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- (71) Applicants (for all designated States except US):
MERCK & CO., INC. [US/US]; 126 East Lincoln Avenue, Rahway, New Jersey 07065-0907 (US). ISTITUTO DI RICERCHE DI BIOLOGIA MOLECOLARE P. ANGELETTI S.P.A. [IT/IT]; Via Pontina Km. 30, 600, I-00040 Pomezia (IT).

INGALLINELLA, Paolo [IT/IT]; Via Pontina KM. 30, 600, I-00040 Pomezia (IT). PEIER, Andrea, M. [US/US]; 126 East Lincoln Avenue, Rahway, New Jersey 07065-0907 (US).

(74) Common Representative: MERCK & CO., INC.; 126 East Lincoln Avenue, Rahway, New Jersey 07065-0907 (US).

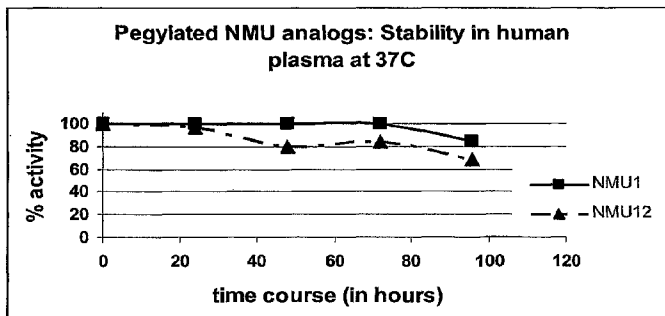
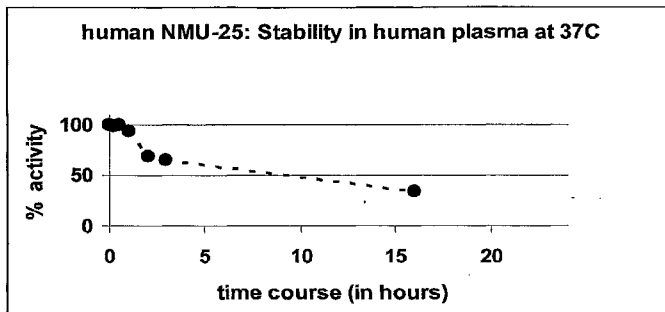
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- (72) Inventors; and
- (75) Inventors/Applicants (for US only): MARSH, Donald, J. [US/US]; 126 East Lincoln Avenue, Rahway, New Jersey 07065-0907 (US). PESSI, Antonello [IT/IT]; Via Pontina KM. 30, 600, I-00040 Pomezia (IT). BEDNAREK, Maria, A. [US/US]; 126 East Lincoln Avenue, Rahway, New Jersey 07065-0907 (US). BIANCHI, Elisabetta [IT/IT]; Via Pontina KM. 30, 600, I-00040 Pomezia (IT).

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[Continued on next page]

(54) Title: NEUROMEDIN U RECEPTOR AGONISTS AND USES THEREOF



(57) Abstract: Neuromedin U receptor agonists for use in the treatment of metabolic disorders such as obesity and diabetes are disclosed.

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INTERNATIONAL SEARCH REPORT

International application No
PCT/US2007/006635A. CLASSIFICATION OF SUBJECT MATTER
INV. C07K14/435 C07K14/47

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)
C07K

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, WPI Data, EMBASE, Sequence Search, CHEM ABS Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	BRIGHTON P J ET AL: "Neuromedin U and Its Receptors: Structure, Function, and Physiological Roles" PHARMACOLOGICAL REVIEWS, WILLIAMS AND WILKINS INC., BALTIMORE, MD., US, vol. 56, no. 2, 2004, pages 231-248, XP003002000 ISSN: 0031-6997 page 242, right-hand column, paragraph 3 - page 246, left-hand column, paragraph 3; figure 1	1,8-10, 20, 22-24, 32,35
X	EP 1 237 001 A1 (TAKEDA CHEMICAL INDUSTRIES LTD [JP] TAKEDA PHARMACEUTICAL COMPANY [JP]) 4 September 2002 (2002-09-04) claims 1-13; sequence 11	1,8-10, 20, 22-24, 32,35

 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

"E" earlier document 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

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Name and mailing address of the ISA/
European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Seroz, Thierry

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2007/006635

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	<p>CLARK R ET AL: "Long-acting growth hormones produced by conjugation with polyethylene glycol" JOURNAL OF BIOLOGICAL CHEMISTRY, AMERICAN SOCIETY OF BIOCHEMICAL BIOLOGISTS, BIRMINGHAM,, US, vol. 271, no. 36, 6 September 1996 (1996-09-06), pages 21969-21977, XP002216386 ISSN: 0021-9258 page 21969, right-hand column, paragraph 4 - page 21970, left-hand column, paragraph 3 page 21976, left-hand column, paragraph 3 - page 21977, right-hand column, paragraph 2</p>	1-11, 16-35
Y	<p>----- DOGGRELL SHEILA A: "Neuromedin U. A new target in obesity" EXPERT OPINION ON THERAPEUTIC TARGETS, ASHLEY PUBLICATIONS, LONDON, GB, vol. 9, no. 4, August 2005 (2005-08), pages 875-877, XP009088829 ISSN: 1472-8222 the whole document</p>	1-11, 16-35
Y	<p>----- MALENDOWICZ L K ET AL: "Effects of neuromedin U (NMU)-8 on the rat hypothalamo-pituitary-adrenal axis: Evidence of a direct effect of NMU-8 on the adrenal gland" NEUROPEPTIDES, vol. 26, no. 1, 1994, pages 47-53, XP002455631 ISSN: 0143-4179 the whole document</p>	1-11, 16-35
Y	<p>----- HANADA REIKO ET AL: "Neuromedin U has a novel anorexigenic effect independent of the leptin signaling pathway" NATURE MEDICINE, NATURE PUBLISHING GROUP, NEW YORK, NY, US, vol. 10, no. 10, October 2004 (2004-10), pages 1067-1073, XP009088830 ISSN: 1078-8956 page 1071, left-hand column, paragraph 1 - page 1072, left-hand column, last paragraph</p> <p>----- -/--</p>	1-11, 16-35

INTERNATIONAL SEARCH REPORT

International application No

PCT/US2007/006635

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>NANDHA K A ET AL: "NEUROMEDIN U - AN OVERVIEW" BIOMEDICAL RESEARCH, BIOMEDICAL RESEARCH PRESS INC., SAPPORO, JP, vol. 14, no. SUPPL 3, 1993, pages 71-76, XP001052975 ISSN: 0388-6107 the whole document</p> <p>-----</p>	1-11, 16-35
A	<p>PARDRIDGE W M ET AL: "COMBINED USE OF CARBOXYL-DIRECTED PROTEIN PEGYLATION AND VECTOR-MEDIATED BLOOD-BRAIN BARRIER DRUG DELIVERY SYSTEM OPTIMIZES BRAIN UPTAKE OF BRAIN-DERIVED NEUROTROPHIC FACTOR FOLLOWING INTRAVENOUS ADMINISTRATION" PHARMACEUTICAL RESEARCH, NEW YORK, NY, US, vol. 15, no. 4, April 1998 (1998-04), pages 576-582, XP001107216 ISSN: 0724-8741</p> <p>-----</p>	
A	<p>DEGUCHI Y ET AL: "RETENTION OF BIOLOGIC ACTIVITY OF HUMAN EPIDERMAL GROWTH FACTOR FOLLOWING CONJUGATION TO A BLOOD-BRAIN BARRIER DRUG DELIVERY VECTOR VIA AN EXTENDED POLY(ETHYLENE GLYCOL) LINKER" BIOCONJUGATE CHEMISTRY, ACS, WASHINGTON, DC, US, vol. 10, no. 1, January 1990 (1990-01), pages 32-37, XP001164141 ISSN: 1043-1802</p> <p>-----</p>	
A	<p>TAMAI IKUMI ET AL: "Structure-internalization relationship for adsorptive-mediated endocytosis of basic peptides at the blood-brain barrier" JOURNAL OF PHARMACOLOGY AND EXPERIMENTAL THERAPEUTICS, vol. 280, no. 1, 1997, pages 410-415, XP002455632 ISSN: 0022-3565</p> <p>-----</p>	

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2007/006635

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:

Although claims 19-33 are directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.
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 allsearchable 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.:
1-9 (all partially), 10-11 (all completely), 16-23 (all partially)
24 (completely), 25-30 (all partially), 31 (completely)
32-35 (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: 1-9 (all partially), 10-11 (all completely), 16-23 (all partially), 24 (completely), 25-30 (all partially), 31 (completely), 32-35 (all partially)

Peptide having an amino acid sequence as set forth in SEQ ID No 2, derivatives and uses thereof.

2. claims: 1-9 (all partially), 16-23 (all partially), 25-30 (all partially), 32-35 (all partially)

Peptide having an amino acid sequence as set forth in SEQ ID No 3, derivatives and uses thereof.

3. claims: 1-9 (all partially), 16-23 (all partially), 25-30 (all partially), 32-35 (all partially)

Peptide having an amino acid sequence as set forth in SEQ ID No 4, derivatives and uses thereof.

4. claims: 1-9 (all partially), 16-23 (all partially), 25-30 (all partially), 32-35 (all partially)

Peptide having an amino acid sequence as set forth in SEQ ID No 5, derivatives and uses thereof.

5. claims: 1-9 (all partially), 16-23 (all partially), 25-30 (all partially), 32-35 (all partially)

Peptide having an amino acid sequence as set forth in SEQ ID No 6, derivatives and uses thereof.

6. claims: 1-7 (all partially), 12-13 (all partially), 16-21 (all partially), 25-30 (all partially), 32-35 (all partially)

Peptide having an amino acid sequence as set forth in SEQ ID No 14, derivatives and uses thereof.

7. claims: 1-7 (all partially), 12-13 (all partially), 16-21 (all partially), 25-30 (all partially), 32-35 (all partially)

Peptide having an amino acid sequence as set forth in SEQ ID No 15, derivatives and uses thereof.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

8. claims: 1-7 (all partially), 12-13 (all partially), 16-21 (all partially), 25-30 (all partially), 32-35 (all partially)

Peptide having an amino acid sequence as set forth in SEQ ID No 22, derivatives and uses thereof.

9. claims: 1-7 (all partially), 12-13 (all partially), 16-21 (all partially), 25-30 (all partially), 32-35 (all partially)

Peptide having an amino acid sequence as set forth in SEQ ID No 23, derivatives and uses thereof.

10. claims: 1-7 (all partially), 12-13 (all partially), 16-21 (all partially), 25-30 (all partially), 32-35 (all partially)

Peptide having an amino acid sequence as set forth in SEQ ID No 24, derivatives and uses thereof.

11. claims: 1-7 (all partially), 12-13 (all partially), 16-23 (all partially), 25-30 (all partially), 32-35 (all partially)

Peptide having an amino acid sequence as set forth in SEQ ID No 25, derivatives and uses thereof.

- 12. claims: 1-8 (all partially), 14-15 (all partially), 16-21 (all partially), 25-30 (all partially), 32-35 (all partially)

Peptide having an amino acid sequence as set forth in SEQ ID No 9, derivatives and uses thereof.

13. claims: 1-8 (all partially), 14-15 (all partially), 16-21 (all partially), 25-30 (all partially), 32-35 (all partially)

Peptide having an amino acid sequence as set forth in SEQ ID No 10, derivatives and uses thereof.

14. claims: 1-8 (all partially), 14-15 (all partially), 16-21 (all partially), 25-30 (all partially), 32-35 (all partially)

Peptide having an amino acid sequence as set forth in SEQ ID No 11, derivatives and uses thereof.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

15. claims: 1-8 (all partially), 14-15 (all partially), 16-21 (all partially), 25-30 (all partially), 32-35 (all partially)

Peptide having an amino acid sequence as set forth in SEQ ID No 12, derivatives and uses thereof.

16. claims: 1-8 (all partially), 14-15 (all partially), 16-21 (all partially), 25-30 (all partially), 32-35 (all partially)

Peptide having an amino acid sequence as set forth in SEQ ID No 13, derivatives and uses thereof.

17. claims: 1-8 (all partially), 14-15 (all partially), 16-21 (all partially), 25-30 (all partially), 32-35 (all partially)

Peptide having an amino acid sequence as set forth in SEQ ID No 16, derivatives and uses thereof.

18. claims: 1-8 (all partially), 14-15 (all partially), 16-21 (all partially), 25-30 (all partially), 32-35 (all partially)

Peptide having an amino acid sequence as set forth in SEQ ID No 17, derivatives and uses thereof.

19. claims: 1-8 (all partially), 14-15 (all partially), 16-21 (all partially), 25-30 (all partially), 32-35 (all partially)

Peptide having an amino acid sequence as set forth in SEQ ID No 18, derivatives and uses thereof.

20. claims: 1-8 (all partially), 14-15 (all partially), 16-21 (all partially), 25-30 (all partially), 32-35 (all partially)

Peptide having an amino acid sequence as set forth in SEQ ID No 19, derivatives and uses thereof.

21. claims: 1-8 (all partially), 14-15 (all partially), 16-21 (all partially), 25-30 (all partially), 32-35 (all partially)

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Peptide having an amino acid sequence as set forth in SEQ ID No 20, derivatives and uses thereof.

22. claims: 1-8 (all partially), 14-15 (all partially), 16-21 (all partially), 25-30 (all partially), 32-35 (all partially)

Peptide having an amino acid sequence as set forth in SEQ ID No 21, derivatives and uses thereof.

Inventions 23 to n: claims 1-8,12,14,16-22,25-30,32-35 (all partially)

Each single peptide (as well as derivatives and uses thereof) having an amino acid sequence derived from SEQ ID No 27 but different from those of inventions 1-22 is a separate invention

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2007/006635

Patent document cited in search report		Publication date		Patent family member(s)		Publication date
EP 1237001	A1	04-09-2002	AU	1553101 A		12-06-2001
			CA	2392774 A1		07-06-2001
			WO	0140797 A1		07-06-2001
