



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁷ : A61K 35/00, C07H 21/02, 21/04, C12N 1/21, 1/15, 1/19, 5/14, 15/11, 15/63, 15/85, 15/86	A3	(11) International Publication Number: WO 00/39136 (43) International Publication Date: 6 July 2000 (06.07.00)
(21) International Application Number: PCT/US99/30452 (22) International Filing Date: 20 December 1999 (20.12.99) (30) Priority Data: 60/113,804 23 December 1998 (23.12.98) US (71) Applicant (for all designated States except US): HUMAN GENOME SCIENCES, INC. [US/US]; 9410 Key West Avenue, Rockville, MD 20850 (US). (72) Inventors; and (75) Inventors/Applicants (for US only): YOUNG, Paul, E. [US/US]; 122 Beckwith Street, Gaithersburg, MD 20878 (US). RUBEN, Steven, M. [US/US]; 18528 Heritage Hills Drive, Laytonsville, MD 20882 (US). (74) Agents: KENNY, Joseph, J. et al.; Human Genome Sciences, Inc., 9410 Key West Avenue, Rockville, MD 20850 (US).	(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> (88) Date of publication of the international search report: 2 November 2000 (02.11.00)	
(54) Title: HUMAN BRAINIAC-5 (57) Abstract <p>The present invention relates to novel Brainiac-5 polypeptides which are members of the Brainiac family. In particular, isolated nucleic acid molecules are provided encoding the human Brainiac-5 polypeptides. Brainiac-5 polypeptides are also provided as are vectors, host cells and recombinant methods for producing the same. The invention further relates to screening methods for identifying agonists and antagonists of Brainiac-5 activities. Also provided are diagnostic methods for detecting immune and nervous system-related disorders and therapeutic methods for treating, preventing, and/or diagnosing immune and nervous system-related disorders.</p>		

FOR THE PURPOSES OF INFORMATION ONLY

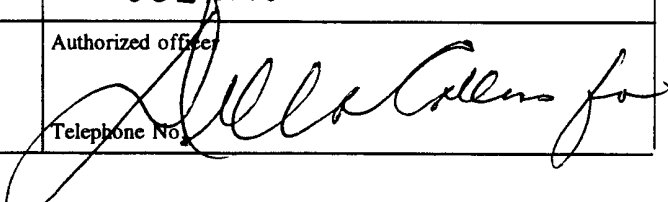
Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
AM	Armenia	FI	Finland	LT	Lithuania	SK	Slovakia
AT	Austria	FR	France	LU	Luxembourg	SN	Senegal
AU	Australia	GA	Gabon	LV	Latvia	SZ	Swaziland
AZ	Azerbaijan	GB	United Kingdom	MC	Monaco	TD	Chad
BA	Bosnia and Herzegovina	GE	Georgia	MD	Republic of Moldova	TG	Togo
BB	Barbados	GH	Ghana	MG	Madagascar	TJ	Tajikistan
BE	Belgium	GN	Guinea	MK	The former Yugoslav Republic of Macedonia	TM	Turkmenistan
BF	Burkina Faso	GR	Greece	ML	Mali	TR	Turkey
BG	Bulgaria	HU	Hungary	MN	Mongolia	TT	Trinidad and Tobago
BJ	Benin	IE	Ireland	MR	Mauritania	UA	Ukraine
BR	Brazil	IL	Israel	MW	Malawi	UG	Uganda
BY	Belarus	IS	Iceland	MX	Mexico	US	United States of America
CA	Canada	IT	Italy	NE	Niger	UZ	Uzbekistan
CF	Central African Republic	JP	Japan	NL	Netherlands	VN	Viet Nam
CG	Congo	KE	Kenya	NO	Norway	YU	Yugoslavia
CH	Switzerland	KG	Kyrgyzstan	NZ	New Zealand	ZW	Zimbabwe
CI	Côte d'Ivoire	KP	Democratic People's Republic of Korea	PL	Poland		
CM	Cameroon	KR	Republic of Korea	PT	Portugal		
CN	China	KZ	Kazakstan	RO	Romania		
CU	Cuba	LC	Saint Lucia	RU	Russian Federation		
CZ	Czech Republic	LI	Liechtenstein	SD	Sudan		
DE	Germany	LK	Sri Lanka	SE	Sweden		
DK	Denmark	LR	Liberia	SG	Singapore		
EE	Estonia						

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US99/30452

A. CLASSIFICATION OF SUBJECT MATTER IPC(7) :Please See Extra Sheet. US CL :Please See Extra Sheet. 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. : 536/23.1, 23.4, 23.5, 24.31, 24.32, 24.33; 424/93.1, 435/69.1, 252.3, 254.2, 254.11, 320.1, 325, 455 Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched Authors; Young, Paul E., Ruben, Steven M. Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) Genbank, CAPlus, Medline, WEST		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X ---- Y, A	Genbank Database, Genbank, Accession No. AC005952, Lamerdin et al., Homo sapiens chromosome 19, cosmid F19847, complete sequence, 08 November 1998, see in particular amino acids 188-199 and 229-235 of SEQ ID NO:2 encoded by nucleic acids 28706-28741 and 28823-28843 of AC005952.	1-4, 6-13 and 23 ----- 5, 14-16 and 21
X ----- Y, A	WO 98/21328 A2 (SAGAMI CHEMICAL RESEARCH CENTER) 22 May 1998(22.05.98), see in particular claim 1, p. 116-117, 205, amino acids 77-83 and 188-199 of SEQ ID NO:2 in common with amino acids 182-188 and 293-304 of WO98/21328, SEQ ID NO:26	1-16 and 23 ----- 21
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> 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 *E* earlier document 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 11 JUL 2000
Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No.		Authorized officer  Telephone No.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US99/30452

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, A	Genbank Database, Genbank, Accession No. H18701, Hillier et al., yn52d05.a1 Soares adult brain N2b5HB55Y Homo sapiens cDNA clone, 29 June 1995, see in particular amino acids 203-278 of SEQ ID NO:2 encoded by H18701 nucleic acids 3-230, nucleic acids 1-483 in common with nucleic acids 1-483 of H18701 and nucleic acids 785-977 of SEQ ID NO:1 in common with nucleic acids 181-373 of h18701.	1-4, 6-13 and 23 ----- 5, 14-16 and 21
X ----- Y, A	Genbank Database, Genbank, Accession No. H38971, Hillier et al., yn84d06.s1 Soares adult brain N2b5HB55y Homo sapiens cDNA clone, 25 July 1995, see in particular nucleic acids 1-431 of SEQ ID NO:10 shared in common with nucleic acids 1-431 of H38971.	1-4, 6-13 and 23 ----- 5, 14-16 and 21

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US99/30452**Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)**

This international 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.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

Please See Extra Sheet.

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 an additional fee, this Authority did not invite payment of any additional fee.
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.:
1-16, 21 and 23

Remark on Protest The additional search fees were accompanied by the applicant's protest.
 No protest accompanied the payment of additional search fees.

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US99/30452

A. CLASSIFICATION OF SUBJECT MATTER:

IPC (7):

A61K 35/00; C07H 21/02, 21/04; C12N 1/21, 1/15, 1/19, 5/14, 15/11, 15/63, 15/85, 15/86,

A. CLASSIFICATION OF SUBJECT MATTER:

US CL :

536/23.1, 23.4, 23.5, 24.31, 24.32, 24.33; 424/93.1, 435/69.1, 252.3, 254.2, 254.11, 254.11, 320.1, 325, 455

BOX II. OBSERVATIONS WHERE UNITY OF INVENTION WAS LACKING

This ISA found multiple inventions as follows:

This application contains the following inventions or groups of inventions which are not so linked as to form a single inventive concept under PCT Rule 13.1. In order for all inventions to be searched, the appropriate additional search fees must be paid.

Group I, claim(s) 1-16, 21 and 23, drawn to the first technical feature, isolated nucleic acids.

Group II, claim(s) 17-18, and 22, drawn to the second technical feature, isolated polypeptides.

Group III, claim(s) 19, drawn to the third technical feature, isolated antibodies.

The inventions listed as Groups I-III do not relate to a single inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: The special technical features differ in structure and function, in particular Group I is composed of nucleic acids capable of hybridization, Group II is composed of amino acids capable of dimerization and Group III is composed of immunoglobulins capable of an immune reaction.