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(74) Agents: LIPSCOMBE, Martin et al.; Nash Matthews,
90-92 Regent Street, Cambridge, Cambridgeshire CB2
1DP (GB).

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(71) Applicant (for all designated States except US): DOMANTIS LIMITED [GB/GB]; 980 Great West Road, Brentford Middlesex TW8 9GS (GB).

(72) Inventors; and

(75) Inventors/Applicants (for US only): JESPER, Laurent [BE/GB]; Domantis Limited, 315 Cambridge Science Park, Cambridge Cambridgeshire CB4 0WG (GB). PUPECKA, Malgorzata [PL/GB]; Domantis Limited, 315 Cambridge Science Park, Cambridge Cambridgeshire CB4 0WG (GB). TOMLINSON, Ian [GB/GB]; Domantis Limited, 315 Cambridge Science Park, Cambridge Cambridgeshire CB4 0WG (GB). ENEVER, Carolyn [GB/GB]; Domantis Limited, 315 Cambridge Science Park, Cambridge Cambridgeshire CB4 0WG (GB).

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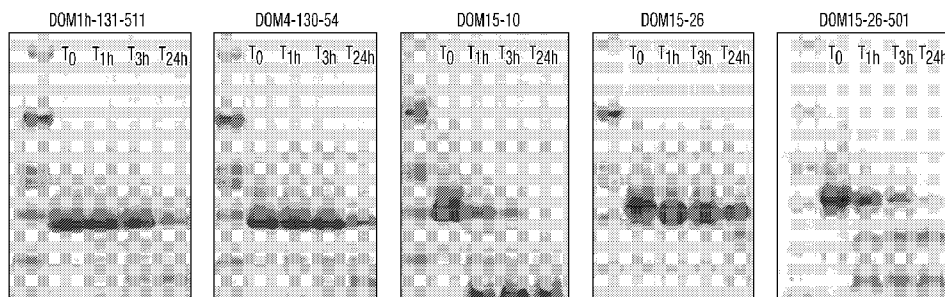
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(54) Title: POLYPEPTIDES, ANTIBODY VARIABLE DOMAINS AND ANTAGONISTS

Fig.2.



(57) Abstract: The invention relates to anti-IL-1R1 polypeptides and antibody single variable domains (dAbs) that are resistant to degradation by a protease, as well as antagonists comprising these. The polypeptides, dAbs and antagonists are useful for as therapeutics and/or prophylactics that are likely to encounter proteases when administered to a patient, for example for pulmonary administration, oral administration, delivery to the lung and delivery to the GI tract of a patient, as well as for treating inflammatory disease, such as arthritis or COPD.

INTERNATIONAL SEARCH REPORT

International application No
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A. CLASSIFICATION OF SUBJECT MATTER

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According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

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

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, BIOSIS, INSPEC

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2006/059108 A (DOMANTIS LTD [GB]; ARGENTA DISCOVERY LTD [GB]; DE WILDT RUUD M [GB]; D) 8 June 2006 (2006-06-08) sequence 317	1-87
A	WO 2004/058820 A (DOMANTIS LTD [GB]; WINTER GREG [GB]; TOMLINSON IAN [GB]; IGNATOVICH OL) 15 July 2004 (2004-07-15) examples 1-6 ----- -/-	1-87

☒ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents :

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European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040,
Fax: (+31-70) 340-3016

Authorized officer

Le Flao, Kate11

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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.
A	HARMSSEN M M ET AL: "Selection and optimization of proteolytically stable llama single-domain antibody fragments for oral immunotherapy." APPLIED MICROBIOLOGY AND BIOTECHNOLOGY SEP 2006, vol. 72, no. 3, September 2006 (2006-09), pages 544-551, XP002510773 ISSN: 0175-7598 abstract	1-87
P,X	WO 2007/063308 A (DOMANTIS LTD [GB]; DREW PHILIP D [GB]; DE WILDT RUDOLF M T [GB]; TOMLI) 7 June 2007 (2007-06-07) sequence 317	1-3,5, 7-87
P,X	WO 2007/063311 A (DOMANTIS LTD [GB]; DREW PHILIP D [GB]; DE WILDT RUDOLF M T [GB]; TOMLI) 7 June 2007 (2007-06-07) sequence 317	1-3,5, 7-87

INTERNATIONAL SEARCH REPORT

International application No
PCT/GB2008/050406

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 2006059108	A	08-06-2006	AU 2005311101 A1 CA 2588892 A1 EP 1863847 A2 KR 20070086896 A	08-06-2006 08-06-2006 12-12-2007 27-08-2007
WO 2004058820	A	15-07-2004	AU 2003295139 A1 CA 2511959 A1 EP 1581559 A2 JP 2006524986 T US 2006083747 A1	22-07-2004 15-07-2004 05-10-2005 09-11-2006 20-04-2006
WO 2007063308	A	07-06-2007	AU 2006321364 A1 CA 2632866 A1 EP 1957536 A2 KR 20080077238 A	07-06-2007 07-06-2007 20-08-2008 21-08-2008
WO 2007063311	A	07-06-2007	AU 2006321367 A1 CA 2629850 A1 EP 1957537 A2 KR 20080077237 A US 2008311111 A1	07-06-2007 07-06-2007 20-08-2008 21-08-2008 18-12-2008