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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: MIXTURES OF CALCITONIN DRUG-OLIGOMER CONJUGATES AND METHODS OF USE IN PAIN TREATMENT

(57) Abstract: A mixture of conjugates in which each conjugate in the mixture comprises a calcitonin drug coupled to an oligomer that includes a polyalkylene glycol moiety is disclosed. The mixture may lower serum calcium levels in a subject by 10, 15 or even 20 percent or more. Moreover, the mixture may be more effective at surviving an *in vitro* model of intestinal digestion than non-conjugated calcitonin. Furthermore, the mixture may exhibit a higher bioavailability than non-conjugated calcitonin. The compositions of this invention are useful in the treatment of various bone disorders and pain.

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US04/16784

A. CLASSIFICATION OF SUBJECT MATTER
IPC(7) : C07K 1/113, 14/535, 7/00: A61K 38/00
US CL : 530/, 307, 351, 313, 345; 514/2, 3, 8, 12, 13
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. : 530/, 307, 351, 313, 345; 514/2, 3, 8, 12, 13

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)
Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2003/0060606 A1 (EKWURIBE et al.) 27 March 2003 (27.03.2003), abstract, claims 1-172 and [0011]-[0052].	1-13
Y	US 6,506,730 B1 (LEE et al.) 14 January 2003 (14.01.2003), abstract, columns 5-11 and claims 1-18.	1-2
Y	US 5,773,581 A (CAMBLE et al.) 30 June 1998 (30.06.1998), columns 3-5 and 11-14, Examples 27-28.	1-2
Y	LEE et al. Isolation, Characterization, and Stability of Positional Isomers of Mono-PEGylated Salmon Calcitonins. Pharmaceutical Research, 1999, Vol. 15, No. 6, pages 813-818. Entire document.	1-2
Y	LEE et al. Preparation and Characterization of Mono-PEGylated Epidermal Growth Factor: Evaulation of in Vitro Biologic Activity. Pharmaceutical Research. June 2002, Vol. 19, No. 6, pages 845-851. Entire document.	1-2
Y	LUCKE et al. Biodegradable poly(D,L-lactic acid)-poly(ethylene glycol)-monomethyl ether diblock copolymers: structures and surface properties relevant to their use as biomaterials. Biomaterials. December 200, Vol. 21, pages 2361-2370. Entire document.	1-2 and 13

☒ 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

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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.
Y	LEE et al. Polymeric nanoparticle composed of fatty acids and poly(ethylene glycol) as a drug carrier. International Journal of Pharmaceutics. January 2003, Vol. 251, pages 23-32. Entire document.	4-12
Y,P	US 2003/0153488 A1 (MAY et al.) 14 August 2003 (14.08.2003), paragraph [0054].	1-13

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US04/16784

Continuation of B. FIELDS SEARCHED Item 3:
Databases: Medline, US Pre-Grant publication Full-Text database, US Patent Full-Text database, EPO Abstracts database, JPO Abstracts database, Derwent World Patent Index, and, issued patents AA, pending patents AA and Genebank (for sequence search).
Search terms: calcithonin, conjugate, polyethylene glycol (PEG), polymer, lysine and polyalkylen glycol.