Title: POLYETHYLENE GLYCOL LINKED MC4R OR MC3R AGONIST PEPTIDES

Abstract: The invention provides MC4R or MC3R agonist peptides coupled to at least one polyethylene glycol molecule or derivative thereof, resulting in a biologically active peptide with an extended half-life and a slower clearance when compared to that of unPEGylated peptide. These PEGylated MC4R or MC3R agonist peptides and compositions are useful in treating obesity, diabetes, sexual dysfunction, cachexia, sarcopenia, dyslipidemia, to increase weight loss, or to increase muscle mass.
### INTERNATIONAL SEARCH REPORT

**International application No:**

PCT/US2005/045867

### A. CLASSIFICATION OF SUBJECT MATTER

<table>
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<th>INV.</th>
<th>C07K14/68</th>
<th>C07K7/06</th>
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| ADD. | A61K38/08 | A61P5/48 |

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, CHEM ABS Data, WPI Data

### C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category*</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
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</table>
| Y         | WO 00/33658 A (ELEANOR ROOSEVELT INST [US]; OKLAHOMA MED RES FOUND [US]; BRENNAN MILE) 15 June 2000 (2000-06-15)
examples 2-4 | 1-23 |
| Y         | WO 00/58361 A (PROCTER & GAMBLE [US])
5 October 2000 (2000-10-05)
pages 14, line 23 - page 15, line 9 | 1-23 |
pages 9
page 11, line 3 - page 12, line 8
page 18, line 9 - line 11 | 1-23 |

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

**X** 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 objected to the publication date of another citation or other special reason (as specified)
  * "C" document relating 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

**Date of the actual completion of the international search:**

16 November 2006

**Date of mailing of the international search report:**

27/12/2006

**Name and mailing address of the ISA/Authorized officer:**

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Fuhr, Christian

Form PCT/ISA210 (second sheet) (April 2003)
<table>
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**INTERNATIONAL SEARCH REPORT**

**Box 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. **X** Claims Nos.:  
   because they relate to subject matter not required to be searched by this Authority, namely:  
   Although claims 8-15 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 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:

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.:  

**Remark on Protest**  

☐ The additional search fees were accompanied by the applicant's protest.  

☐ No protest accompanied the payment of additional search fees.
<table>
<thead>
<tr>
<th>Patent document cited in search report</th>
<th>Publication date</th>
<th>Patent family member(s)</th>
<th>Publication date</th>
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