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(54) Title: PEPTIDES AND SUBSTANCES, METHODS AND DEVICES USING SAME FOR DIAGNOSING AND TREATING NEURODEGENERATIVE DISORDERS

(57) Abstract: A method of identifying an existence, non-existence, type or state of a neurodegenerative disorder in an individual. The method is effected by (a) immunoreacting with a serum sample derived from the individual at least one peptide representing at least one epitope derived from an endogenous protein to which at least one antibody is produced *in vivo* at onset or during progression of the neurodegenerative disorder, the at least one peptide being selected such that the at least one antibody being capable of immunobinding with the at least one peptide; and (b) detecting a presence, absence or degree of the immunobinding to thereby identify the existence, non-existence, type or state of the neurodegenerative disorder.



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INTERNATIONAL SEARCH REPORT

International application No.
PCT/IL00/00509

A. CLASSIFICATION OF SUBJECT MATTER
 IPC(7) : A01N 1/02; G01N 33/53, 33/543; C07K 1/00, 5/00, 14/00
 US CL : 435/2, 7.1; 530/300, 350, 351; 424/184.1
 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)
 U.S. : 435/2, 7.1; 530/300, 350, 351; 424/184.1

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
 Author Search

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
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C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,541,294 (HOROWITZ ET AL) 30 July 1996 (30-07-96) abstract, claims.	46, 47, 65-86
X -- Y	SALIH. A.M. ET AL. Prevalence of Antibodies to Neurofilament polypeptides in patients with Rheumatoid Arthritis complicated by Peripheral Neuropathy. Clin. & Exp. Rheumat. 1998. Vol. 16. pages 689-694, see entire document.	1-45, 48-64, 87-114 ----- 65-86
X -- Y	GRUNDKE-IQBAL. I. ET AL. Microtubule-associated polypeptides Tau are altered in Alzheimer paired helical filaments. Molecular Br. Res. 1988. Vol. 4. pages 43-52, see entire document.	1-45, 48-64, 87-114 ----- 65-86

Further documents are listed in the continuation of Box C. See patent family annex.

<p>* Special categories of cited documents:</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document published on or after the international filing date</p> <p>"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)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>	<p>"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</p> <p>"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</p> <p>"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</p> <p>"&" document member of the same patent family</p>
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Date of the actual completion of the international search 20 JUNE 2001	Date of mailing of the international search report 02 AUG 2001
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Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703) 305-3230	Authorized officer Sharon Turner Telephone No. (703) 305-3230 <div style="text-align: right;"> TERRY J. DEY PARALEGAL SPECIALIST TECHNOLOGY CENTER 1600 </div>
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International application No.
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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X -- Y	ORON. L. ET AL. Animal model and in vitro studies of anti-neurofilament antibodies mediated neurodegeneration in Alzheimer's Disease. J. Neural Transm. 1997. Vol. 49. pages 77-84, see entire document.	1-45, 48-64, 87-114 ---- 65-86
X -- Y	KUMAR. M. ET AL. Serum IgG Brain reactive antibodies in Alzheimer Disease and Down Syndrome. Alz. Dis. & Assoc. Disord. 1988. Vol. 2. No. 1. pages 50-55, see entire document.	1-45, 48-64, 87-114 ----- 65-86
X -- Y	HASSIN-BAER. S. ET AL. Antibodies from Down's Syndrome patients bind to the same cholinergic neurofilament protein recognized by Alzheimer's Disease antibodies. 1992. Neurology. Vol. 42. pages 551-555, see entire document.	1-45, 48-64, 87-114 ----- 65-86
X -- Y	SOUSSAN. L. ET. AL. Antibodies to different isoforms of the Heavy Neurofilament Protein (NF-H) in normal aging and Alzheimer's Disease. Mol. Neurobiol. 1994. Vol. 9. No. 1-3. pages 83-91, see entire document.	1-45, 48-64, 87-114 ----- 65-86
X -- Y	MICHAELSON D.M. ET AL. Serum antibodies to Cholinergic neurons in Alzheimer's Disease. Prog. in Clin. & Biol. Res. 1989. Vol. 317. pages 689-694, see entire document.	1-45, 48-64, 87-114 ----- 65-86
X -- Y	ELIZAN. T.S. ET. AL. Antineurofilament Antibodies in Postencephalitic and Idiopathic Parkinson's Disease. J. of Neurol. Sci. 1983. Vol. 59. pages 341-347, see entire document.	1-45, 48-64, 87-114 ----- 65-86
X -- Y	LOPEZ. O.L. ET. AL. Serum auto-antibodies in Alzheimer's Disease. Acta Neurol. Scand. 1991. Vol. 84. pages 441-444, see entire document.	1-45, 48-64, 87-114 ----- 65-86
X -- Y	MICHAELSON. D.M. Decreased density of forebrain Cholinergic neurons and disintegration of the spatial organization of behavior in Experimental Autoimmune Dementia (EAD). Ann. NY Acad. Sci. 1993. Vol. 695. pages 244-248, see entire document.	1-45, 48-64, 87-114 ----- 65-86