTTCCGCTCACGTTCGGTGCTGGGACCAAGCTGGAGCTGAAAC GGACCGTGGCCGCCCCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAAG TCTGGCACCGCCAGCGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCAA GGTGCAGTGGAAGGTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCGT GACCGAGCAGGACTCCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCTG AGCAAGGCCGACTACGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAGG GACTGTCTAGCCCCGTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA

FIG. 17 cont.

Antibody	SEQ ID NO:	LC nucleic acid sequence
7D8.2D8	762	GATGTTTTGATGACCCAAACTCCACTCTCCCTGCCTGTCAGTCTTGGAGATCAAGCC TCCATCTCTTGCAGATCTAGTCAGAGCATTGTACATAGTAATGGAAACACCTATTT AGAATGGTACCTGCAGAAACCAGGCCAGTCTCCAAAGCTCCTGATCTACAAAGTTT CCAACCGATTTTCTGGGGTCCCAGACAGGTTCAGTGGCAGTGGATCAGGGACAGAT TTCACACTCAAGATCAGCAGAGTGGAGGCTGAGGATCTGGGAGTTTATTACTGCTT TCAAGGTTCACATGTTCCGCTCACGTTCGGTGCTGGGACCAAGCTGGAGCTGAAAC GGACCGTGGCCGCCCCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAAG TCTGGCACCGCCAGCGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCAA GGTGCAGTGGAAGGTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCGT GACCGAGCAGGACTCCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCTG AGCAAGGCCGACTACGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAGG GACTGTCTAGCCCCGTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA
mTB001 (mIMT001)	763	GATATTGTTATTACTCAGGATGAGCTTAGTAATCCTGTCACTAGCGGGGAAAGTGT TAGTATCAGTTGTCGTTCATCCAAGTCACTCCTCTACAAAGACGGCAAGACTTATC TCAACTGGTTTCTTCAACGACCCGGTCAATCTCCACAGCTCCTGATTTACCTGATGT CAACTCACGCTTCTGGTGTTAGCGACCGTTTCTCCGGAAGTGGCTCCGGGACAGAC TTCACTCTTGAAATCTCACGTGTAAAAGCAGAGGACGTAGGTGTCTATTATTGTCA ACAGCTTGTGGACTACCCCTTGACCTTTGGCGCTGGCACAAAGCTGGAACTGAAGC GTGCTGATGTTGCCCCTACTGTGTCCATCTTCCCCCCCTCCTCCGAGCAGCTGACAT CCGGCGGCGCCTCCGTGGTGTGCTTCCTGAACAACTTCTACCCCAAAGACATCAAC GTGAAATGGAAAATCGACGGCTCCGAGAGGCAGAACGGCGTGCTGAACTCCTGGA CAGACCAGGACTCCAAAGACTCCACATACTCCATGTCCTCCACACTGACACTGACA AAAGACGAGTACGAGAGGCACAACTCCTACACATGCGAGGCCACACACAAAACAT CCACATCCCCCATCGTGAAATCCTTCAACAGGAACGAGTGCTAATAA
4A11.2B5	764	GACATTGTGATGACTCAGGCAGCCTTTTCCAACCCTGTAACACTTGGAACTAGTGC CTCCATCTCATGCCGTTCCAGCAAGAGTCTTTTGCACAGCGATGGGATAACCTATC TCTATTGGTATCTGCAACGACCCGGTCAGTCACCCCAACTTCTTATCTATCGAATGT CTAACTTGGCCTCCGGCGTGCCCGACCGCTTTTCCGGGAGTGGGAGCGGTACAGAT TTCACCTTGCGAATTTCCCGGGTTGAGGCAGAGGACGTAGGTGTCTACTATTGTGC TCAGATGCTTGAGTTTCCTCTCACTTTCGGAGCCGGCACCAAACTGGAACTGAAAC GGACCGTGGCCGCCCCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAAG TCTGGCACCGCCAGCGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCAA GGTGCAGTGGAAGGTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCGT GACCGAGCAGGACTCCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCTG AGCAAGGCCGACTACGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAGG GACTGTCTAGCCCCGTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA
4A11.H1L1 (IMT006b)	765	GATATAGTGATGACCCAAACACCTTTGTCCCTGTCAGTCACCCCAGGCCAACCCGC ATCTATCTCATGCAAATCCTCAAAAAGTCTTTTGCACTCTGACGGGATAACATATCT CTACTGGTATCTTCAAAAACCTGGTCAGTCCCCCCAGCTCTTGATCTATAGAATGA GTAACCTTGCCTCTGGTGTCCCCGACCGGTTTAGTGGAAGCGGGTCTGGGACCGAC TTCACCCTCAAGATTAGTCGCGTCGAAGCCGAAGATGTGGGAGTGTATTACTGTGC CCAGATGCTCGAATTTCCCCTGACATTTGGTCAAGGAACTAAATTGGAGATTAAGC GGACCGTGGCCGCCCCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAAG TCTGGCACCGCCAGCGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCAA GGTGCAGTGGAAGGTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCGT GACCGAGCAGGACTCCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCTG AGCAAGGCCGACTACGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAGG GACTGTCTAGCCCCGTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA

FIG. 17 cont.

Antibody	SEQ ID NO:	LC nucleic acid sequence
4A11.H4L2 (IMT006c)	766	GATATTGTAATGACCCAAAGCCCCCTGTCCTTGCCTGTTACCCCAGGTGAGCCTGC CAGCATATCTTGCCGATCCAGTAAATCTCTGCTTCATAGCGATGGCATCACCTATTT GTATTGGTATTTGCAGAAGCCCGGCCAGAGCCCCCAGTTGCTGATCTACAGAATGT CCAACCTTGCTAGTGGAGTGCCCGACCGGTTTAGCGGTTCAGGCTCAGGGACTGAT TTCACTCTTAAAATCAGTAGGGTAGAGGCCGAAGACGTTGGTGTATATTATTGTGC TCAGATGTTGGAGTTTCCACTCACATTTGGACAAGGTACAAAGCTGGAAATTAAGC GGACCGTGGCCGCCCCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAAG TCTGGCACCGCCAGCGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCAA GGTGCAGTGGAAGGTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCGT GACCGAGCAGGACTCCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCTG AGCAAGGCCGACTACGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAGG GACTGTCTAGCCCCGTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA
4G2.2G6	767	GATGTCGTAATGACTCAAACCCCCCTGACCCTTAGTGTTACTATAGGCCAGCCCGC AAGCATCTCCTGCAAATCCTCCCAGTCTCTTCTTTATACTGATGGCAAAACCTACTT GTCCTGGTTTTTGCAGCGCCCAGGTCAAAGTCCTAAACGTCTTATTTACTTGGTCTC TAAACTCGATTCCGGCGTGCCTGACCGGTTCTCCGGTAGCGGTAGCGGTACCGATT TCACTTTGAAGATTAGCCGAGTTGAGGCAGAAGACCTCGGGGTCTACTACTGCCTT CAGAGTACACACTTCCCACTTACATTTGGCGCAGGAACCAAGTTGGAGGTTAAACG GACCGTGGCCGCCCCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAAGT CTGGCACCGCCAGCGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCAAG GTGCAGTGGAAGGTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCGTG ACCGAGCAGGACTCCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCTGA GCAAGGCCGACTACGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAGGG ACTGTCTAGCCCCGTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA
6B3.2D3	768	AGTATTGTGATGACCCAGACTCCCAAATTCCTGCTTGTATCAGCAGGAGACAGGGT TACCATAACCTGCAAGGCCAGTCAGAGTGTGAGTAATGATGTAGCTTGGTACCAAC AGAAGCCAGGGCAGTCTCCTAAATTGTTGATATATTATGCATCCAATCGCTACACT GGAGTCCCTGATCGCTTCACTGGCAGTGGATATGGGACGGATTTCACTTTCACCAT CAGCACTGTGCAGGCTGAAGACCTGGCAGTTTATTTCTGTCAGCAGGATTATACCT CTCCGTACACGTTCGGAGGGGGGACCAAGCTGGAAATAAAACGGACCGTGGCCGC CCCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAAGTCTGGCACCGCCA GCGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCAAGGTGCAGTGGAA GGTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCGTGACCGAGCAGGA CTCCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCTGAGCAAGGCCGAC TACGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAGGGACTGTCTAGCC CCGTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA
6H6.2D6	769	GACATCCAGATGACCCAGACCACCTCCTCCCTGTCCGCCTCCCTGGGCGACAGGGT GACCATCTCCTGCTCCGCCTCCCAGGGCATCTCCAACTACCTGAACTGGTACCAGC AGAAGCCCGACGGCACCGTGAAGCTGCTGATCTACTACACCTCCTCCCTGCACTCC GGCGTGCCCTCCAGGTTCTCCGGCTCCGGCTCCGGCACCGACTACTCCCTGACCAT CTCCAACCTGGAGCCCGAGGACATCGCCACCTACTACTGCCAGCAGTACTCCGAGC TGCCCTACACCTTCGGCTCCGGCACCAAGCTGGAGATCAAGAGGACCGTGGCCGCC CCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAAGTCTGGCACCGCCAG CGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCAAGGTGCAGTGGAAG GTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCGTGACCGAGCAGGACT CCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCTGAGCAAGGCCGACTA CGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAGGGACTGTCTAGCCCC GTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA

FIG. 17 cont.

Antibody	SEQ ID NO:	LC nucleic acid sequence
9H2.2H10	770	GACATTGTGATGACCCAGTCTCACAAATTCATGTCCACATCAGTAGGAGACAGGGT CAGCATCACCTGCAAGGCCAGTCAGGATGTGAGTACTGCTGTAGCCTGGTATCAAC AAAAACCAGGGCAATCTCCTAAACTACTGATTTACTGGGCATCCACCCGGCACACT GGAGTCCCTGATCGCTTCACAGGCAGTGGATCTGGGACAGATTATACTCTCACCAT CAGCAGTGTGCAGGCTGAAGACCTGGCACTTTATTACTGTCAGCAACATTATACCA CTCCGCTCACGTTCGGTGCTGGGACCAAGCTGGAGCTGAAACGGACCGTGGCCGCC CCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAAGTCTGGCACCGCCAG CGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCAAGGTGCAGTGGAAG GTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCGTGACCGAGCAGGACT CCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCTGAGCAAGGCCGACTA CGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAGGGACTGTCTAGCCCC GTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA
13G4.2F8	771	GACATTGTGATGACCCAGTCTCAAAAATTCATGTCCACATCAGTAGGAGAGAGGGT CAGCATCACCTGCAAGGCCAGTCAGAATGTAGGTACTAATGTAGCCTGGTATCAGC AGAAAGCAGGGCAGTCTCTTGAACTGCTGATCTATGGGGCATCCAACCGGCACACT GGAGTCCCTGATCGCTTCACAGGCAGTGGATCTGGGACAGATTTCACTCTCACCAT CACCAATGTGCAGTCTGAAGACATGACAAATTATTTCTGTGAGCAATATAGCAACT TTCCTCTCACGTTCGGTGCTGGGACCAAGCTGGAGCTGAAACGGACCGTGGCCGCC CCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAAGTCTGGCACCGCCAG CGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCAAGGTGCAGTGGAAG GTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCGTGACCGAGCAGGACT CCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCTGAGCAAGGCCGACTA CGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAGGGACTGTCTAGCCCC GTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA
13H12.2F8	772	GACGTTGTTATGACACAAACACCACTTACACTTTCTGTAACTATCGGTCAGCCTGC CTCAATTTCATGTAAGTCTTCTCAGTCCCTGTTTCATAGCGACGGGAAGACTTACCT GAATTGGCTTCTCCAACGACCAGGCCAATCACCCAAGCGCCTTATTTATTTGGTCA GTAAATTGGACAGTGGAGTTCCCGATAGATTTACCGGGAGCGGTTCTGGGACCGAT TTCACCCCAAAGATCTCCAGGGTAGAAGACGAAGATCTCGGTGTGTACTATTGCTG GCAGGGGACACATTTCCCTCTGACATTCGGTGCTGGAACCAAACTTGAGATGAAAC GGACCGTGGCCGCCCCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAAG TCTGGCACCGCCAGCGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCAA GGTGCAGTGGAAGGTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCGT GACCGAGCAGGACTCCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCTG AGCAAGGCCGACTACGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAGG GACTGTCTAGCCCCGTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA
15G7.2A7	773	GACATCCAGATGAACCAGTCTCCATCCAGTCTGTCTGCATCCCTCGGAGACACAAT TTCCATCACTTGCCGTGCCAGTCAGAACATTAATATTTGGTTAAGCTGGTACCAGC AGAAACCAGGAAATATTCCTCAACTATTGATCTATAAGGCTTCCAACTTGCACACA GGCGTCCCCTCAAGGTTTAGTGGCAGTGGATCTGGAACAGATTTCACATTAACCAT CAGCAGTCTGCAGCCTGAAGACATTGCCACTTACTACTGTCTACAGGGTCAAAGTT ATCCTCTCACGTTCGGTGCTGGGACCAAGCTGGTGATGAAACGGACCGTGGCCGCC CCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAAGTCTGGCACCGCCAG CGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCAAGGTGCAGTGGAAG GTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCGTGACCGAGCAGGACT CCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCTGAGCAAGGCCGACTA CGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAGGGACTGTCTAGCCCC GTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA

FIG. 17 cont.

Antibody	SEQ ID NO:	LC nucleic acid sequence
19D9.2E5	774	GATGTTGTGATGACCCAGACTCCACTCACTTTGTCGGTTACCATTGGACAACCAGC CTCCATCTCTTGTAAGTCAAGTCAGAGCCTCTTACATAGTGATGGAAAGACATATT TGAATTGGTTGTTACAGAGGCCAGGCCAGCCTCCAAAGCGCCTAATGTATCTGGTG TCTACACTGGACTCTGGAGTCCCTGACAGGTTCACTGGCAGTGGATCAGGGACAGA TTTCACACTGAAAATCAGCAGAGTGGAGGCTGAGGATTTGGGAGTTTATTATTGCT GGCAAGGTACACATTTTCCTCTCACGTTCGGTGCTGGGACCAAGCCGGAGCGGACC GTGGCCGCCCCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAAGTCTGG CACCGCCAGCGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCAAGGTGC AGTGGAAGGTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCGTGACCG AGCAGGACTCCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCTGAGCAA GGCCGACTACGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAGGGACTG TCTAGCCCCGTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA
23B10.2B12	775	GATATTGTGATGACGCAGGCTGCATTCTCCAATCCAGTCACTCTTGGAACGTCAGC TTCCATCTCCTGCAGGTCTAGTAAGAGTCTCCTACATAGTGATGGCATCACTTATTT CTATTGGTATCTGCAGAGGCCAGGCCAGTCTCCTCAGCTCCTGATATATCGGATGT CCAACCTTGCCTCAGGAGTCCCAGACAGGTTCAGTGGCAGTGGGTCAGGAACTGAT TTCACACTGAGAATCAGCAGAGTGGAGGCTGAGGATGTGGGTGTTTATTACTGTGC TCAAATGCTAGAATTCCCGCTCACGTTCGGTGCTGGGACCAAGCTGGAGCGGACCG TGGCCGCCCCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAAGTCTGGC ACCGCCAGCGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCAAGGTGCA GTGGAAGGTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCGTGACCGA GCAGGACTCCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCTGAGCAAG GCCGACTACGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAGGGACTGT CTAGCCCCGTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA
24D12.2H9	776	GACATTGTGATGACCCAGTCTCACAAATTCATGTCCACATCAGTAGGAGACAGGGT CAGCATCACCTGCAAGGCCAGTCAGGATGTGCGTACTGCTGTAGCCTGGTATCAAC AGAAACCAGGGCAATCTCCTAAACTACTGATTTACTGGGCATCCACCCGGCACACT GGAGTCCCTGATCGCTTCACAGGCAGTGGATCTGGGACAGATTTCACTCTCACCCT TAGCAATGTGCAGTCTGAAGACTTGGCAGATTATTTCTGTCAGCAATATAGTAGTT ATCCGTGGACGTTCGGTGGAGGCACCAAGCTGGAAATCAAACGGACCGTGGCCGC CCCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAAGTCTGGCACCGCCA GCGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCAAGGTGCAGTGGAA GGTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCGTGACCGAGCAGGA CTCCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCTGAGCAAGGCCGAC TACGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAGGGACTGTCTAGCC CCGTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA
F846C.1B2	777	AACATTTGGTTGACACAGTCGCCATCATCTCTGGCTGTGTCTGCAGGAGAAATGGT CACTATGACCTGTAAGTCCAGTCAAAGTGTTTTATACAGTTCAAATCAGAAGAACT ACTTGGCCTGGTACCAGCAGAAACCAGGGCAGTCTCCTAAACTGCTGATCTACTGG GCATCCACTAGGGAATCTGGTGTCCCTGATCGCTTCACAGGCAGTGGATCTGGGAC AGACTTTTCTCTTACCATCAGCAGTGTACAAGCTGAAGACCTGGCAGTTTATTACT GTCATCAATATCTCTCCTCGCTCACGTTCGGTGCTGGGACCAAGCTGGAGCTGAAA CGGACCGTGGCCGCCCCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAA GTCTGGCACCGCCAGCGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCA AGGTGCAGTGGAAGGTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCG TGACCGAGCAGGACTCCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCT GAGCAAGGCCGACTACGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAG GGACTGTCTAGCCCCGTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA

FIG. 17 cont.

Antibody	SEQ ID NO:	LC nucleic acid sequence
F846C.1F5	778	AACATTATGATGACACAGTCGCCATCATCTCTGGCTGTGTCTGCAGGAGAAAAGGT CACTATGAGCTGTAAGTCCAGTCAAAGTGTTTTATACAGTTCAAATCAGAAGAACT ACTTGGCCTGGTACCAGCAGAAACCAGGGCAGTCTCCTAAACTGCTGATCTACTGG GCATCCACTAGGGAATCTGGTGTCCCTGATCGCTTCACAGGCAGTGGATCTGGGAC AGATTTTACTCTTACCATCAGCAGTGTACAACCTGAAGACCTGGCAGTTTATTACT GTCATCAATACCTCTCCTCGCTCACGTTCGGTGCTGGGACCAAGCTGGAGCTGAAA CGGACCGTGGCCGCCCCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAA GTCTGGCACCGCCAGCGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCA AGGTGCAGTGGAAGGTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCG TGACCGAGCAGGACTCCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCT GAGCAAGGCCGACTACGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAG GGACTGTCTAGCCCCGTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA
F846C.1H12	779	AACATTATGATGACACAGTCGCCATCATCTCTGGCTGTGTCTGCAGGACAAAAGGT CACTATGAGCTGTAAGTCCAGTCAAAGTGTTTTATACAGTTCAAGTCAGAAGAACT ACTTGGCCTGGTACCAGCAGAAACCAGGGCAGTCTCCTAAACTTCTGATCTACTGG GCATCCACTAGGGAATCTGGTGTCCCTGATCGCTTCTCAGGCAGTGGATCTGGGAC AGATTTTACTCTTACCATCAGCAGTGTACAACCTGAAGACCTGGCAGTTTATTACT GTCATCAATACCTCTCCTCGCTCACGTTCGGTGCTGGGACCAAGCTGGAGCTGAAA CGGACCGTGGCCGCCCCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAA GTCTGGCACCGCCAGCGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCA AGGTGCAGTGGAAGGTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCG TGACCGAGCAGGACTCCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCT GAGCAAGGCCGACTACGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAG GGACTGTCTAGCCCCGTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA
F846C.1H5	780	GATGTTGTGATGACCCAAACTCCACTCTCCCTGCCTGTCAGTCTTGGAGATCAAGC CTCCATCTCTTGCAGATCTAGTCAGAGCCTTGTACACAATAGTGGAAACACCTATT TACATTGGTACCTGCAGAGGCCAGGCCAGTCTCCAAACCTCCTGATCTACAAAGTT TCCAACCGATTTTCTGGGGTCCCAGACAGGTTCAGTGGCAGTGGATCAGGGACAGA TTTCACACTCAAGATCAGCAGAGTGGCGGCTGAGGATCTGGGAGTTTATTTCTGCT CTCAAAGTACACATGTTCCTCCGACGTTCGGTGGAGGCACCAAGCTGGAAATCAAA CGGACCGTGGCCGCCCCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAA GTCTGGCACCGCCAGCGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCA AGGTGCAGTGGAAGGTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCG TGACCGAGCAGGACTCCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCT GAGCAAGGCCGACTACGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAG GGACTGTCTAGCCCCGTGACCAAGAGCTTCAACCGGGGCGAGTGCTAAGGA
F846C.2H3	781	AACATTATGATGACACAGTCGCCATCATCTCTGGCTGTGTCTGCAGGAGAAAAGGT CACTATGAGCTGTAAGTCCAGTCAAAGTGTTTTATACAGTTCAAATCAGAAGAACT ACTTGGCCTGGTACCAGCAGAAACCAGGGCAGTCTCCTAAACTGCTGATCTACTGG GCATCCACTAGGGAATCTGGTGTCCCTGATCGCTTCACAGGCAGTGGATCTGGGAC AGATTTTACTCTTACCATCAGCAGTGTACAACCTGAAGACCTGGCAGTTTATTACT GTCATCAATACCTCTCCTCGCTCACGTTCGGTGCTGGGACCAAGCTGGAGCTGAAA CGGACCGTGGCCGCCCCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAA GTCTGGCACCGCCAGCGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCA AGGTGCAGTGGAAGGTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCG TGACCGAGCAGGACTCCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCT GAGCAAGGCCGACTACGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAG GGACTGTCTAGCCCCGTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA

FIG. 17 cont.

Antibody	SEQ ID NO:	LC nucleic acid sequence
F846TC.14A2	782	CAGGCTGTTGTGACTCAGGAATCTGCACTCACCACATCACCTGGTGAAACAGTCA CACTCACTTGTCGCTCAAGTACTGGGGCTGTTACAACTAGTAACTATGCCAACTGG GTCCAAGAAAAACCAGATCATTTATTCACTGGTCTAATAGGTGGTATCAATAACC GAGTTCCAGGTGTTCCTGCCAGATTCTCAGGCTCCCTGATTGGAGACAAGGCAGC CCTCACCATCACAGGGGCACAGACTGAGGATGAGGCAATATATTTCTGTGCTCTA TGGTATAGCAACCATTGGGTGTTCGGTGGAGGAACCAAACTGACTGTCCTACGGA CCGTGGCCGCCCCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAAGTCT GGCACCGCCAGCGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCAAGG TGCAGTGGAAGGTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCGTGA CCGAGCAGGACTCCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCTGA GCAAGGCCGACTACGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAGG GACTGTCTAGCCCCGTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA
F846TC.14E4	783	GATATTGTGATGACGCAGGCTGCATTCTCCAATCCAGTCACTCTTGGAACATCAGC TTCCATCTCCTGCAGGTCTAGTAAGAGTCTCCTACATACTAATGGCATCACTTTTT TGTATTGGTATCTGCAGAAGCCAGGCCAGTCTCCTCAGCCCCTGATTTATCAGATG TCCAACCTTGCCTCAGGAGTCCCAGACAGGTTCAGTAGCAGTGGGTCAGGAACTG ATTTCACACTGAGAATCAGCAGAGTGGAGGCTGAGGATGTGGGTGTTTATTACTG TGCTCAAAATCTAGAACTTCCTTGGACGTTCGGTGGAGGCACCAAGCTGGAAATC AATCGGACCGTGGCCGCCCCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGC TGAAGTCTGGCACCGCCAGCGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGA GGCCAAGGTGCAGTGGAAGGTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGA GAGCGTGACCGAGCAGGACTCCAAGGACAGCACCTACAGCCTGAGCAGCACCCT GACCCTGAGCAAGGCCGACTACGAGAAGCACAAGGTGTACGCCTGCGAGGTGAC CCACCAGGGACTGTCTAGCCCCGTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA
F846TC.16B5	784	AACATTATGATGACACAGTCGCCATCATCTCTGGCTGTGTCTGCAGGAGAAAAGG TCACTATGAGCTGTAAGTCCAGTCAAAGTGTTTTATACAGTTCAAATCAGAAGAA CTACTTGGCCTGGTACCAGCAGAAACCAGGGCAGTCTCCTAAACTACTGATCTAC TGGGCATCCACTAGGGAATCTGGTGTCCCTGATCGCTTCACAGGCAGTGGATCTG GGACAGATTTTACTCTTACCATCAGCAGTGTACAAGCTGAAGACCTGGCAGTTTA TTACTGTCATCAATACCTCTCCTCGCTCACGTTCGGTGCTGGGACCAAGCTGGAGC TGAAACGGACCGTGGCCGCCCCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCA GCTGAAGTCTGGCACCGCCAGCGTGGTGTGCCTGCTGAACAACTTCTACCCCCGC GAGGCCAAGGTGCAGTGGAAGGTGGACAACGCCCTGCAGAGCGGCAACAGCCAG GAGAGCGTGACCGAGCAGGACTCCAAGGACAGCACCTACAGCCTGAGCAGCACC CTGACCCTGAGCAAGGCCGACTACGAGAAGCACAAGGTGTACGCCTGCGAGGTG ACCCACCAGGGACTGTCTAGCCCCGTGACCAAGAGCTTCAACCGGGGCGAGTGCT AA
F846TC.7F10	785	GACATTGTGATGACACAGTCTCCATCCTCCCTGGCTATGTCAGTAGGACAGAAGG TCACTATGAGCTGCAAGTCCAGTCAGAGCCTTTTAAATAGTAGCAATCAAAAGAA CTATTTGGCCTGGTACCAGCAGAAACCAGGACAGTCTCCTAAACTTCTGGTATACT TTGCATCCACTAGGGAATCTGGGGTCCCTGATCGCTTCATAGGCAGTGGATCTGG GACAGATTTCACTCTTACCATCAGCAGTGTGCAGGCTGAAGACCTGGCAGATTAC TTCTGTCAGCAACATTATAGCACTCCGTACACGTTCGGAGGGGGGGCCAAGCTGG AAATAAAACGGACCGTGGCCGCCCCCAGCGTGTTCATCTTCCCTCCCAGCGACGA GCAGCTGAAGTCTGGCACCGCCAGCGTGGTGTGCCTGCTGAACAACTTCTACCCC CGCGAGGCCAAGGTGCAGTGGAAGGTGGACAACGCCCTGCAGAGCGGCAACAGC CAGGAGAGCGTGACCGAGCAGGACTCCAAGGACAGCACCTACAGCCTGAGCAGC ACCCTGACCCTGAGCAAGGCCGACTACGAGAAGCACAAGGTGTACGCCTGCGAG GTGACCCACCAGGGACTGTCTAGCCCCGTGACCAAGAGCTTCAACCGGGGCGAGT GCTAA

FIG. 17 cont.

Antibody	SEQ ID NO:	LC nucleic acid sequence
F847C.10B9	786	GACATCCGGATGACTCAGTCTCCATCCAGTCTGTCTGCATCCCTTGGAGACACAAT TACCATCACTTGCCATGCCAGTCAGAACATTAATGTTTGGTTAAGCTGGTACCAGC AGAAACCAGGAAATATTCCTAAACTATTGATCTATAAGGCTTCCAACTTGCACACA GGCGTCCCATCAAGGTTTAGTGGCAGTGGATCTGGAACAGGTTTCACATTAACCAT CAGCAGCCTGCAGCCTGAAGACATTGCCACTTACTACTGTCAACAGGGTCAAAGTT ATCCGTACACGTTCGGAGGGGGGACCAAGCTGGAGCTGAAACGGACCGTGGCCGC CCCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAAGTCTGGCACCGCCA GCGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCAAGGTGCAGTGGAA GGTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCGTGACCGAGCAGGA CTCCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCTGAGCAAGGCCGAC TACGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAGGGACTGTCTAGCC CCGTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA
F847C.11B1	787	GAAATTGTGTTGACCCAGTCTCCAGCATCCCTGTCCGTGACTACAGGAGAAAAAGT CACTATCAGATGCATAACCAGCATTGATATTGATGATGATATGAACTGGTACCAGC AGAAGCCAGGGGAACCTCCTAAGCTCCTTATTTCAGAAGGCAATACTCTTCGTCCT GGAGTCCCATCCCGATTCTCCAGCAGTGGCTATGGCACAGATTTTGTTTTTACAATT GAAAACACGCTCTCAGAAGATGTTGCAGATTACTACTGTTTGCAAAGTGATAACAA GCCTCTCACGTTCGGTGCTGGGACCAAGCTGGAGCTGAAACGGACCGTGGCCGCCC CCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAAGTCTGGCACCGCCAGC GTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCAAGGTGCAGTGGAAGGT GGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCGTGACCGAGCAGGACTCC AAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCTGAGCAAGGCCGACTACG AGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAGGGACTGTCTAGCCCCGT GACCAAGAGCTTCAACCGGGGCGAGTGCTAA
F847C.12F12	788	GACATCCAGGTGATTCAGTCTCCATCCAGTCTGTCTGCATCCCTTGGAGACACAAT TACCATCACTTGCCATGCCAGTCAGAACATTAATGTTTGGTTAAGCTGGTACCAGC AGAAACCAGGAAATATTCCTAAACTATTGATCTATAAGGCTTCCAACTTGCACACA GGCGTCCCATCAAGGTTTAGTGGCAGTGGATCTGGAACAGGTTTCACATTAACCAT CAGCAGCCTGCAGCCTGAAGACATTGCCACTTACTACTGTCAACAGGGTCAAAGTT ATCCGTACACGTTCGGAGGGGGGACCAAGCTGGAGCTGAAACGGACCGTGGCCGC CCCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAAGTCTGGCACCGCCA GCGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCAAGGTGCAGTGGAA GGTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCGTGACCGAGCAGGA CTCCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCTGAGCAAGGCCGAC TACGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAGGGACTGTCTAGCC CCGTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA
F847C.26F5	789	GAAATTAAGATGAACCAGTCTCCATCCAGTCTGTCTGCATCCCTTGGAGACACAAT TACCATCACTTGCCATGCCAGTCAGAACATTAATGTTTGGTTAAGCTGGTACCAGC AGAAACCAGGAAATATTCCTAAACTATTGATCTATAAGGCTTCCAACTTGCACACA GGCGTCCCATCAAGGTTTAGTGGCAGTGGATCTGGAACAGGTTTCACATTAACCAT CAGCAGCCTACAGCCTGAAGACATTGCCACTTACTACTGTCAACAGGGTCAAAGTT ATCCGTACACGTTCGGAGGGGGGACCAAGCTGGAGCTGAAAAGGACCGTGGCCGC CCCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAAGTCTGGCACCGCCA GCGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCAAGGTGCAGTGGAA GGTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCGTGACCGAGCAGGA CTCCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCTGAGCAAGGCCGAC TACGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAGGGACTGTCTAGCC CCGTGACCAAGAGCTTCAACCGGGGCGAGTGCTAAG

FIG. 17 cont.

Antibody	SEQ ID NO:	LC nucleic acid sequence
F847C.4B10	790	CAGGCTGTTGTGACTCAGGAATCTGCACTCACCACATCACCTGGTGAAACAGTCAC ACTCACTTGTCGCTCAAGTACTGGGGCTGTTACAACTAGTAACTATGCCAACTGGG TCCAAGAAAAACCAGATCATTTATTCACTGGTCTAATAGGTGGTACCAACAACCGA GCTCCAGGTGTTCCTGCCAGATTCTCAGGCTCCCTGATTGGAGACAAGGCTGCCCT CACCATCACAGGGGCACAGACTGAGGATGAGGCAATATATTTCTGTGCTCTATGGT ACAGCAACCATTTAGTGTTCGGTGGAGGAACCAAACTGACTGTCCTAAGGACCGTG GCCGCCCCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAAGTCTGGCAC CGCCAGCGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCAAGGTGCAGT GGAAGGTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCGTGACCGAGC AGGACTCCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCTGAGCAAGGC CGACTACGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAGGGACTGTCT AGCCCCGTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA
F849C.8D10	791	GATGTTTTGATGACCCAAACTCCACTCTCCCTGCCTGTCAGTCTTGGAGATCAAGCC TCCATCTCTTGCAGATCTAGTCAGGACATTGTGCATAGTAGTGGAAACACCTATTT AGAATGGTACCTGCAGAAACCAGGCCAGTCTCTAAAGCTCCTGATTTACAAAGTTT CCAACCGATTTTCTGGGGTCCCAGACAGGTTCAGTGCCAGTGGATCAGGGACAGAT TTCACACTCAAGATCAGCAGAGTGGAGGCTGAGGATCTGGGAGTTTATTACTGCTT TCAAGGTTCACATGTTCCTCCCACGTTCGGCTCGGGGACAAAGTTGGAAATAAAAC GGACCGTGGCCGCCCCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAAG TCTGGCACCGCCAGCGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCAA GGTGCAGTGGAAGGTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCGT GACCGAGCAGGACTCCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCTG AGCAAGGCCGACTACGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAGG GACTGTCTAGCCCCGTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA
F849C.8H3	792	GATATTGGGATGAGGCAGGCTGCATTCTCCAATCCAGTCACTCTTGGAACATCAGC TTCCATCTCCTGCAGGTCTAGTAAGAGTCTCCTATATAGTAATGGCATCACTTATTT GTATTGGTTTCTCCAGAAGCCAGGCCAGTCTCCTCAGCTCCTGATTTATCAGATGTC CAACCTTGCCTCAGGAGTCCCAGACAGGTTCAGTAGCAGTGGGTCAGGAACTGATT TCACACTGAGAATCAGCAGAGTGGAGGCTGACGATGTGGGTGTTTATTACTGTGCT CAAAATCTAGAACTTCCGTGGACGTTCGGTGGAGGCACCAAGCTGGAAATCAAAC GGACCGTGGCCGCCCCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAAG TCTGGCACCGCCAGCGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCAA GGTGCAGTGGAAGGTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCGT GACCGAGCAGGACTCCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCTG AGCAAGGCCGACTACGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAGG GACTGTCTAGCCCCGTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA
846.2B11	793	GACATTGTGCTGACACAGTCTCCTGCTTCCTTAGGTGTTTCTCTGGGGCAGAGGGC CACCATCTCATGCAGGGCCAGCAAAAGTGTCAGTACATCTGGCTATAGTTATATGC ACTGGTACCAACAGAAACCAGGACAGCCACCCAAACTCCTCATCTATCTTGCATCC ATCCTAGAATCTGGGGTCCCTGCCAGGTTCAGTGGCAGTGGGTCTGGGACAGACTT CACCCTCAACATCCATCCTGTGGAGGAGGAGGATGCTGCAATCTATTACTGTCAGC ACAGTAGGGAGCTTCCTCTCACGTTCGGTGCTGGGACCAAGCTGGAGCTGAAACG GACCGTGGCCGCCCCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAAGT CTGGCACCGCCAGCGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCAAG GTGCAGTGGAAGGTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCGTG ACCGAGCAGGACTCCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCTGA GCAAGGCCGACTACGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAGGG ACTGTCTAGCCCCGTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA

FIG. 17 cont.

Antibody	SEQ ID NO:	LC nucleic acid sequence
846.4D5	794	AACATTGTGCTGACCCAATCTCCAGCTTCTTTGGCTGTGTCTCTAGGGCAGAGGGC CACCATATCCTGCAGAGCCAGTGAAAGTGTTGATAGTTATGGCAATAGTTTTATGC ACTGGTACCAGCAGAAACCAGGACAGCCACCCAAACTCCTCATCTATCTTGCATCC AACCTAGAATCTGGGGTCCCTGCCAGGTTCAGTGGCAGTGGGTCTAGGACAGACTT CACCCTCACCATTGATCCTGTGGAGGCTGATGATGCTGCAACCTATTACTGTCAGC AAAATAATGAGGATCCGTGGACGTTCGGTGGAGGCACCAAGCTGGAAATCAAACG GACCGTGGCCGCCCCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAAGT CTGGCACCGCCAGCGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCAAG GTGCAGTGGAAGGTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCGTG ACCGAGCAGGACTCCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCTGA GCAAGGCCGACTACGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAGGG ACTGTCTAGCCCCGTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA
846T.1H2	795	GATGTTGTGATGACCCAGACTCCACTCACTTTGTCGGTTACCATTGGACAACCAGC CTCTATCTCTTGCAAGTCAAGTCAGAGTCTCTTATATAGTAATGGAAAAACCTATTT GAATTGGTTATTACAGAGGCCAGGCCAGTCTCCAAAGCGCCTAATCTATCTGGTGT CTAAACTGGACTCTGGAGTCCCTGACAGGTTCACTGGCAGTGGATCAGGAACAGAT TTTACACTGAAAATCAGCAGAGTGGAGGCTGAGGATTTGGGAGTTTATTACTGCGT GCAAGGTACACATTTTCCTCAGACGTTCGGTGGAGGCACCAAGCTGGAAATAAAAa GGACCGTGGCCGCCCCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAAG TCTGGCACCGCCAGCGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCAA GGTGCAGTGGAAGGTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCGT GACCGAGCAGGACTCCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCTG AGCAAGGCCGACTACGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAGG GACTGTCTAGCCCCGTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA
847.14H4	796	CAGGCTGTTGTGACTCAGGAATCTGCACTCACCACATCACCTGGTGAAACAGTCAC ACTCACTTGTCGCTCAAGTACTGGGGCTGTTACAACTAGTAACTATGCCAACTGGG TCCAAGAAAAACCAGATCATTTATTCACTGGTCTAATAGGTGGTACCAACAACCGA GCTCCAGGTGTTCCTGCCAGATTCTCAGGCTCCCTGATTGGAGACAAGGCTGCCCT CACCATCACAGGGGCACAGACTGAGGATGAGGCAATATATTTCTGTGCTCTATGGT ACAGCAACCATTTAGTGTTCGGTGGAGGAACCAAACTGACTGTCCTAAGGACCGTG GCCGCCCCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAAGTCTGGCAC CGCCAGCGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCAAGGTGCAGT GGAAGGTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCGTGACCGAGC AGGACTCCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCTGAGCAAGGC CGACTACGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAGGGACTGTCT AGCCCCGTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA
2D10.2B2 (murine; mIgG2A (LALAPG))	800	GATATTGTGATGACGCAGGCTGCATTCTCCAATCCAGTCACTCTTGGAACGTCAGC TTCCATCTCCTGCAGGTCTAGTAAGAGTCTCCTACATAGTGATGGCATCACTTATTT GTATTGGTATCTGCAGAGGCCAGGCCAGTCTCCTCAGCTCCTGATATATCGGATGT CCAACCTTGCCTCAGGAGTCCCAGACAGGTTCAGTGGCAGTGGGTCAGGAACTGAT TTCACACTGAGAATCAGCAGAGTGGAGGCTGAGGATGTGGGTGTTTATTACTGTGC TCAAATGATAGAATTCCCGCTCACGTTCGGTGCTGGGACCATCCTGGAGCTGAAAC GTGCTGATGTTGCCCCTACTGTGTCCATCTTCCCCCCCTCCTCCGAGCAGCTGACAT CCGGCGGCGCCTCCGTGGTGTGCTTCCTGAACAACTTCTACCCCAAAGACATCAAC GTGAAATGGAAAATCGACGGCTCCGAGAGGCAGAACGGCGTGCTGAACTCCTGGA CAGACCAGGACTCCAAAGACTCCACATACTCCATGTCCTCCACACTGACACTGACA AAAGACGAGTACGAGAGGCACAACTCCTACACATGCGAGGCCACACACAAAACAT CCACATCCCCCATCGTGAAATCCTTCAACAGGAACGAGTGCTAATAA

FIG. 17 cont.

Antibody	SEQ ID NO:	LC nucleic acid sequence
2D10-hVH4-HVL1	911	GACATCGTGATGACCCAGTCTCCCTTATCCCTGCCAGTGACACCAGGAGAACCAGC CAGCATTTCTTGCCGGTCTAGCAAATCTCTGCTCCACTCTGACGGAATCACGTATCT GTACTGGTATCTCCAAAAGCCTGGGCAGTCCCCACAGCTGCTCATTTATCGAATGA GTAACCGTGCATCTGGAGTGCCCGACAGATTTTCAGGCTCTGGCAGTGGGACTGAC TTTACACTGAAGATTAGCAGAGTCGAGGCTGAGGATGTGGGGGTGTATTACTGTGC CCAGATGATAGAATTTCCCCTGACTTTCGGACAGGGGACTAAACTTGAGATCAAAA GGACCGTGGCCGCCCCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAAG TCTGGCACCGCCAGCGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCAA GGTGCAGTGGAAGGTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCGT GACCGAGCAGGACTCCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCTG AGCAAGGCCGACTACGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAGG GACTGTCTAGCCCCGTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA
2D10-hVH4-HVL2	912	GATATCGTGATGACCCAAAGCCCACTGTCTTTGCCTGTTACACCGGGCGAACCAGC TTCCATCAGTTGTCGCTCCAGTAAGTCACTTCTCCACAGTGACGGCATCACATACCT GTATTGGTACCTCCAGAAGCCAGGCCAATCCCCCCAACTGTTGATTTATAGAATGT CCAATCTGGCATCCGGAGTGCCTGACCGCTTCTCCGGCTCTGGATCTGGGACAGAC TTTACTCTGAAGATCAGCAGAGTGGAGGCGGAAGATGTGGGGGTCTACTATTGCGC TCAAATGATCGAGTTCCCTCTGACTTTTGGACAGGGAACGAAGCTCGAAATTAAGA GGACCGTGGCCGCCCCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAAG TCTGGCACCGCCAGCGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCAA GGTGCAGTGGAAGGTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCGT GACCGAGCAGGACTCCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCTG AGCAAGGCCGACTACGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAGG GACTGTCTAGCCCCGTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA
2D10-hVH4-HVL3	913	GATGTGGTGATGACTCAAAGCCCACTTAGCCTGCCAGTTACTCTTGGACAGCCAGC CAGTATTTCTTGCCGGAGTTCCAAGAGCCTGTTGCACAGCGACGGGATCACATATT TATACTGGTACCAACAGAGACCTGGGCAGTCCCCGCGCTTGCTGATCTACAGGATG TCTAACAGAGACTCAGGGGTCCCCGACAGATTTAGTGGCTCTGGAAGCGGGACAG ATTTCACACTGAAGATCTCAAGGGTCGAAGCCGAGGACGTGGGCGTGTATTACTGT GCACAGATGATAGAGTTCCCTCTTACATTCGGCCAGGGGACCAAACTTGAAATCAA GAGGACCGTGGCCGCCCCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGA AGTCTGGCACCGCCAGCGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCC AAGGTGCAGTGGAAGGTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGC GTGACCGAGCAGGACTCCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCC TGAGCAAGGCCGACTACGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCA GGGACTGTCTAGCCCCGTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA
2D10-hVH4-HVL4	914	GACATAGTGATGACCCAGAGCCCCCTTAGCCTTCCCGTGACACTGGGACAGCCGGC GTCTATTTCTTGTAGGTCCTCTAAATCTTTGTTGCACAGTGATGGAATCACATATCT GTACTGGTACCAGCAGCGGCCAGGACAGAGCCCTCAGCTGCTGATATATCGAATGT CAAACCTCGATAGCGGTGTTCCTGACCGCTTTTCCGGAAGCGGCTCCGGCACCGAC TTTACCTTAAAGATCTCTCGGGTTGAGGCCGAGGACGTGGGAGTCTACTACTGCGC TCAGATGATCGAATTTCCTCTCACGTTCGGACAAGGTACAAAGTTAGAGATCAAGA GGACCGTGGCCGCCCCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAAG TCTGGCACCGCCAGCGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCAA GGTGCAGTGGAAGGTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCGT GACCGAGCAGGACTCCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCTG AGCAAGGCCGACTACGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAGG GACTGTCTAGCCCCGTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA

FIG. 17 cont.

Antibody	SEQ ID NO:	LC nucleic acid sequence
2D10-hVH3-HVL1	915	GACATCGTGATGACCCAGTCTCCCTTATCCCTGCCAGTGACACCAGGAGAACCAGC CAGCATTTCTTGCCGGTCTAGCAAATCTCTGCTCCACTCTGACGGAATCACGTATCT GTACTGGTATCTCCAAAAGCCTGGGCAGTCCCCACAGCTGCTCATTTATCGAATGA GTAACCGTGCATCTGGAGTGCCCGACAGATTTTCAGGCTCTGGCAGTGGGACTGAC TTTACACTGAAGATTAGCAGAGTCGAGGCTGAGGATGTGGGGGTGTATTACTGTGC CCAGATGATAGAATTTCCCCTGACTTTCGGACAGGGGACTAAACTTGAGATCAAAA GGACCGTGGCCGCCCCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAAG TCTGGCACCGCCAGCGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCAA GGTGCAGTGGAAGGTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCGT GACCGAGCAGGACTCCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCTG AGCAAGGCCGACTACGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAGG GACTGTCTAGCCCCGTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA
2D10-hVH3-HVL2	916	GATATCGTGATGACCCAAAGCCCACTGTCTTTGCCTGTTACACCGGGCGAACCAGC TTCCATCAGTTGTCGCTCCAGTAAGTCACTTCTCCACAGTGACGGCATCACATACCT GTATTGGTACCTCCAGAAGCCAGGCCAATCCCCCCAACTGTTGATTTATAGAATGT CCAATCTGGCATCCGGAGTGCCTGACCGCTTCTCCGGCTCTGGATCTGGGACAGAC TTTACTCTGAAGATCAGCAGAGTGGAGGCGGAAGATGTGGGGGTCTACTATTGCGC TCAAATGATCGAGTTCCCTCTGACTTTTGGACAGGGAACGAAGCTCGAAATTAAGA GGACCGTGGCCGCCCCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAAG TCTGGCACCGCCAGCGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCAA GGTGCAGTGGAAGGTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCGT GACCGAGCAGGACTCCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCTG AGCAAGGCCGACTACGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAGG GACTGTCTAGCCCCGTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA
2D10-hVH3-HVL3	917	GATGTGGTGATGACTCAAAGCCCACTTAGCCTGCCAGTTACTCTTGGACAGCCAGC CAGTATTTCTTGCCGGAGTTCCAAGAGCCTGTTGCACAGCGACGGGATCACATATT TATACTGGTACCAACAGAGACCTGGGCAGTCCCCGCGCTTGCTGATCTACAGGATG TCTAACAGAGACTCAGGGGTCCCCGACAGATTTAGTGGCTCTGGAAGCGGGACAG ATTTCACACTGAAGATCTCAAGGGTCGAAGCCGAGGACGTGGGCGTGTATTACTGT GCACAGATGATAGAGTTCCCTCTTACATTCGGCCAGGGGACCAAACTTGAAATCAA GAGGACCGTGGCCGCCCCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGA AGTCTGGCACCGCCAGCGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCC AAGGTGCAGTGGAAGGTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGC GTGACCGAGCAGGACTCCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCC TGAGCAAGGCCGACTACGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCA GGGACTGTCTAGCCCCGTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA
2D10-hVH3-HVL4	918	GACATAGTGATGACCCAGAGCCCCCTTAGCCTTCCCGTGACACTGGGACAGCCGGC GTCTATTTCTTGTAGGTCCTCTAAATCTTTGTTGCACAGTGATGGAATCACATATCT GTACTGGTACCAGCAGCGGCCAGGACAGAGCCCTCAGCTGCTGATATATCGAATGT CAAACCTCGATAGCGGTGTTCCTGACCGCTTTTCCGGAAGCGGCTCCGGCACCGAC TTTACCTTAAAGATCTCTCGGGTTGAGGCCGAGGACGTGGGAGTCTACTACTGCGC TCAGATGATCGAATTTCCTCTCACGTTCGGACAAGGTACAAAGTTAGAGATCAAGA GGACCGTGGCCGCCCCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAAG TCTGGCACCGCCAGCGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCAA GGTGCAGTGGAAGGTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCGT GACCGAGCAGGACTCCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCTG AGCAAGGCCGACTACGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAGG GACTGTCTAGCCCCGTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA

FIG. 17 cont.

Antibody	SEQ ID NO:	LC nucleic acid sequence
20H5.A3-VH3VL1	919	GACATCCAGATGACTCAGTCTCCAAGCAGCCTGTCCGCTTCAGTCGGGGACCGAGT TACAATCACCTGTCAGGCTAGCCAGGACATTAGCAACTATCTGAACTGGTATCAGC AGAAACCCGGAAAGGCCCCTAAACTTCTGATCTACTATACATCTTCACTGCTGACG GGTGTCCCCTCCCGGTTCTCTGGCTCCGGCTCCGGTACCGACTATACCTTTACTATC TCATCTCTACAGCCCGAAGACATCGCAACATATTATTGTCAACAATATTCTAAGCT GCCCTACACTTTCGGCCAAGGAACAAAGCTGGAGATTAAGAGGACCGTGGCCGCC CCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAAGTCTGGCACCGCCAG CGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCAAGGTGCAGTGGAAG GTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCGTGACCGAGCAGGACT CCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCTGAGCAAGGCCGACTA CGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAGGGACTGTCTAGCCCC GTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA
20H5.A3-VH3VL3	920	GACATTCAGATGACCCAATCCCCTTCCTCCCTAAGCGCCAGCGTGGGCGACCGCGT AACCATCACCTGTCGAGCCAGTCAGGACATTTCAAACTACCTGAACTGGTATCAGC AAAAACCAGGCAAAGCACCTAAACTGCTCATCTACTACACTTCCAGTTTGCTTTCA GGTGTCCCAAGCCGCTTTAGTGGATCAGGTTCCGGTACCGATTACACCCTGACGAT CTCTAGTCTGCAGCCAGAGGACTTCGCTACGTACTATTGCCAGCAATATAGCAAGC TGCCCTACACCTTCGGCCAGGGCACTAAGCTGGAAATCAAGAGGACCGTGGCCGC CCCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAAGTCTGGCACCGCCA GCGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCAAGGTGCAGTGGAA GGTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCGTGACCGAGCAGGA CTCCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCTGAGCAAGGCCGAC TACGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAGGGACTGTCTAGCC CCGTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA
20H5.A3-VH4VL1	921	GACATCCAGATGACTCAGTCTCCAAGCAGCCTGTCCGCTTCAGTCGGGGACCGAGT TACAATCACCTGTCAGGCTAGCCAGGACATTAGCAACTATCTGAACTGGTATCAGC AGAAACCCGGAAAGGCCCCTAAACTTCTGATCTACTATACATCTTCACTGCTGACG GGTGTCCCCTCCCGGTTCTCTGGCTCCGGCTCCGGTACCGACTATACCTTTACTATC TCATCTCTACAGCCCGAAGACATCGCAACATATTATTGTCAACAATATTCTAAGCT GCCCTACACTTTCGGCCAAGGAACAAAGCTGGAGATTAAGAGGACCGTGGCCGCC CCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAAGTCTGGCACCGCCAG CGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCAAGGTGCAGTGGAAG GTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCGTGACCGAGCAGGACT CCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCTGAGCAAGGCCGACTA CGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAGGGACTGTCTAGCCCC GTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA
20H5.A3-VH5VL1	922	GACATCCAGATGACTCAGTCTCCAAGCAGCCTGTCCGCTTCAGTCGGGGACCGAGT TACAATCACCTGTCAGGCTAGCCAGGACATTAGCAACTATCTGAACTGGTATCAGC AGAAACCCGGAAAGGCCCCTAAACTTCTGATCTACTATACATCTTCACTGCTGACG GGTGTCCCCTCCCGGTTCTCTGGCTCCGGCTCCGGTACCGACTATACCTTTACTATC TCATCTCTACAGCCCGAAGACATCGCAACATATTATTGTCAACAATATTCTAAGCT GCCCTACACTTTCGGCCAAGGAACAAAGCTGGAGATTAAGAGGACCGTGGCCGCC CCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAAGTCTGGCACCGCCAG CGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCAAGGTGCAGTGGAAG GTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCGTGACCGAGCAGGACT CCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCTGAGCAAGGCCGACTA CGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAGGGACTGTCTAGCCCC GTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA

FIG. 17 cont.

Antibody	SEQ ID NO:	LC nucleic acid sequence
20H5.A3-VH5VL3	923	GACATTCAGATGACCCAATCCCCTTCCTCCCTAAGCGCCAGCGTGGGCGACCGCGT AACCATCACCTGTCGAGCCAGTCAGGACATTTCAAACTACCTGAACTGGTATCAGC AAAAACCAGGCAAAGCACCTAAACTGCTCATCTACTACACTTCCAGTTTGCTTTCA GGTGTCCCAAGCCGCTTTAGTGGATCAGGTTCCGGTACCGATTACACCCTGACGAT CTCTAGTCTGCAGCCAGAGGACTTCGCTACGTACTATTGCCAGCAATATAGCAAGC TGCCCTACACCTTCGGCCAGGGCACTAAGCTGGAAATCAAGAGGACCGTGGCCGC CCCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAAGTCTGGCACCGCCA GCGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCAAGGTGCAGTGGAA GGTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCGTGACCGAGCAGGA CTCCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCTGAGCAAGGCCGAC TACGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAGGGACTGTCTAGCC CCGTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA
20H5.A3-VH6VL1	924	GACATCCAGATGACTCAGTCTCCAAGCAGCCTGTCCGCTTCAGTCGGGGACCGAGT TACAATCACCTGTCAGGCTAGCCAGGACATTAGCAACTATCTGAACTGGTATCAGC AGAAACCCGGAAAGGCCCCTAAACTTCTGATCTACTATACATCTTCACTGCTGACG GGTGTCCCCTCCCGGTTCTCTGGCTCCGGCTCCGGTACCGACTATACCTTTACTATC TCATCTCTACAGCCCGAAGACATCGCAACATATTATTGTCAACAATATTCTAAGCT GCCCTACACTTTCGGCCAAGGAACAAAGCTGGAGATTAAGAGGACCGTGGCCGCC CCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAAGTCTGGCACCGCCAG CGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCAAGGTGCAGTGGAAG GTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCGTGACCGAGCAGGACT CCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCTGAGCAAGGCCGACTA CGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAGGGACTGTCTAGCCCC GTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA
20H5.A3-VH6VL3	925	GACATTCAGATGACCCAATCCCCTTCCTCCCTAAGCGCCAGCGTGGGCGACCGCGT AACCATCACCTGTCGAGCCAGTCAGGACATTTCAAACTACCTGAACTGGTATCAGC AAAAACCAGGCAAAGCACCTAAACTGCTCATCTACTACACTTCCAGTTTGCTTTCA GGTGTCCCAAGCCGCTTTAGTGGATCAGGTTCCGGTACCGATTACACCCTGACGAT CTCTAGTCTGCAGCCAGAGGACTTCGCTACGTACTATTGCCAGCAATATAGCAAGC TGCCCTACACCTTCGGCCAGGGCACTAAGCTGGAAATCAAGAGGACCGTGGCCGC CCCCAGCGTGTTCATCTTCCCTCCCAGCGACGAGCAGCTGAAGTCTGGCACCGCCA GCGTGGTGTGCCTGCTGAACAACTTCTACCCCCGCGAGGCCAAGGTGCAGTGGAA GGTGGACAACGCCCTGCAGAGCGGCAACAGCCAGGAGAGCGTGACCGAGCAGGA CTCCAAGGACAGCACCTACAGCCTGAGCAGCACCCTGACCCTGAGCAAGGCCGAC TACGAGAAGCACAAGGTGTACGCCTGCGAGGTGACCCACCAGGGACTGTCTAGCC CCGTGACCAAGAGCTTCAACCGGGGCGAGTGCTAA

FIG. 17 cont.

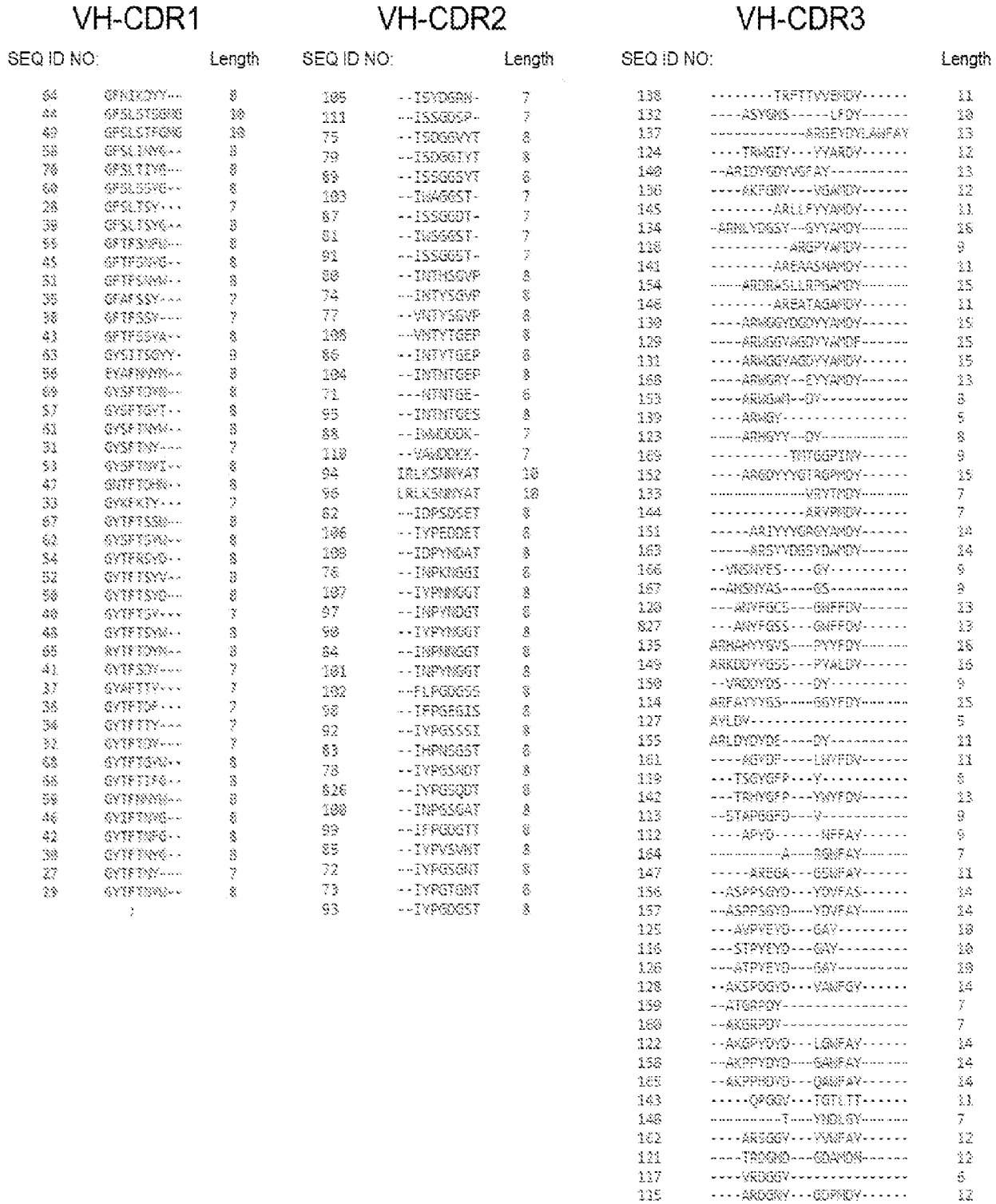

VH-CDR1
SEQ ID NO: Length
VH-CDR2
SEQ ID NO: Length
VH-CDR3
SEQ ID NO: Length

FIG. 18A

VL-CDR1

SEQ ID NO:		Length
207	---ES-LDNGETSF---	10
200	---ES-VDSYGNSF---	10
205	---ES-VENNNGF---	10
191	--TGAV-TTSNY-----	9
218	---KSV-TTSAYSY---	10
199	---KSV-SYSGYSY---	10
209	---KSV-SYSGYSC---	10
170	RSSKSLLYKDGKTYLR-	16
213	---QSLLYIDGKTY---	11
204	---QSLLYSDGKTY---	11
201	---QSLLYSNGKTY---	11
173	---QSLLYTNGKTY---	11
180	---QSLLYTDGKTY---	11
214	---RSLLHSNGYTY---	11
193	---KSLLHTNGITF---	11
198	---KSLLYSNGITY---	11
171	---KSLLHSDGITY---	11
219	---QSLLQRDGKTY---	11
215	---RSLLQSDGKTY---	11
210	---QSLLQSDGKTY---	11
187	---QSLLMSDGKTY---	11
174	---QSLFDSDGKTY---	11
185	---QSLFMSDGKTY---	11
194	---QSLLNSNQKNY---	12
189	---QSVLYSSNQKNY---	12
190	---QSVLYSSSQKNY---	12
230	---QSVSNE--------	8
181	---QSVSND--------	8
212	---QSVSSD--------	8
197	---QDIVMSGGNT-Y--	11
181	---QSLVMSGGNT-Y--	11
175	---QSIVMNGNT-Y---	11
179	---QSIVHSNGNT-Y--	11
206	----------SSVT-Y--	5
216	---QD---VSSV-----	6
208	---QD---VSTT-----	6
183	---QD---VSTA-----	6
188	---QD---VNTA-----	6
196	-----I-------DIDGD	6
184	---QNV------GTN--	6
209	---QNV------GIN--	6
195	---QNI------NVN--	6
177	---QNI------YIN--	6
186	---QNI------NIN--	6
211	---QNI------NSY--	6
178	---QDI------SNY--	6
176	---QGI------RNY--	6
182	---QGI------SNY--	6
217	---QII------NNN--	6
172	---QKI------NSR--	6
202	---QGI------SSR--	6

VL-CDR2

SEQ ID NO:		Length
240	-----YGT-	3
232	-----GIN	3
236	-----GTN	3
242	-----ATS	3
223	----NAT-	3
239	----NGT-	3
235	-----SGN-	3
222	RNS-----	3
233	QNS-----	3
221	LNSTNAS-	7
246	----SAK-	3
229	----YTS-	3
227	----YAS-	3
228	----KAS-	3
238	----GAS-	3
231	-----GAS-	3
234	----FAS-	3
241	----RAS-	3
243	-----AAS-	3
244	----SAS-	3
247	----QAS-	3
245	RVR-----	3
230	LVC-----	3
226	RVS-----	3
224	LLS-----	3
225	LVS-----	3
237	LAS-----	3

VL-CDR3

SEQ ID NO:		Length
269	-HQ-YLSSLT	8
266	QHH-YLSPFT	9
258	QQD-YTSPYT	9
256	QQH-YSSPWT	9
261	QQH-YSPPFT	9
260	QQH-YTTPLT	9
267	QQH-YSTPYT	9
267	QQH-YHTPYT	9
265	-ALHYSNHW	9
270	-ALHYSNHLV	9
253	FQG-SHVPLT	9
271	FQG-SNVPPT	9
269	LQS-DNKPLT	9
264	SQG-THVPPT	9
251	LQG-THFPLT	9
268	LQS-THFPQT	9
277	VQG-TNLPT-	8
285	HQG-THFPT-	8
274	VQG-THFPQT	9
252	HQG-THFPLT	9
283	HQG-THFPPT	9
281	HQG-THFPQT	9
250	VQY-AQFPPT	9
275	VQY-GQFPWT	9
248	QQL-VDYPLT	9
262	QQG-GSSPFT	9
255	LQG-GSYPLT	9
268	QQG-GSYPYT	9
283	QQT-NGLPLT	9
279	QQH-SSNPLT	9
254	QQY-SQWPYT	9
280	QQY-SKLPRT	9
256	QQY-SKLPYT	9
280	QQY-SELPYT	9
282	QQY-SDYPWT	9
282	QQY-NGYPYT	9
284	QHFWGLFPT-	9
285	QHFWSLFPT-	9
259	QHS-REVPWT	9
276	HHS-TELPYT	9
272	QHS-RELPLT	9
284	QHH-RELPPT	9
289	HQH-LEYPYT	9
281	EQY-SNFPLT	9
273	QQH-NEDPWT	9
278	QQH-NEYPYT	9
266	AQH-LGLPWT	9
249	AQH-LGFPLT	9
257	AQH-IEFPLT	9

FIG. 18B

Exemplary Table of Select Antibodies – 1

TB001 (IMT001-4)	20D11.2C6	4A11.2B5	13H12.2F8
TB006 (4A11.H3L1)	20H5.A3	4A11.H1L1	15G7.2A7
12G5.D7	23H9.2E4	4A11.H4L2	19D9.2E5
13A12.2E5	2D10.2B2	4G2.2G6	24D12.2H9
14H10.2C9	3B11.2G2	6H6.2D6	F846C.1F5
15F10.2D6	7D8.2D8	9H2.2H10	F846C.2H3
19B5.2E6	mIMT001	13G4.2F8	846T.1H2

FIG. 19A

Exemplary Table of Select Antibodies – 2

TB001 (IMT001-4)	3B11.2G2	19D9.2E5	F846TC.7F10
TB006 (4A11.H3L1)	7D8.2D8	23B10.2B12	F847C.10B9
12G5.D7	mIMT001	24D12.2H9	F847C.11B1
13A12.2E5	4A11.2B5	F846C.1B2	F847C.12F12
14H10.2C9	4G2.2G6	F846C.1F5	F847C.26F5
15F10.2D6	6B3.2D3	F846C.1H12	F847C.4B10
19B5.2E6	6H6.2D6	F846C.1H5	F849C.8D10
20D11.2C6	9H2.2H10	F846C.2H3	F849C.8H3
20H5.A3	13G4.2F8	F846TC.14A2	847.14H4
23H9.2E4	13H12.2F8	F846TC.14E4	
2D10.2B2	15G7.2A7	F846TC.16B5	

FIG. 19B

Exemplary Table of Select Antibodies – 3

TB001 (IMT001-4)	6H6.2D6	F847C.12F12	847.15D12
TB006 (4A11.H3L1)	9H2.2H10	F847C.26F5	847.15F9
12G5.D7	13G4.2F8	F847C.4B10	847.15H11
13A12.2E5	13H12.2F8	F849C.8D10	847.20H7
14H10.2C9	15G7.2A7	F849C.8H3	847.21B11
15F10.2D6	19D9.2E5	846.2B11	847.27B9
19B5.2E6	23B10.2B12	846.4D5	847.28D1
20D11.2C6	24D12.2H9	846T.1H2	847.2B8
20H5.A3	F846C.1B2	847.14H4	847.3B3
23H9.2E4	F846C.1F5	846.2D4	849.1D2
2D10.2B2	F846C.1H12	846.2F11	849.2D7
3B11.2G2	F846C.1H5	846T.10B1	849.2F12
7D8.2D8	F846C.2H3	846T.2E3	849.4B2
mIMT001	F846TC.14A2	846T.4C9	849.4F12
4A11.2B5	F846TC.14E4	846T.4E11	849.4F2
4A11.H1L1	F846TC.16B5	846T.4F5	849.5C2
4A11.H4L2	F846TC.7F10	846T.8D1	849.8D12
4G2.2G6	F847C.10B9	847.10C9	F847C.21H6
6B3.2D3	F847C.11B1	847.11D6	

FIG. 19C

Exemplary Table of Select Antibodies – 4

TB001 (IMT001-4)	13G4.2F8	F849C.8H3	847.28D1
TB006 (4A11.H3L1)	13H12.2F8	846.2B11	847.2B8
12G5.D7	15G7.2A7	846.4D5	847.3B3
13A12.2E5	19D9.2E5	846T.1H2	849.1D2
14H10.2C9	23B10.2B12	847.14H4	849.2D7
15F10.2D6	24D12.2H9	846.2D4	849.2F12
19B5.2E6	F846C.1B2	846.2F11	849.4B2
20D11.2C6	F846C.1F5	846T.10B1	849.4F12
20H5.A3	F846C.1H12	846T.2E3	849.4F2
23H9.2E4	F846C.1H5	846T.4C9	849.5C2
2D10.2B2	F846C.2H3	846T.4E11	849.8D12
3B11.2G2	F846TC.14A2	846T.4F5	F847C.21H6
7D8.2D8	F846TC.14E4	846T.8D1	849.5H1
mIMT001	F846TC.16B5	847.10C9	847.23F11
4A11.2B5	F846TC.7F10	847.11D6	847.16D10
4A11.H1L1	F847C.10B9	847.15D12	847.13E2-mH0mL1
4A11.H4L2	F847C.11B1	847.15F9	847.13E2-mH0mL2
4G2.2G6	F847C.12F12	847.15H11	847.12C4
6B3.2D3	F847C.26F5	847.20H7	847.4D3
6H6.2D6	F847C.4B10	847.21B11	2D10-VH0-VL0
9H2.2H10	F849C.8D10	847.27B9	

FIG. 19D

Exemplary Table of Select Antibodies – 5

6B3.2D3	847.14H4	847.2B8	2D10-VH0-VL0
23B10.2B12	846.2D4	847.3B3	2D10-hVH4-HVL1
F846C.1B2	846.2F11	849.1D2	2D10-hVH4-HVL2
F846C.1H12	846T.10B1	849.2D7	2D10-hVH4-HVL3
F846C.1H5	846T.2E3	849.2F12	2D10-hVH4-HVL4
F846TC.14A2	846T.4C9	849.4B2	2D10-hVH3-HVL1
F846TC.14E4	846T.4E11	849.4F12	2D10-hVH3-HVL2
F846TC.16B5	846T.4F5	849.4F2	2D10-hVH3-HVL3
F846TC.7F10	846T.8D1	849.5C2	2D10-hVH3-HVL4
F847C.10B9	847.10C9	849.8D12	20H5.A3-VH3VL1
F847C.11B1	847.11D6	F847C.21H6	20H5.A3-VH3VL3
F847C.12F12	847.15D12	849.5H1	20H5.A3-VH4VL1
F847C.26F5	847.15F9	847.23F11	20H5.A3-VH5VL1
F847C.4B10	847.15H11	847.16D10	20H5.A3-VH5VL3
F849C.8D10	847.20H7	847.13E2-mH0mL1	20H5.A3-VH6VL1
F849C.8H3	847.21B11	847.13E2-mH0mL2	20H5.A3-VH6VL3
846.2B11	847.27B9	847.12C4	
846.4D5	847.28D1	847.4D3	

FIG. 20A

Exemplary Table of Select Antibodies – 6

4A11.H1L1	847.11D6	849.4F12	2D10-hVH4-HVL2
4A11.H4L2	847.15D12	849.4F2	2D10-hVH4-HVL3
846.2B11	847.15F9	849.5C2	2D10-hVH4-HVL4
846.4D5	847.15H11	849.8D12	2D10-hVH3-HVL1
846T.1H2	847.20H7	F847C.21H6	2D10-hVH3-HVL2
846.2D4	847.21B11	849.5H1	2D10-hVH3-HVL3
846.2F11	847.27B9	847.23F11	2D10-hVH3-HVL4
846T.10B1	847.28D1	847.16D10	20H5.A3-VH3VL1
846T.2E3	847.2B8	847.13E2-mH0mL1	20H5.A3-VH3VL3
846T.4C9	847.3B3	847.13E2-mH0mL2	20H5.A3-VH4VL1
846T.4E11	849.1D2	847.12C4	20H5.A3-VH5VL1
846T.4F5	849.2D7	847.4D3	20H5.A3-VH5VL3
846T.8D1	849.2F12	2D10-VH0-VL0	20H5.A3-VH6VL1
847.10C9	849.4B2	2D10-hVH4-HVL1	20H5.A3-VH6VL3

FIG. 20B

Exemplary Table of Select Antibodies – 7

849.5H1	847.4D3	2D10-hVH3-HVL1	20H5.A3-VH4VL1
847.23F11	2D10-VH0-VL0	2D10-hVH3-HVL2	20H5.A3-VH5VL1
847.16D10	2D10-hVH4-HVL1	2D10-hVH3-HVL3	20H5.A3-VH5VL3
847.13E2-mH0mL1	2D10-hVH4-HVL2	2D10-hVH3-HVL4	20H5.A3-VH6VL1
847.13E2-mH0mL2	2D10-hVH4-HVL3	20H5.A3-VH3VL1	20H5.A3-VH6VL3
847.12C4	2D10-hVH4-HVL4	20H5.A3-VH3VL3	

FIG. 20C

Exemplary Table of Select Antibodies – 8

2D10-hVH4-HVL1	2D10-hVH3-HVL1	20H5.A3-VH3VL1	20H5.A3-VH5VL3
2D10-hVH4-HVL2	2D10-hVH3-HVL2	20H5.A3-VH3VL3	20H5.A3-VH6VL1
2D10-hVH4-HVL3	2D10-hVH3-HVL3	20H5.A3-VH4VL1	20H5.A3-VH6VL3
2D10-hVH4-HVL4	2D10-hVH3-HVL4	20H5.A3-VH5VL1	

FIG. 20D

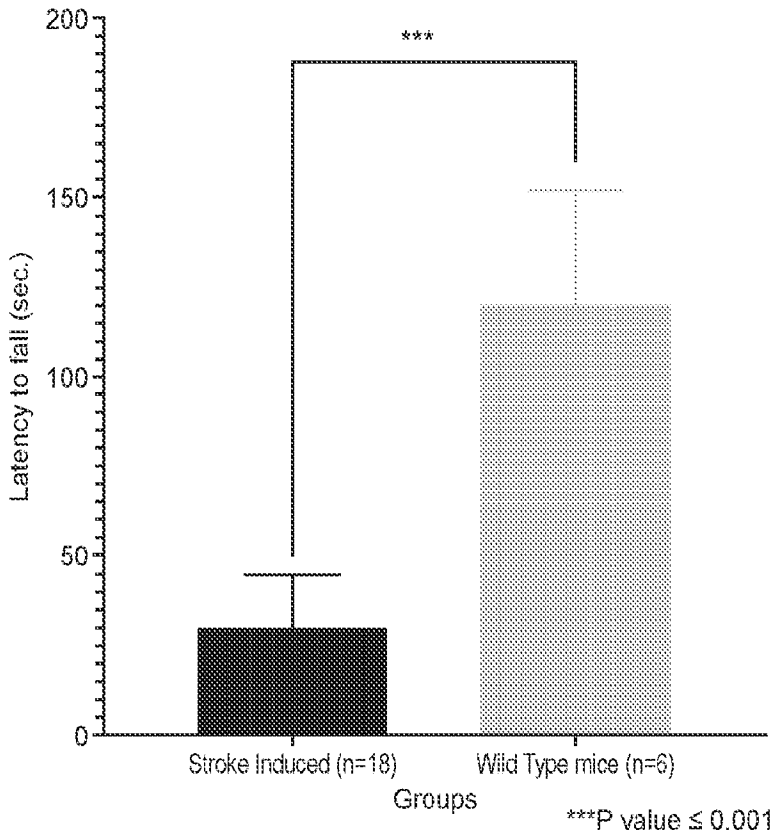


FIG. 21A

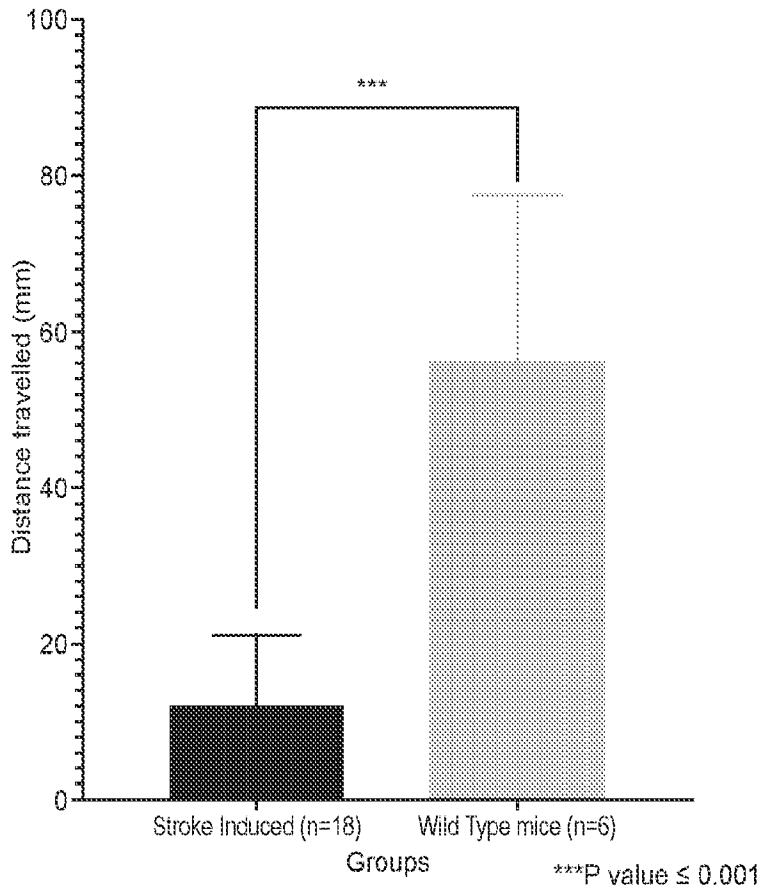


FIG. 21B

10 week old C57BL/6
Inducing stroke (ICH) by Intracranial injection (injected 25 ul of autologous blood into the right striatum)
Locomotor function test after inducing stroke
48hrs
1 Week
2 Week
3 Week
4 Week
1 2 3 4 5 6 7 8
Locomotor function after dosing
Sacrifice
Collect
Blood (Plasma)
CSF
Brain
Dosing regimen
mTB001 or MOPC21 (Iso-control)
10mg/kg i.p.
Biweekly (2 doses/week) for 4 weeks
n=9 animals/group
No. of animals in each group
mTB001 dosed (n=9)
MOPC21 Iso-control (n=9)
Wild Type (Sham) (n=6)

FIG. 22

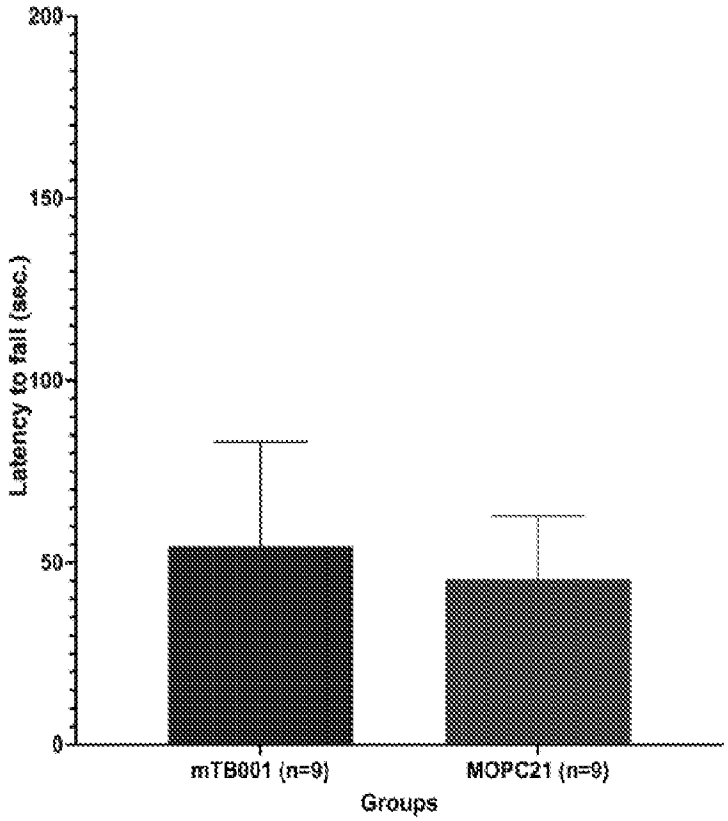


FIG. 23A

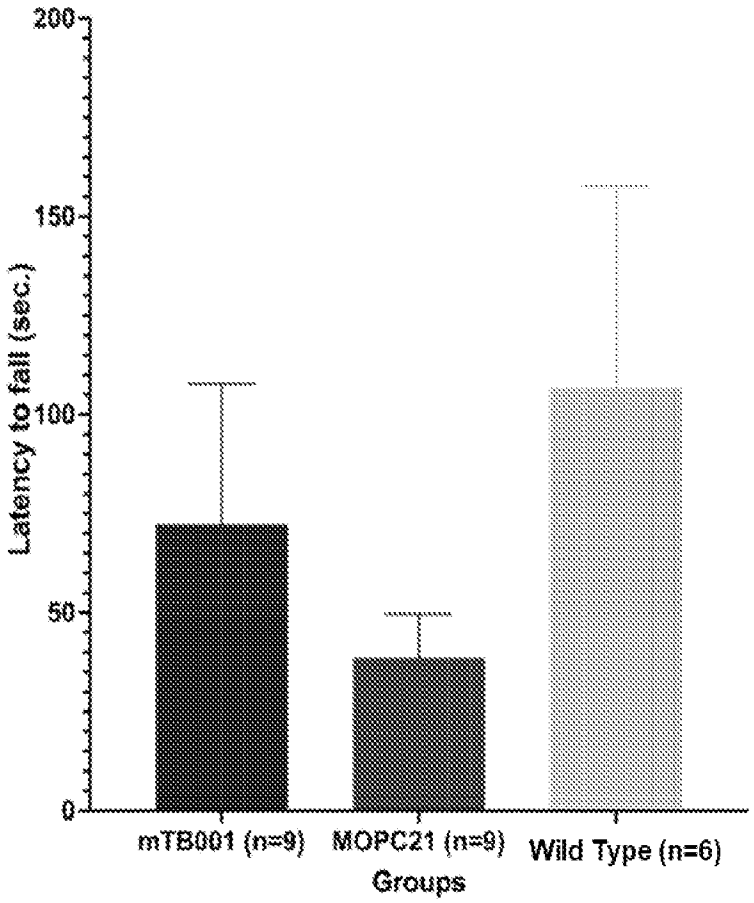


FIG. 23B

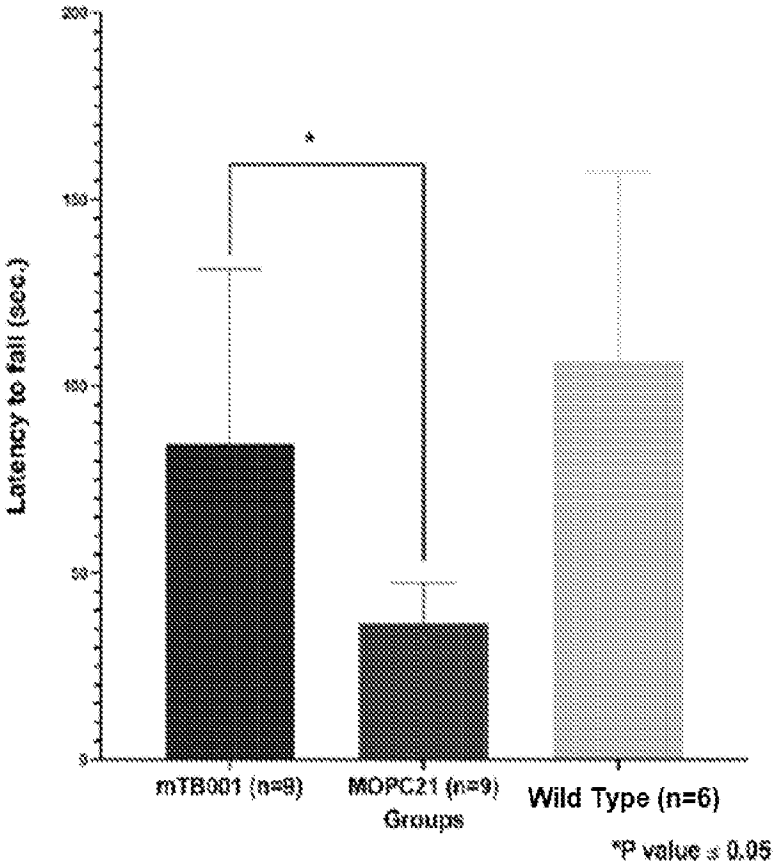


FIG. 23C

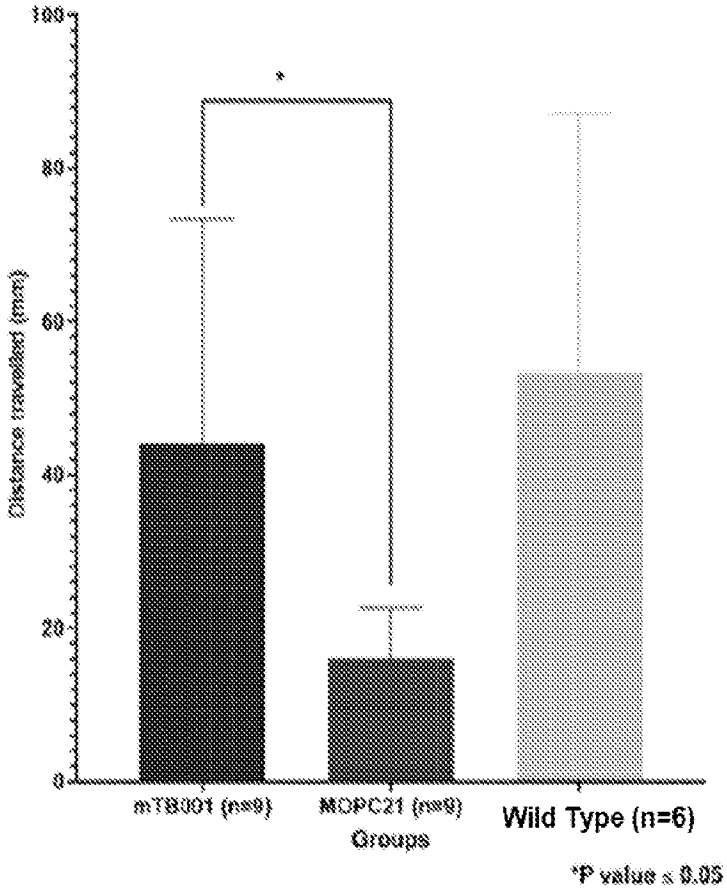


FIG. 23D

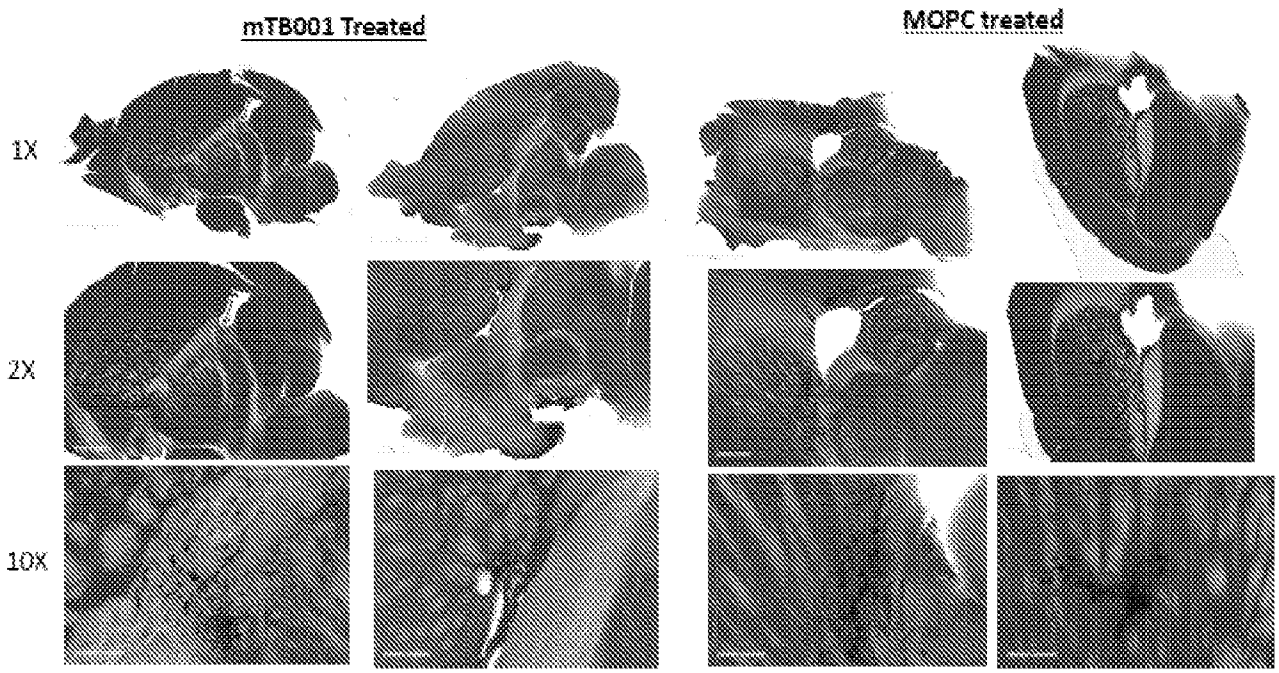


FIG. 24A

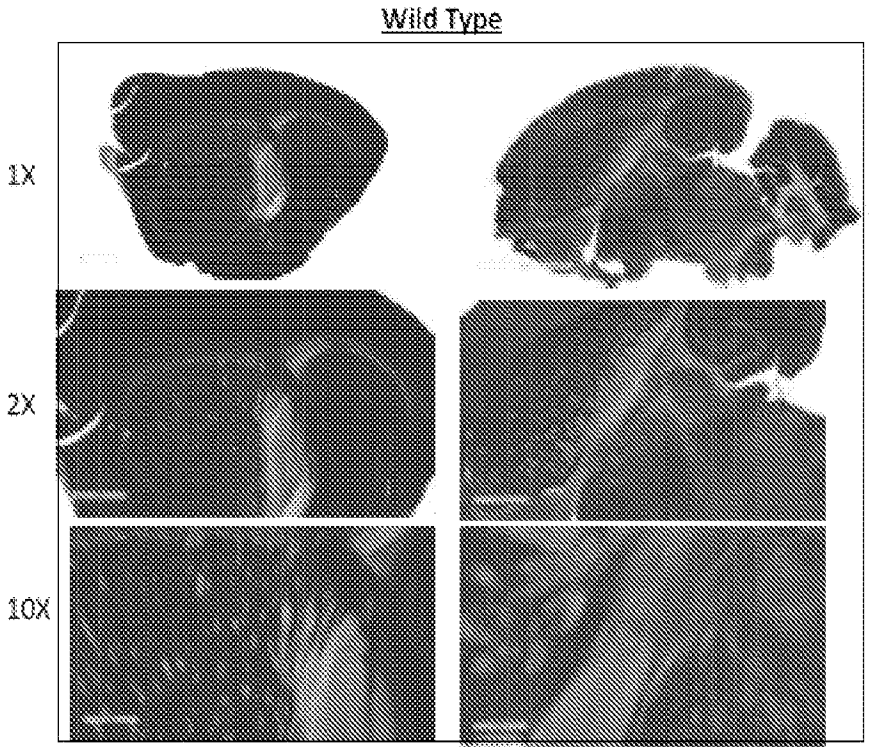


FIG. 24B

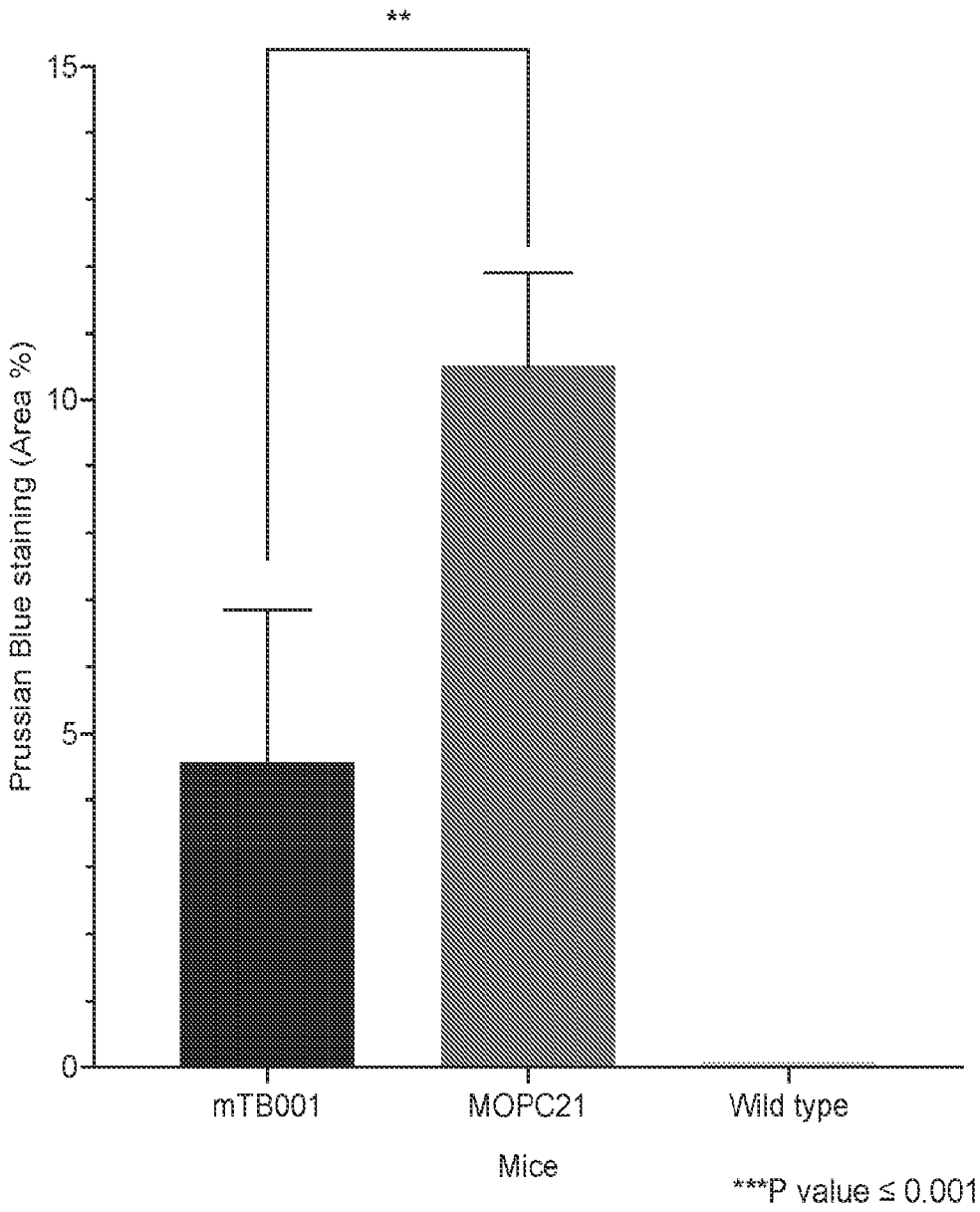

**
15
10
5
0
Prussian Blue staining (Area %)
mTB001
MOPC21
Wild type
Mice
***P value ≤ 0.001

FIG. 24C

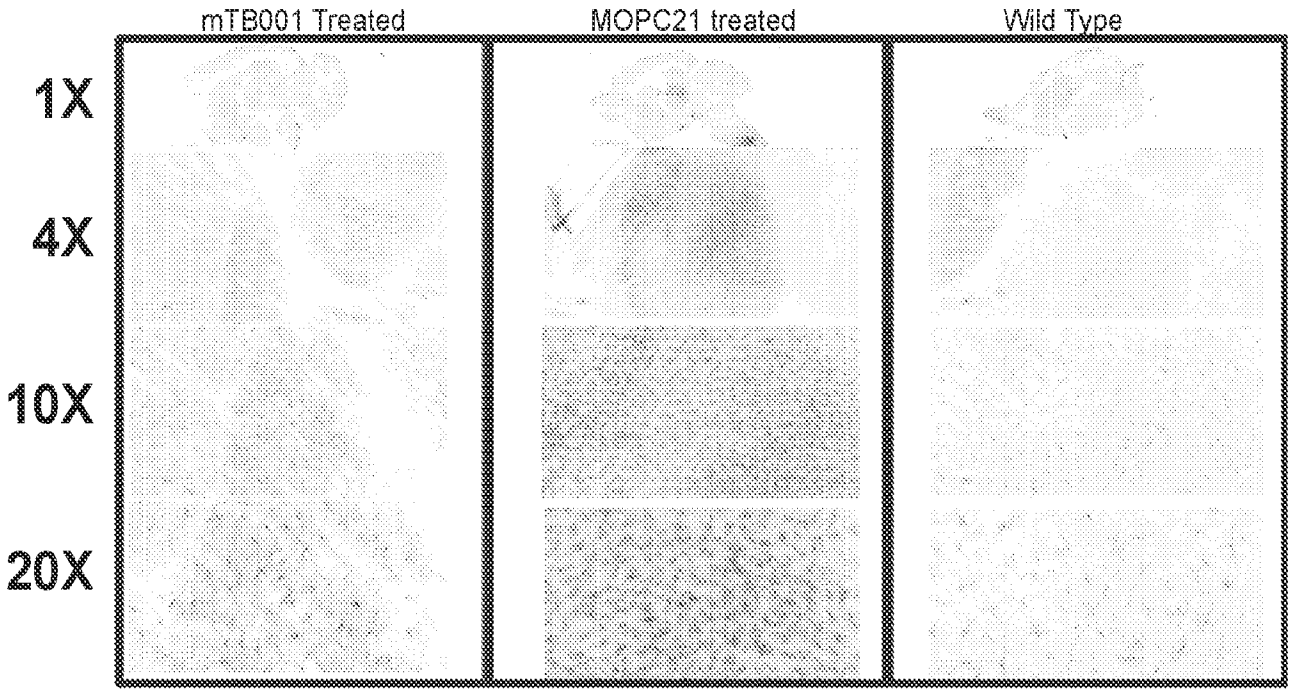


FIG. 25A

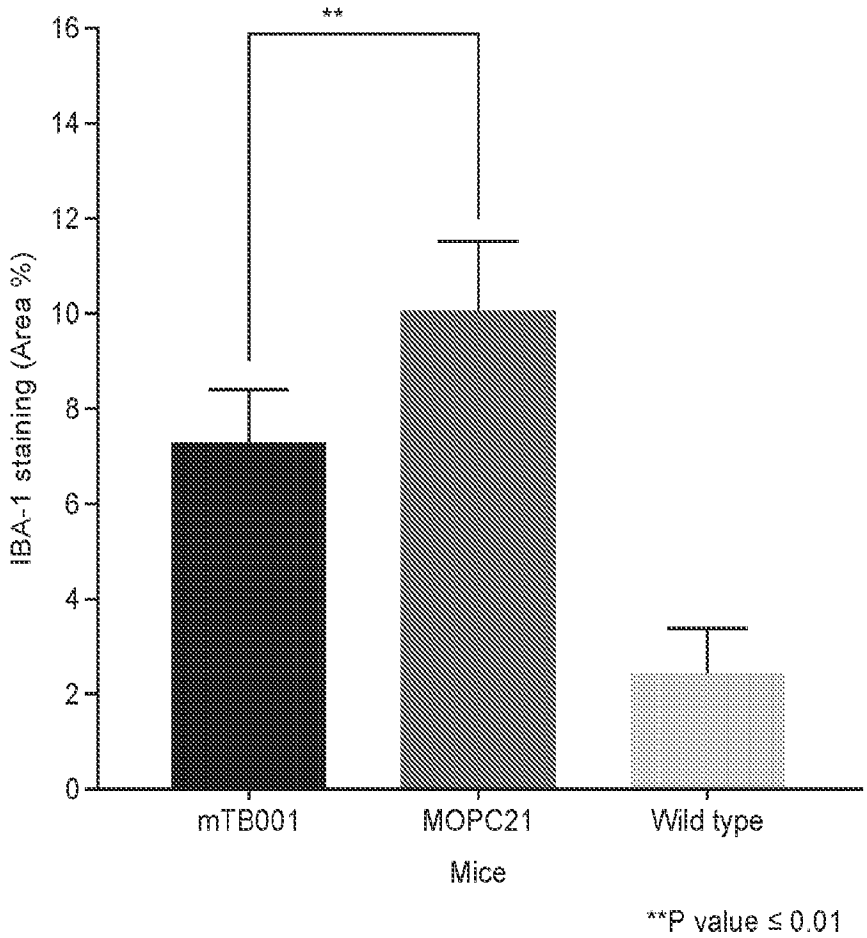


FIG. 25B

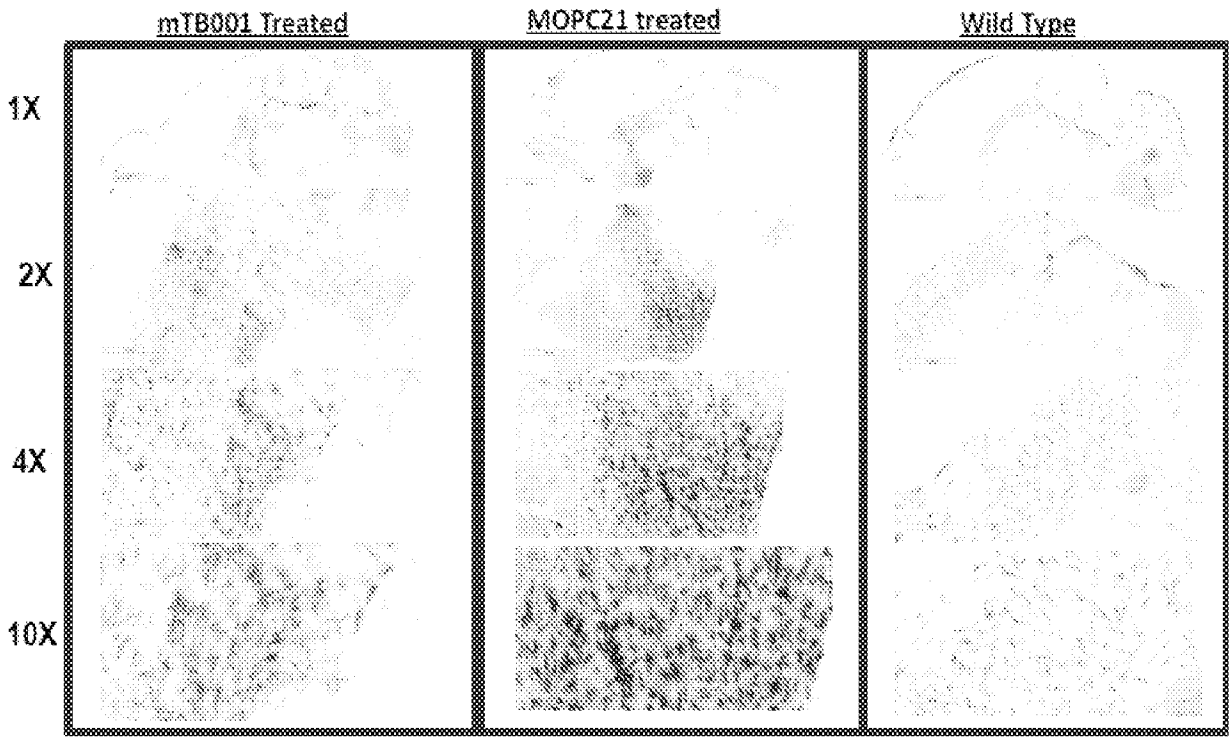


FIG. 26A

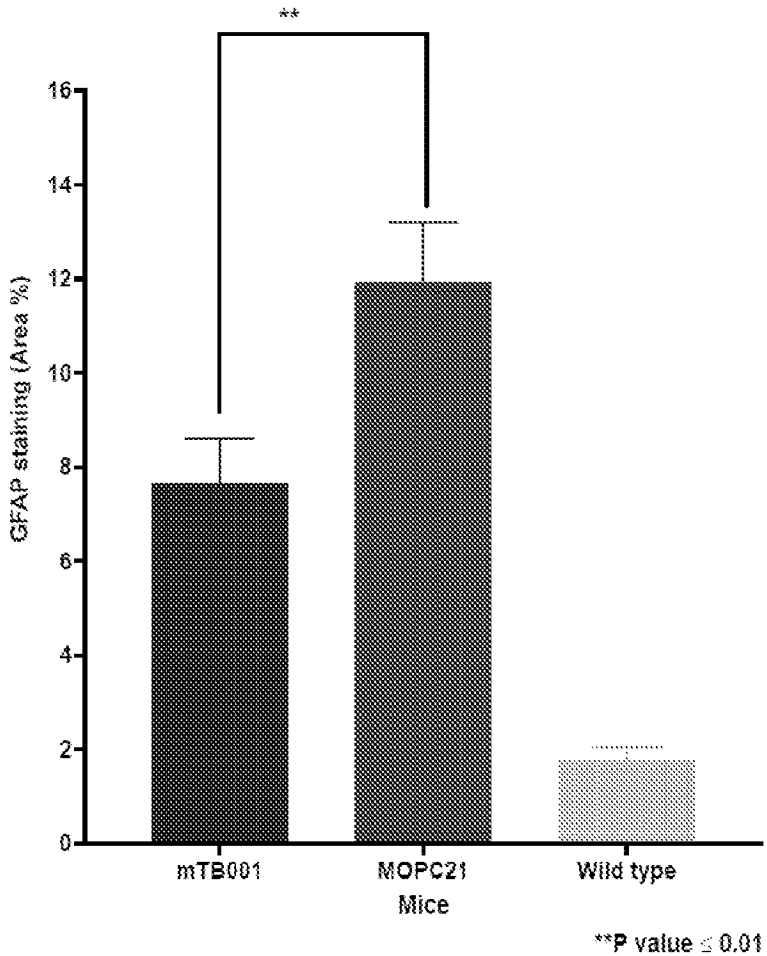


FIG. 26B

FIG. 27A

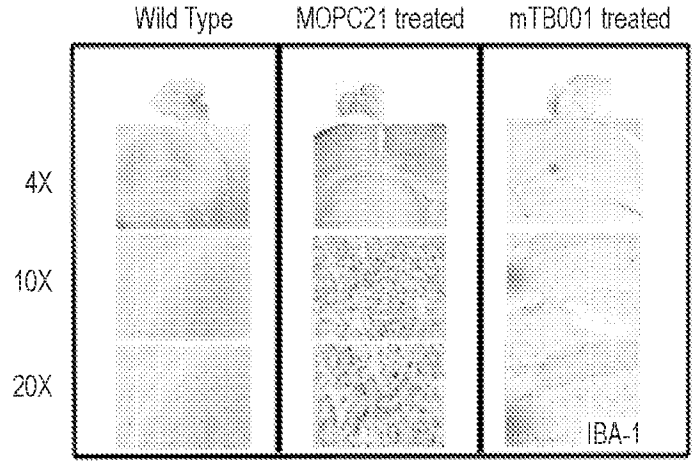


FIG. 27B

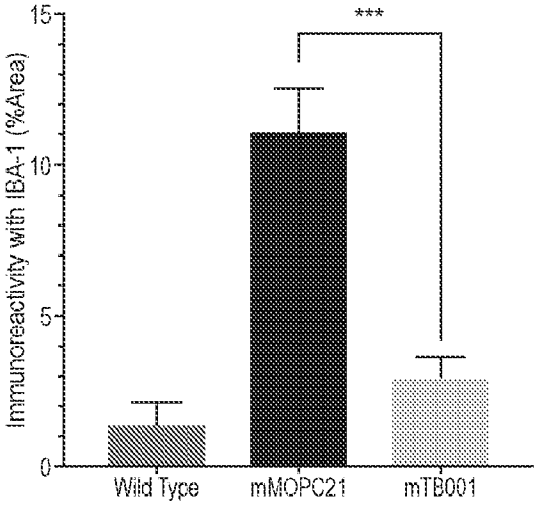


FIG. 27C

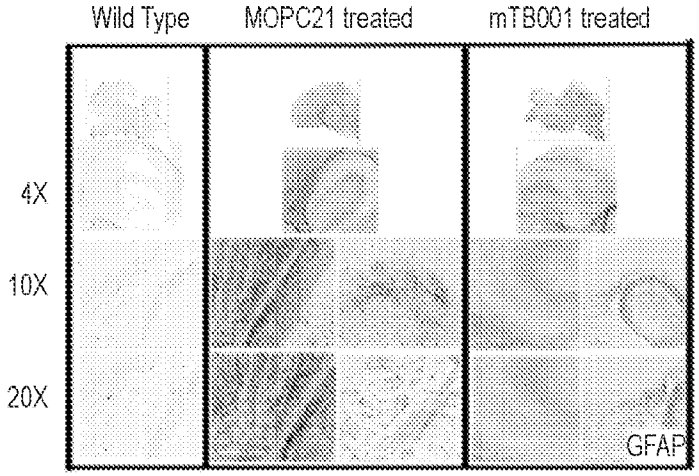


FIG. 27D

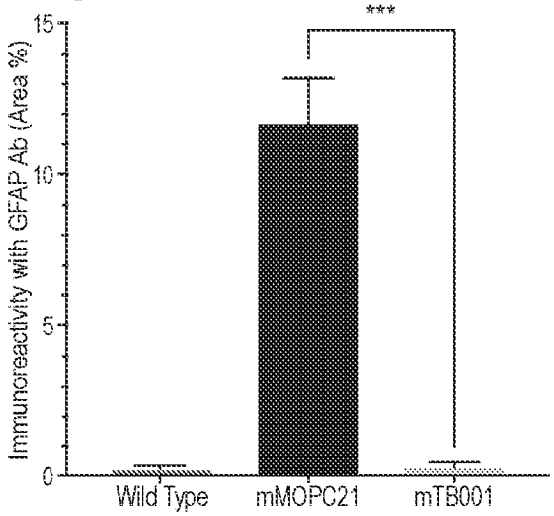


FIG. 27E

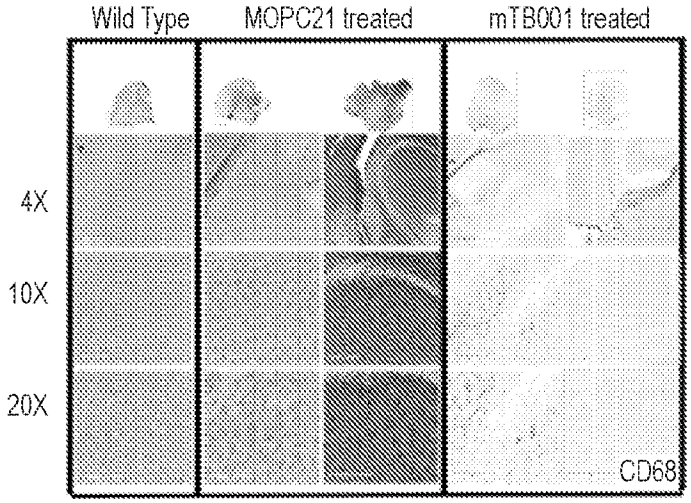


FIG. 27F

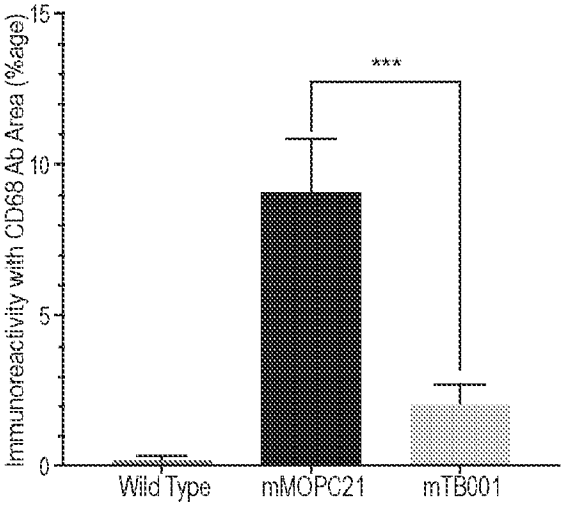


FIG. 28A

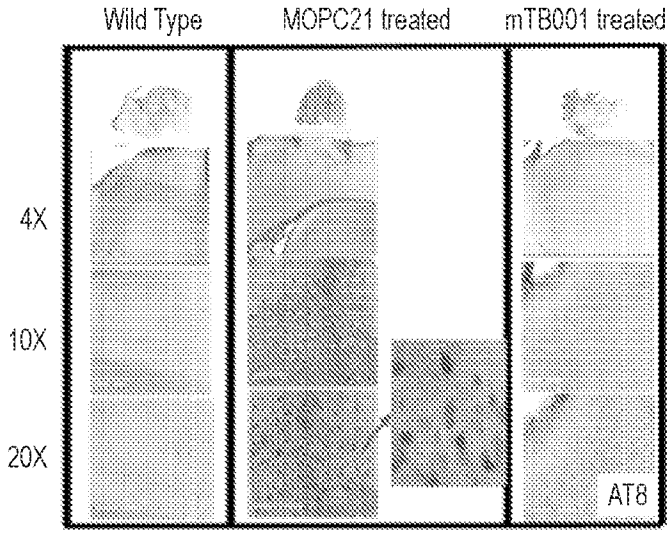


FIG. 28B

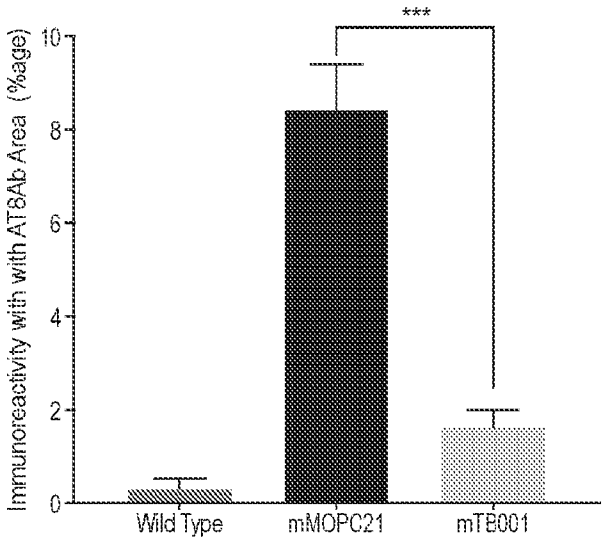


FIG. 28C

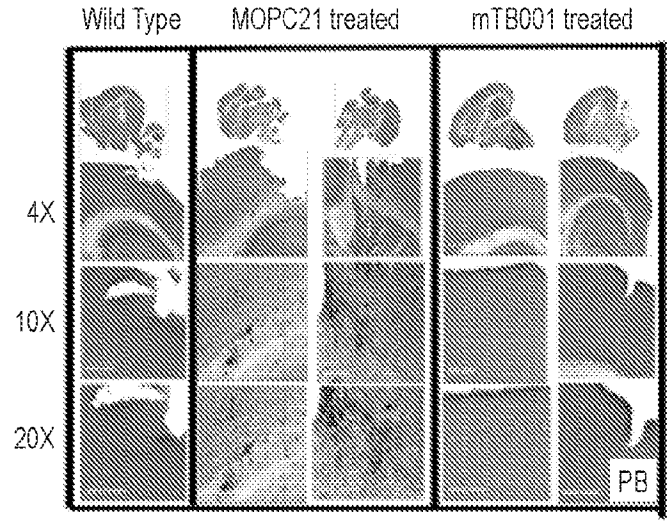
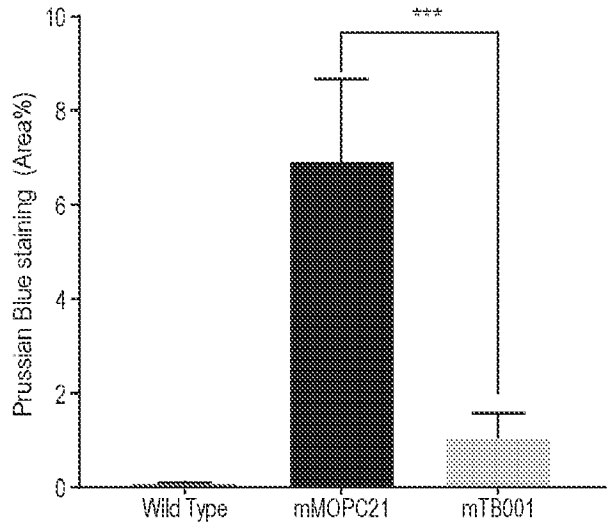


FIG. 28D



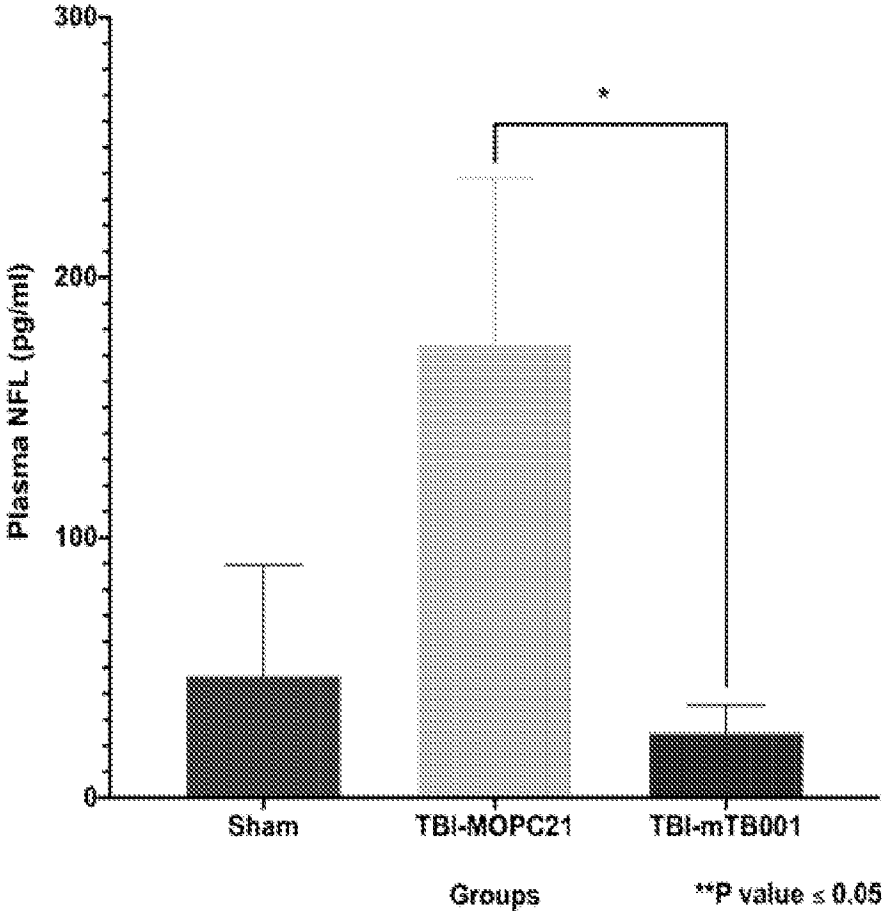

300
200
100
0
Plasma NFL (pg/ml)
*
Sham
TBI-MOPC21
TBI-mTB001
Groups
**P value ≤ 0.05

FIG. 28E

#	Anti-Gal3 antibody or control	isotype
1	TB001	hIgG4
2	F847C.21H6	hIgG4
3	TB006	hIgG4
4	20H5.A3	hIgG4
5	2D10-VH0-VL0	hIgG4
6	20D11.2C6	hIgG4
7	23H9.2E4	hIgG4
8	19B5.2E6	hIgG4
9	14H10.2C9	hIgG4
10	15G7.2A7	hIgG4
11	19D9.2E5	hIgG4
12	23B10.2B12	hIgG4
13	F846C.1B2	hIgG4
14	F846C.1F5	hIgG4
15	F846C.1H12	hIgG4
16	F846C.2H3	hIgG4
17	F846TC.16B5	hIgG4
18	F847C.10B9	hIgG4
19	F847C.12F12	hIgG4
20	MOPC21	hIgG4

FIG. 29

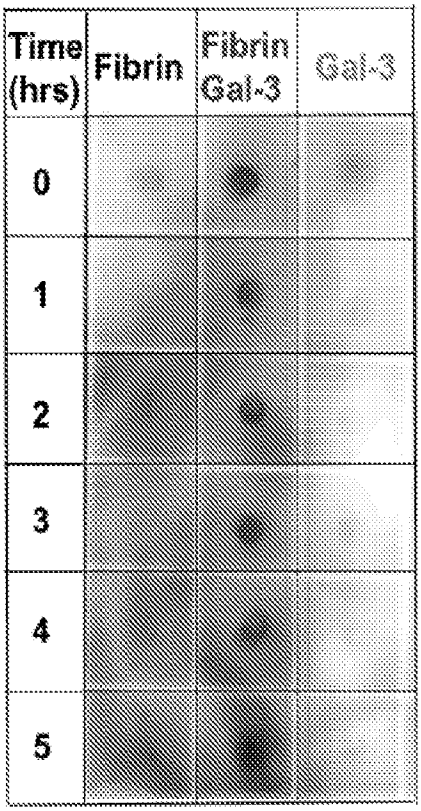


FIG. 30A

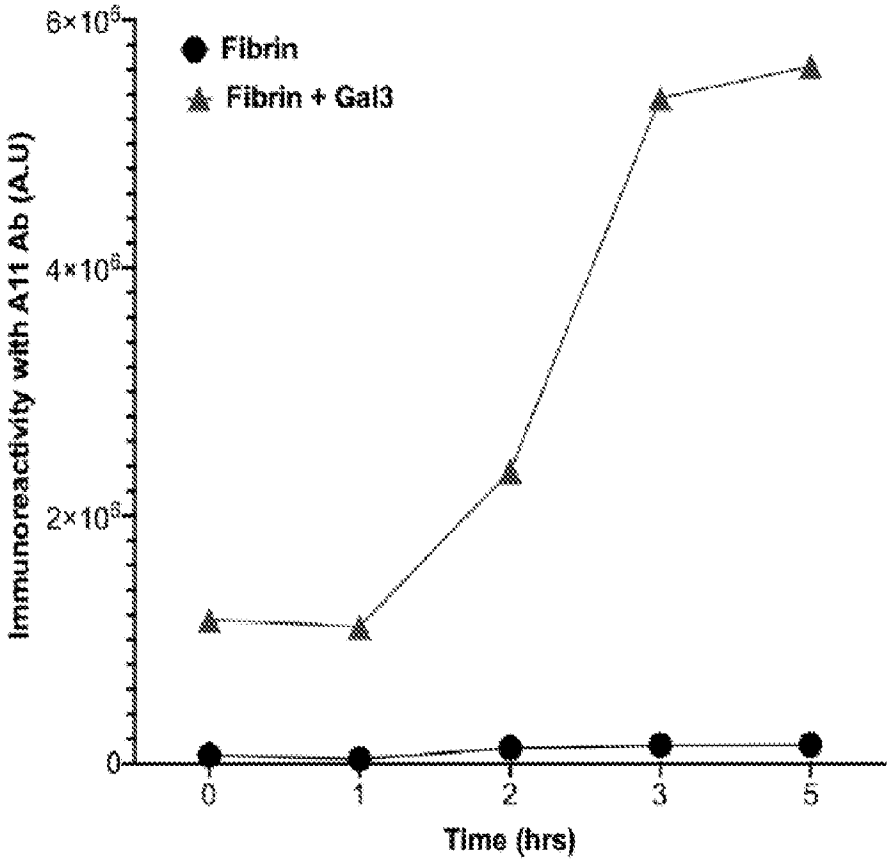


FIG. 30B

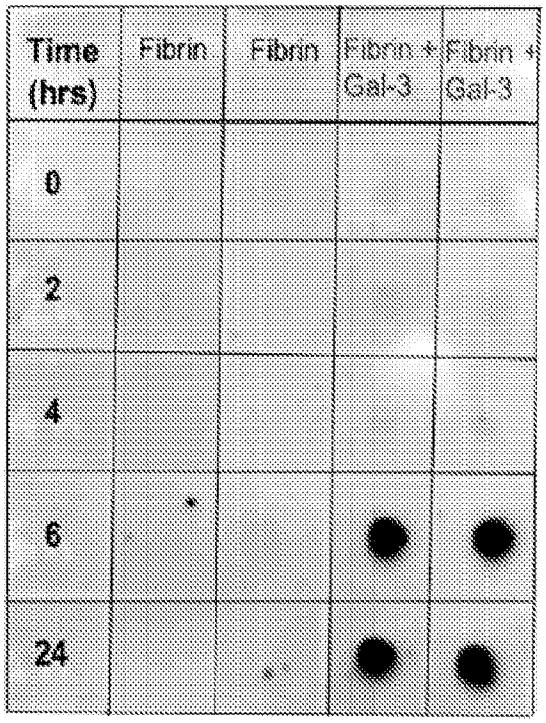


FIG. 31A

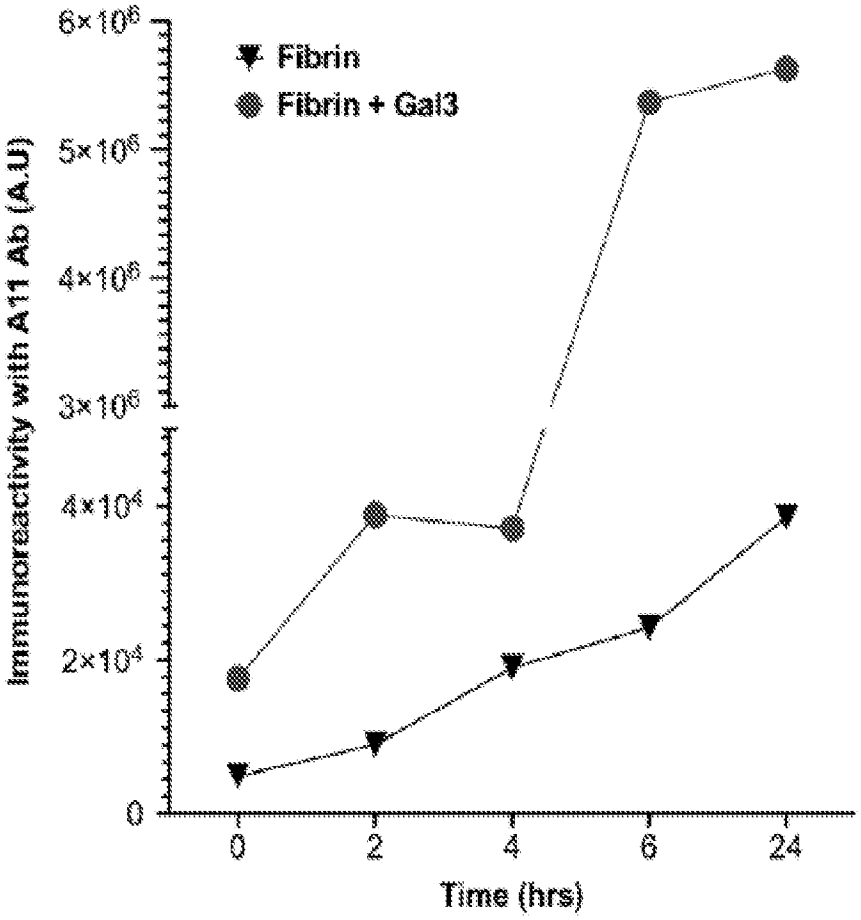


FIG. 31B

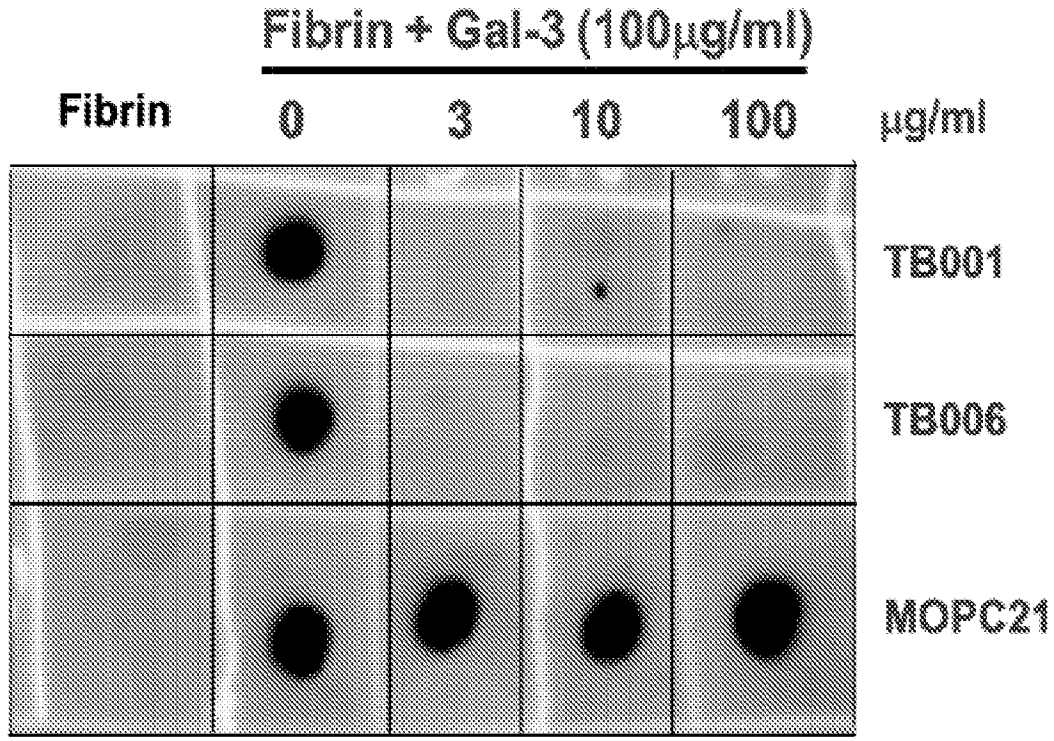

Fibrin + Gal-3 (100µg/ml)
Fibrin
0
3
10
100
µg/ml
TB001
TB006
MOPC21

FIG. 32

FIG. 33A

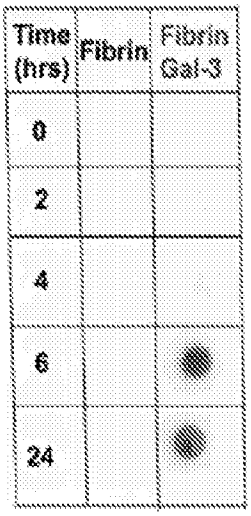


FIG. 33B

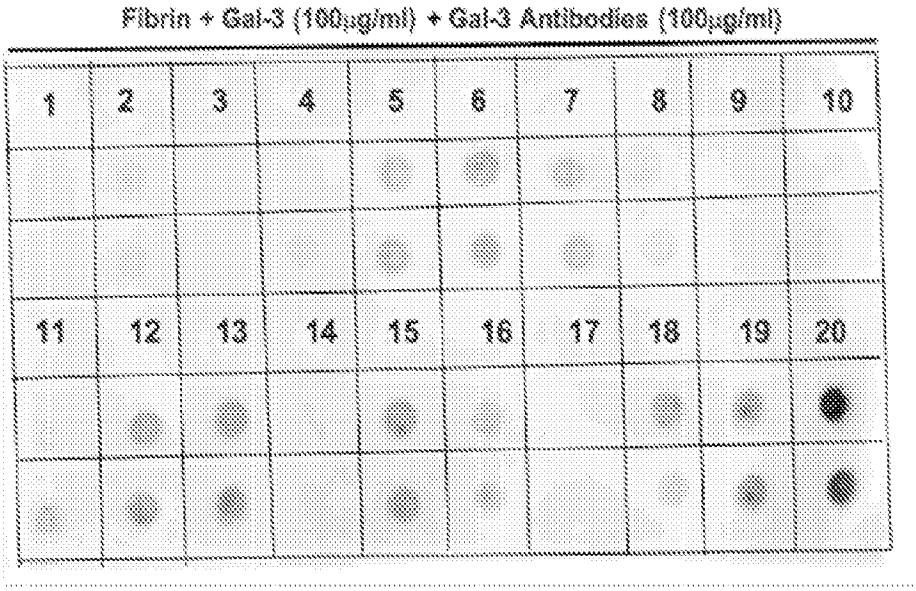
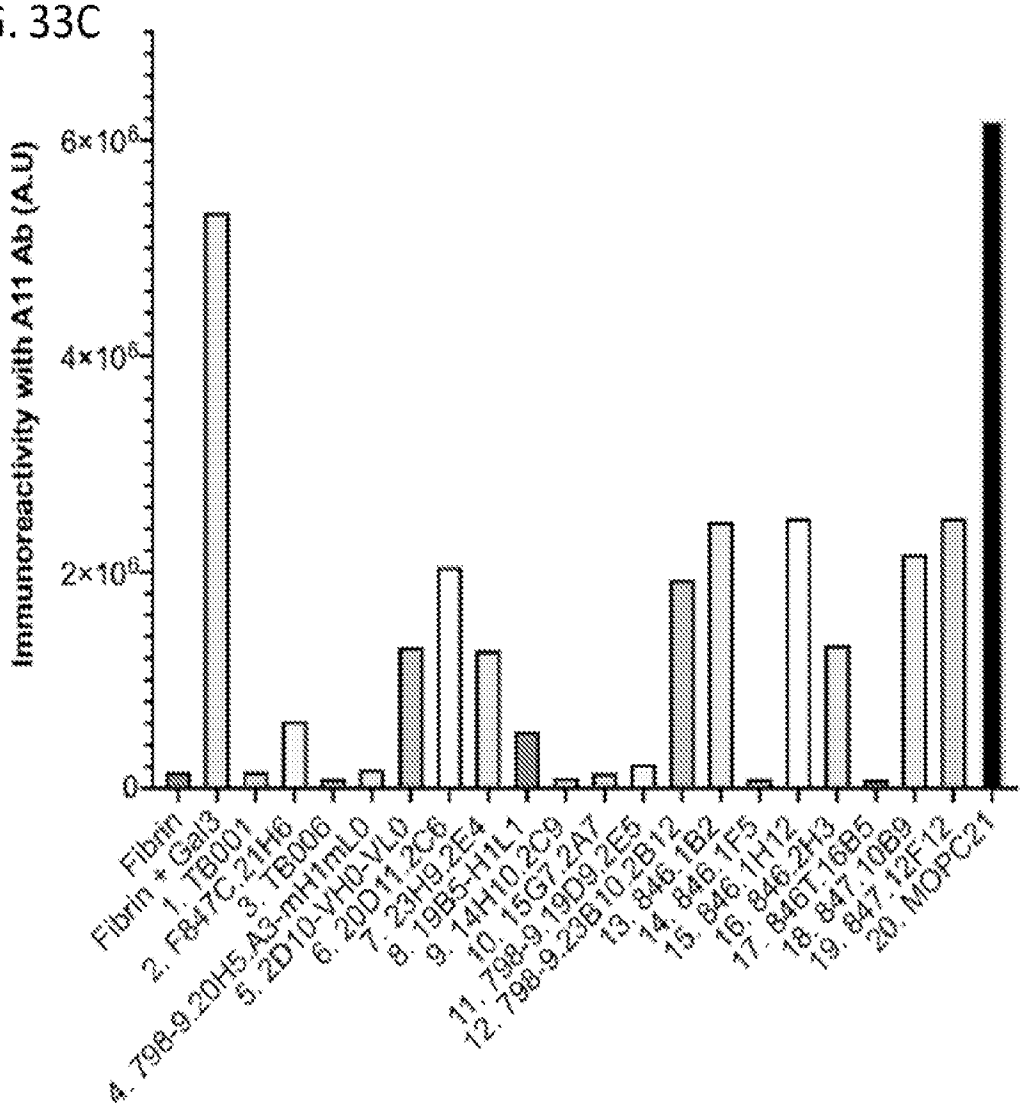


FIG. 33C



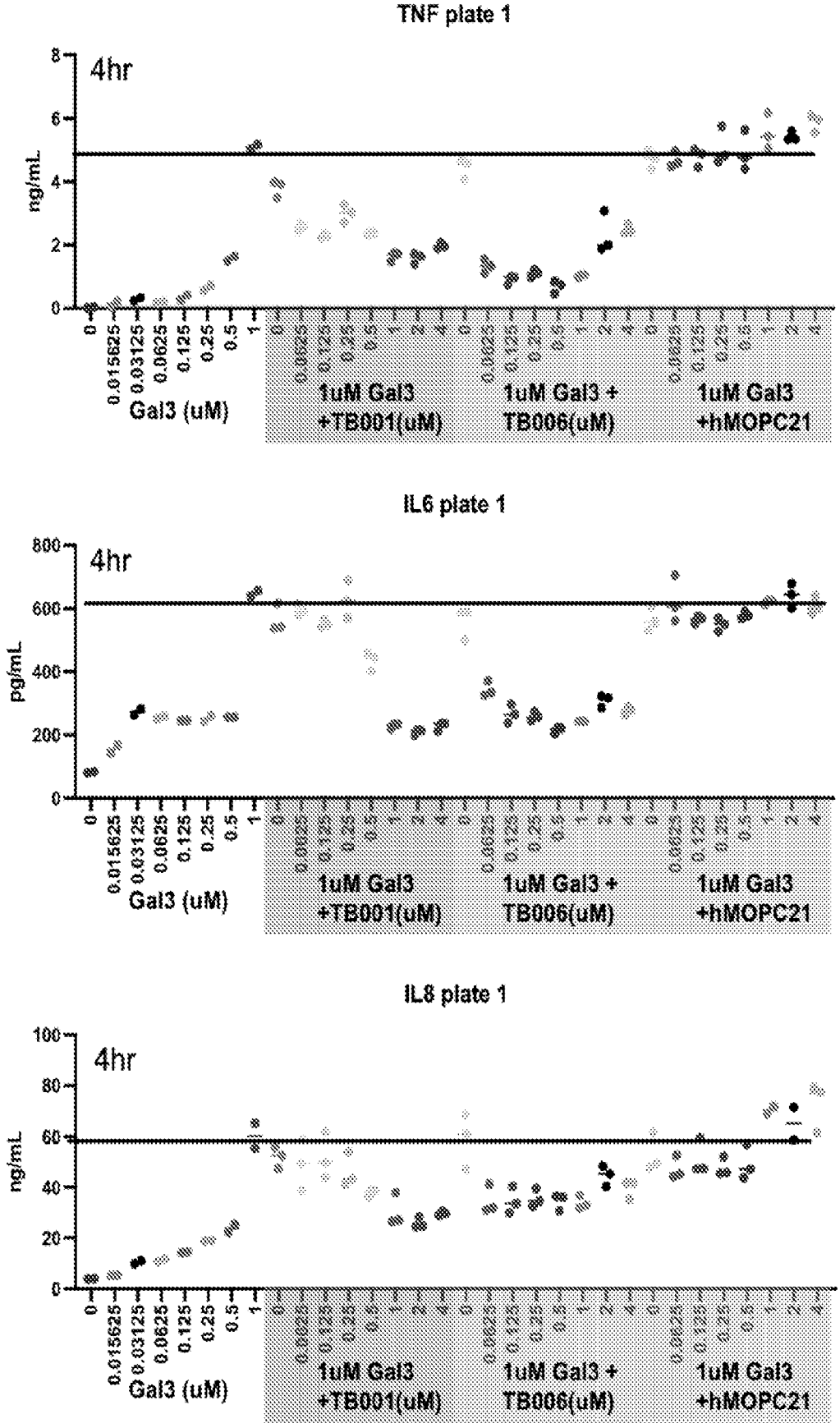

TNF plate 1
4hr
ng/mL
Gal3 (uM)
1uM Gal3 +TB001(uM)
1uM Gal3 + TB006(uM)
1uM Gal3 +hMOPC21
IL6 plate 1
4hr
pg/mL
Gal3 (uM)
1uM Gal3 +TB001(uM)
1uM Gal3 + TB006(uM)
1uM Gal3 +hMOPC21
IL8 plate 1
4hr
ng/mL
Gal3 (uM)
1uM Gal3 +TB001(uM)
1uM Gal3 + TB006(uM)
1uM Gal3 +hMOPC21

FIG. 34

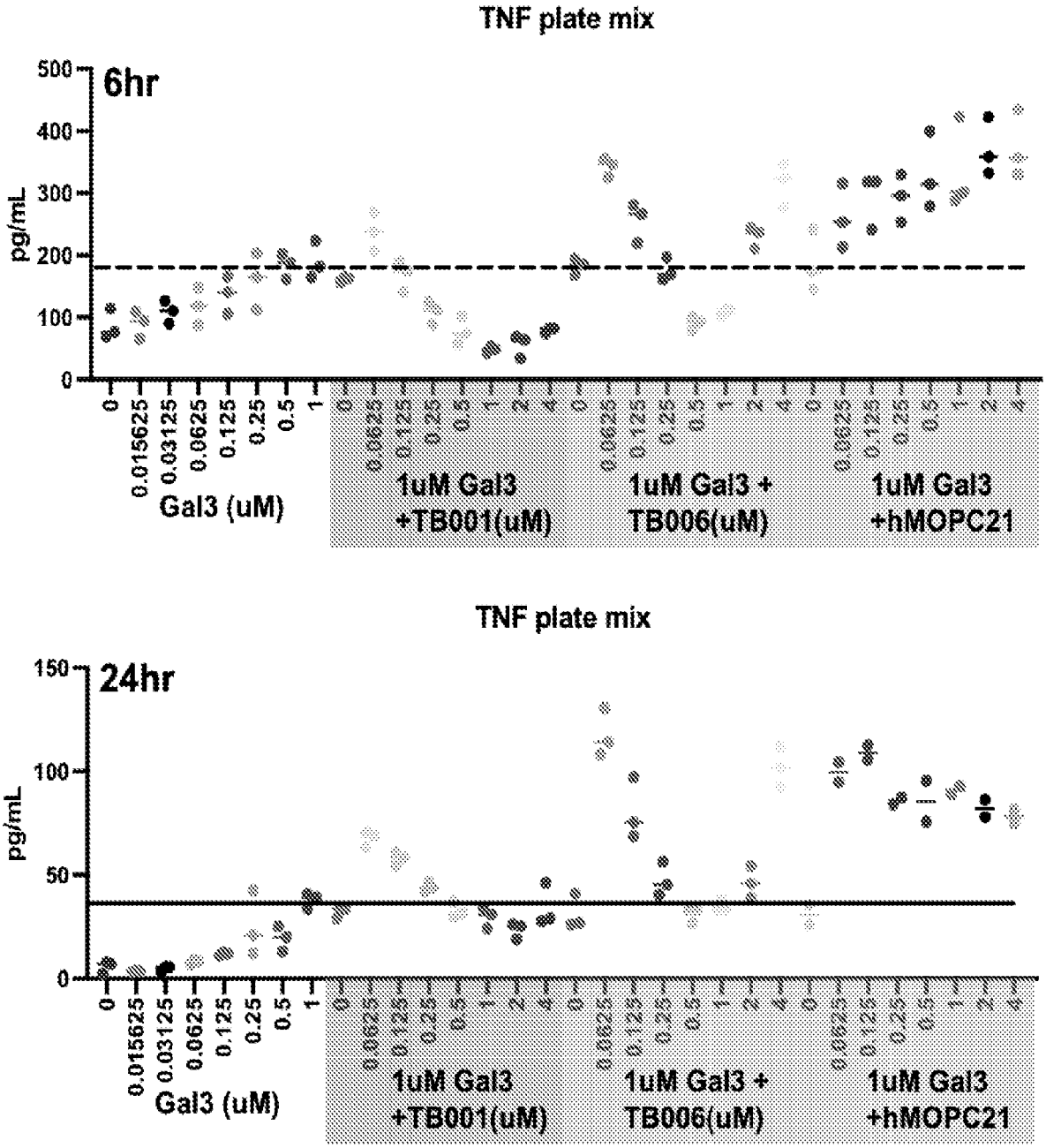

TNF plate mix
6hr
pg/mL
500
400
300
200
100
0
0
0.015625
0.03125
0.0625
0.125
0.25
0.5
1
Gal3 (uM)
1uM Gal3 +TB001(uM)
1uM Gal3 + TB006(uM)
1uM Gal3 +hMOPC21
TNF plate mix
24hr
pg/mL
150
100
50
0
Gal3 (uM)
1uM Gal3 +TB001(uM)
1uM Gal3 + TB006(uM)
1uM Gal3 +hMOPC21

FIG. 35A

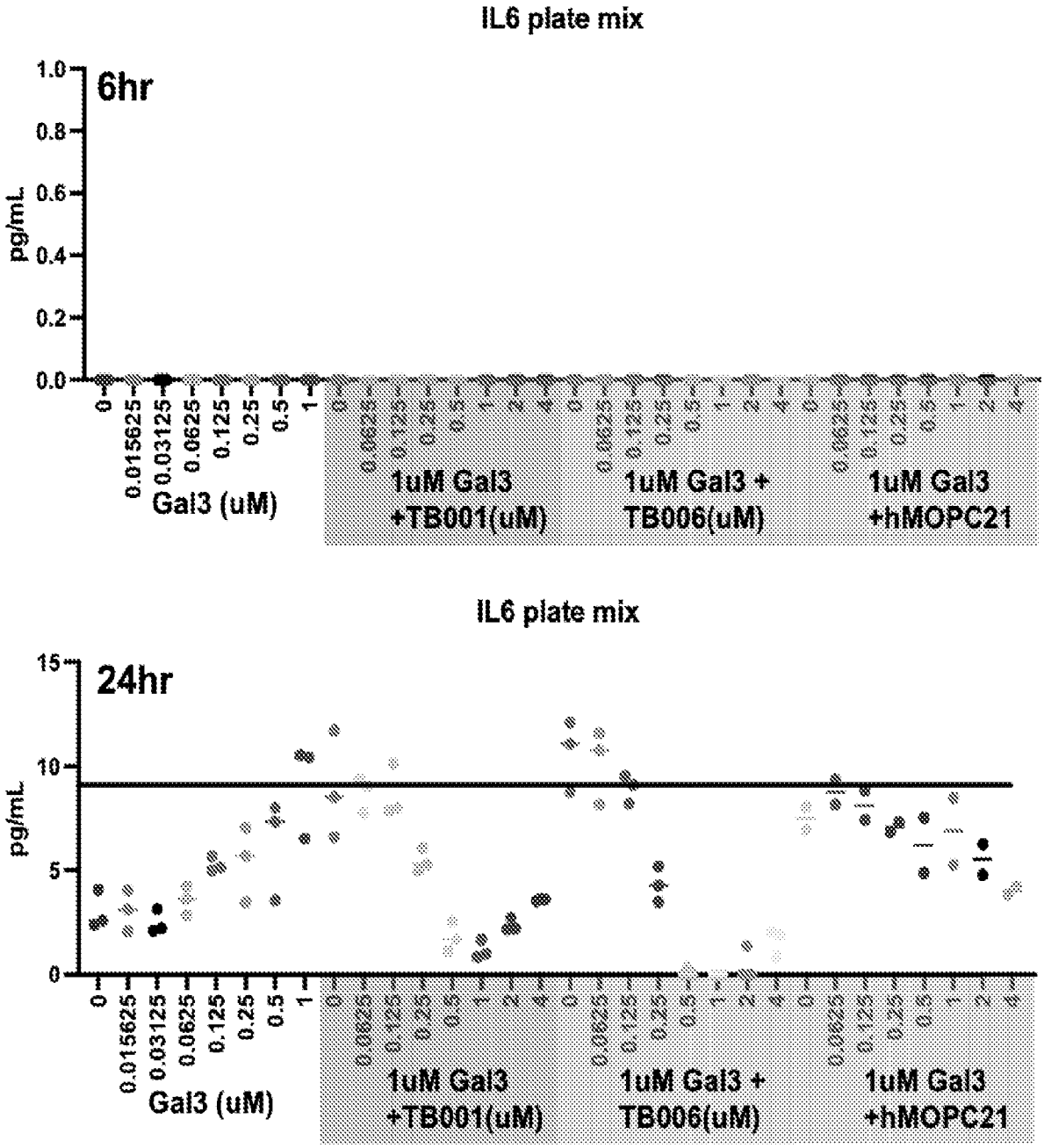

IL6 plate mix
6hr
pg/mL
1.0
0.8
0.6
0.4
0.2
0.0
0
0.015625
0.03125
0.0625
0.125
0.25
0.5
1
Gal3 (uM)
1uM Gal3 +TB001(uM)
1uM Gal3 + TB006(uM)
1uM Gal3 +hMOPC21
IL6 plate mix
24hr
pg/mL
15
10
5
0
Gal3 (uM)
1uM Gal3 +TB001(uM)
1uM Gal3 + TB006(uM)
1uM Gal3 +hMOPC21

FIG. 35B

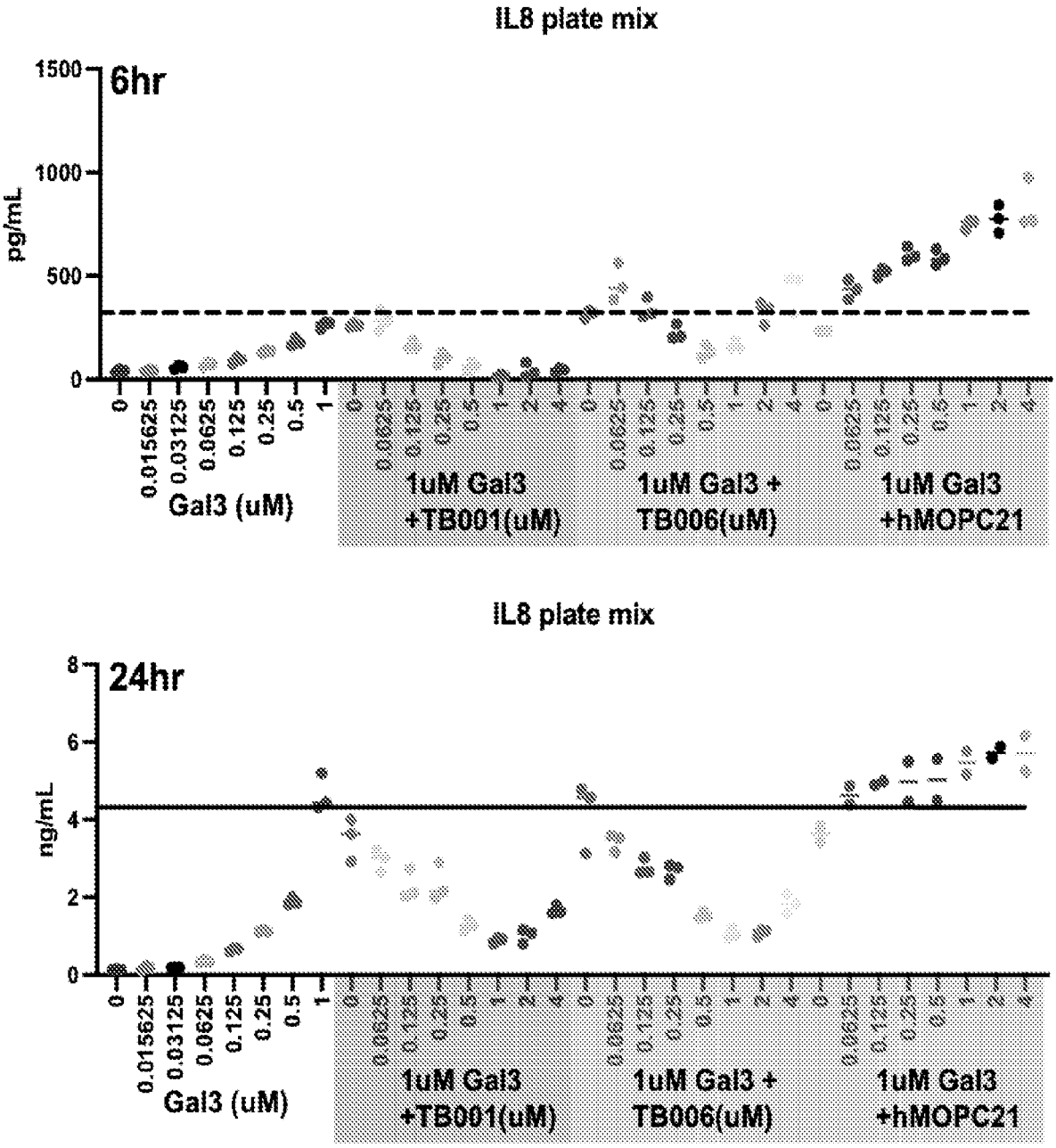
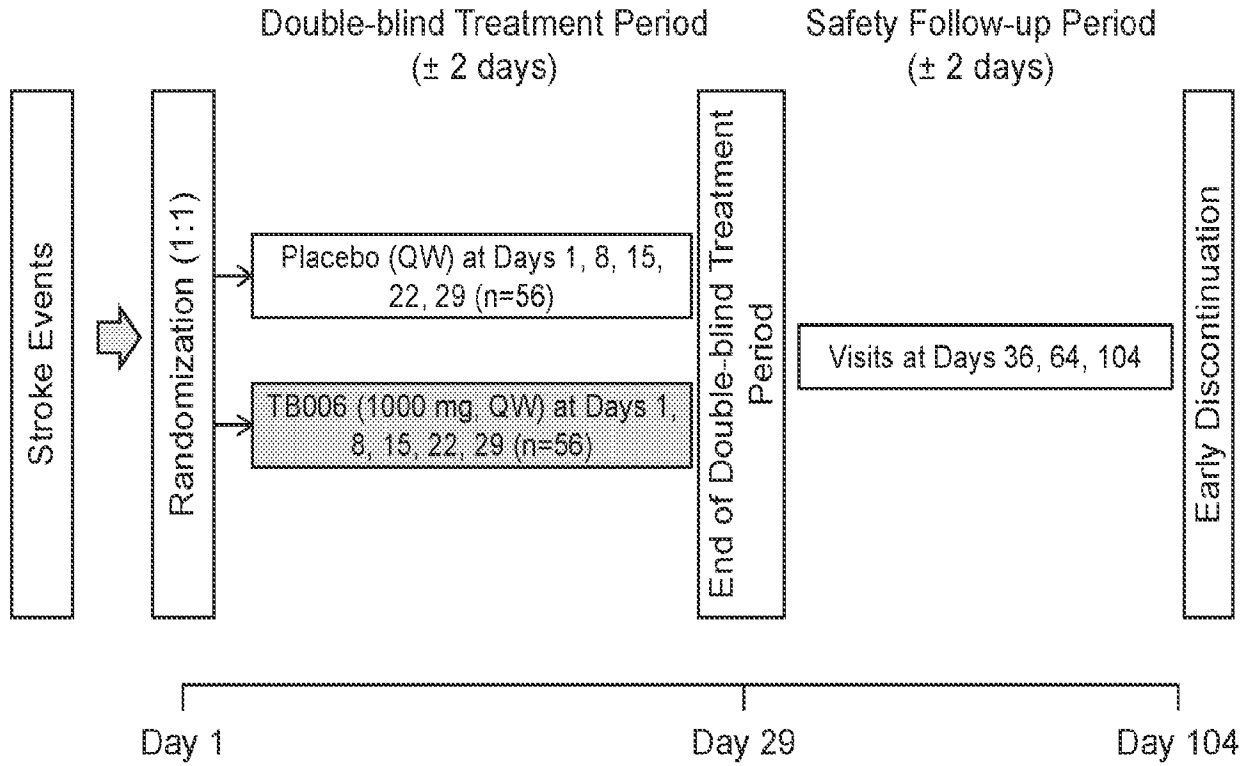

IL8 plate mix
6hr
pg/mL
1500
1000
500
0
Gal3 (uM)
0
0.015625
0.03125
0.0625
0.125
0.25
0.5
1
1uM Gal3 +TB001(uM)
1uM Gal3 + TB006(uM)
1uM Gal3 +hMOPC21
IL8 plate mix
24hr
ng/mL
8
6
4
2
0
Gal3 (uM)
1uM Gal3 +TB001(uM)
1uM Gal3 + TB006(uM)
1uM Gal3 +hMOPC21

FIG. 35C



QW = Once per week

FIG. 36

56564372

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US22/79385

A. CLASSIFICATION OF SUBJECT MATTER

IPC - INV. A61K 45/06; A61P 9/12; A61P 37/02; G16H 50/30 (2023.01)
ADD.

CPC - INV. A61K 39/3955; A61K 45/06; A61P 9/12

ADD. A61K 2039/505; C07K 2317/565; G01N 2800/28; G01N 2800/50

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
See Search History document

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
See Search History document

Electronic database consulted during the international search (name of database and, where practicable, search terms used)
See Search History document

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	WO 2016/004093 A2 (STEALTH BIOTHERAPEUTICS CORP) 07 January 2016; Paragraphs: [0017], [0047], [0624], [0648], [0699], [0868]	1-2, 35, 66-68 --- 3-6, 36-38, 69-70, 85, 90-91
Y	WO 2018/140510 A1 (BIOGEN MA INC.) 02 August 2018; Pg. 16, paragraph 8; pg. 45, paragraph 2; pg. 48, paragraph 3; pg. 91, paragraph 3 and 4	3-6, 36-38
Y	WO 2009/003142 A1 (THE BOARD OF TRUSTEES OF THE LELAND, STANFORD JUNIOR UNIVERSITY) 31 December 2008; Paragraphs: [0004], [0005], [0015], [00111], [00137]	69-70
Y	US 10,953,010 B2 (HAMRA INVEST AB) 23 March 2021; Abstract, claim 1; column 10, lines 10-12	85, 91
Y	WO 2014/159774 A1 (TEVA PHARMACEUTICAL INDUSTRIES LTD.) 02 October 2014; Pg. 3, lines 2-5; pg. 26, lines 10-20	90

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

* Special categories of cited documents:
"A" document defining the general state of the art which is not considered to be of particular relevance
"D" document cited by the applicant in the international application
"E" earlier application or patent but published on or after the international filing date
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
"O" document referring to an oral disclosure, use, exhibition or other means
"P" document published prior to the international filing date but later than the priority date claimed
"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
08 February 2023 (08.02.2023)	APR 05 2023
Name and mailing address of the ISA/ Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-8300	Authorized officer Shane Thomas Telephone No. PCT Helpdesk: 571-272-4300

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US22/79385

Box No. I Nucleotide and/or amino acid sequence(s) (Continuation of item 1.c of the first sheet)

1. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international search was carried out on the basis of a sequence listing:

   a. ☐ forming part of the international application as filed.

   b. ☐ furnished subsequent to the international filing date for the purposes of international search (Rule 13*ter*.1(a)),

      ☐ accompanied by a statement to the effect that the sequence listing does not go beyond the disclosure in the international application as filed.

2. ☒ With regard to any nucleotide and/or amino acid sequence disclosed in the international application, this report has been established to the extent that a meaningful search could be carried out without a WIPO Standard ST.26 compliant sequence listing.

3. Additional comments:
   An "Invitation to Furnish Nucleotide and/or Amino Acid Sequence Listing and to Pay, Where Applicable, Late Furnishing Fee" (Form PCT/ISA/225), was mailed on 01 December 2022 (01.12.2022). The sequence listing filed with the ISA/US on 19 December 2022 (19.12.2022) in response to the Form PCT/ISA/225 was defective. Therefore, the international search was carried out only to the extent possible without a sequence listing.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US22/79385

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☒ Claims Nos.: 7-34, 39-65, 71-84, 86-89
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

☐ The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.

☐ The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.

☐ No protest accompanied the payment of additional search fees.