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DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN,
HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, KN, KP,
KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME,
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EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV,
MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM,

(54) Title: BROAD SPECTRUM GPCR BINDING AGENTS

(57) Abstract: Provided herein are broad-spectrum G-Protein coupled receptor (GPCR) binding agents, detectable/isolatable compounds comprising such binding agents (e.g., broad-spectrum GPCR binding agents linked to a functional element and/or solid surface), and methods of use thereof for the detection/isolation of GPCRs.



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INTERNATIONAL SEARCH REPORT

International application No
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A. CLASSIFICATION OF SUBJECT MATTER
INV. G01N33/52 C07F5/02
ADD.
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)
G01N C07F
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 practicable, search terms used)
EPO-Internal, BIOSIS, EMBASE, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO 2009/040555 A2 (CELLAURA TECHNOLOGIES LTD [GB]; HILL STEPHEN JOHN [GB] ET AL.) 2 April 2009 (2009-04-02) Abstract; Figures 1-2 -----	1,14-20, 31-43
Y	WO 2006/032926 A2 (UNIV NOTTINGHAM [GB]; HILL STEVEN JOHN [GB] ET AL.) 30 March 2006 (2006-03-30) Abstract; Figures 1/41-34/41 -----	1,14-20, 31-43
X	WO 2007/053618 A1 (ACADIA PHARM INC [US]; PETTERSSON LARS [SE] ET AL.) 10 May 2007 (2007-05-10) Abstract; claim 13 -----	1,14-19
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Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents :

<p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier application or patent but 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 17 February 2020	Date of mailing of the international search report 23/06/2020
Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer López García, F

INTERNATIONAL SEARCH REPORT

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	WO 2012/161938 A1 (SALADAX BIOMEDICAL INC [US]; SALAMONE SALVATORE J [US] ET AL.) 29 November 2012 (2012-11-29) Abstract; compounds 2-5, 7-10 on p. 32 -----	1,14-20, 31-43
Y	LEIGH A STODDART ET AL: "Application of BRET to monitor ligand binding to GPCRs", NATURE METHODS, vol. 12, no. 7, 1 July 2015 (2015-07-01), pages 661-663, XP055666312, New York ISSN: 1548-7091, DOI: 10.1038/nmeth.3398 Abstract; see "Online Methods" "Ligands" -----	1,14-20, 31-43
Y	SOMAYEH JAFARI ET AL: "Structural contributions of antipsychotic drugs to their therapeutic profiles and metabolic side effects : Chemical structure and function of antipsychotics", JOURNAL OF NEUROCHEMISTRY, vol. 120, no. 3, 1 February 2012 (2012-02-01), pages 371-384, XP055666458, GB ISSN: 0022-3042, DOI: 10.1111/j.1471-4159.2011.07590.x Abstract; Table 1 -----	1,14-20, 31-43
E	WO 2019/232225 A1 (PROMEGA CORP [US]) 5 December 2019 (2019-12-05) Abstract; claims; figures. -----	1,14-20, 31-43

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2019/064500

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.:
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:

see additional 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 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.:

1, 14-20, 31-43(all partially)

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.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1, 14-20, 31-43(all partially)

A composition comprising a broad-spectrum G-protein coupled receptor (GPCR) binding agent attached to a functional element, wherein the broad-spectrum GPCR binding agent is according to claim 1.

2. claims: 2, 14-19, 21, 31-43(all partially)

A composition comprising a broad-spectrum G-protein coupled receptor (GPCR) binding agent attached to a functional element, wherein the broad-spectrum GPCR binding agent is according to claim 2.

3. claims: 3, 14-19, 22, 31-43(all partially)

A composition comprising a broad-spectrum G-protein coupled receptor (GPCR) binding agent attached to a functional element, wherein the broad-spectrum GPCR binding agent is according to claim 3.

4. claims: 4, 14-19, 23, 31-43(all partially)

A composition comprising a broad-spectrum G-protein coupled receptor (GPCR) binding agent attached to a functional element, wherein the broad-spectrum GPCR binding agent is according to claim 4.

5. claims: 5, 14-19, 24, 31-43(all partially)

A composition comprising a broad-spectrum G-protein coupled receptor (GPCR) binding agent attached to a functional element, wherein the broad-spectrum GPCR binding agent is according to claim 5.

6. claims: 6, 14-19, 25, 31-43(all partially)

A composition comprising a broad-spectrum G-protein coupled receptor (GPCR) binding agent attached to a functional element, wherein the broad-spectrum GPCR binding agent is according to claim 6.

7. claims: 7, 14-19, 26, 31-43(all partially)

A composition comprising a broad-spectrum G-protein coupled receptor (GPCR) binding agent attached to a functional

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

element, wherein the broad-spectrum GPCR binding agent is according to claim 7.

8. claims: 8, 14-19, 27, 31-43(all partially)

A composition comprising a broad-spectrum G-protein coupled receptor (GPCR) binding agent attached to a functional element, wherein the broad-spectrum GPCR binding agent is according to claim 8.

9. claims: 9, 14-19, 27, 31-43(all partially)

A composition comprising a broad-spectrum G-protein coupled receptor (GPCR) binding agent attached to a functional element, wherein the broad-spectrum GPCR binding agent is according to claim 9.

10. claims: 10, 14-19, 28-43(all partially)

A composition comprising a broad-spectrum G-protein coupled receptor (GPCR) binding agent attached to a functional element, wherein the broad-spectrum GPCR binding agent is according to claim 10.

11. claims: 11, 14-19, 27-43(all partially)

A composition comprising a broad-spectrum G-protein coupled receptor (GPCR) binding agent attached to a functional element, wherein the broad-spectrum GPCR binding agent is according to claim 11.

12. claims: 12, 13(completely); 1-11, 16-43(partially)

A composition comprising a broad-spectrum G-protein coupled receptor (GPCR) binding agent attached to a solid surface, wherein the broad-spectrum GPCR binding agent is according to claims 1-11.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No PCT/US2019/064500

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2009040555	A2	02-04-2009	CN 101896604 A
			EP 2238248 A2
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