(19) World Intellectual Property Organization

International Bureau





(43) International Publication Date 2 October 2003 (02.10.2003)

PCT

(10) International Publication Number WO 2003/079972 A3

(51) International Patent Classification⁷: A61K 38/02, 38/03, 38/04, 38/16

(21) International Application Number:

PCT/US2003/005524

(22) International Filing Date: 24 February 2003 (24.02.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

60/358,381 22 February 2002 (22.02.2002) US 60/366,258 22 March 2002 (22.03.2002) US 10/156,527 29 May 2002 (29.05.2002) US

(71) Applicant (for all designated States except US): NEW RIVER PARMACEUTICALS INC. [US/US]; The governor Tyler, 1902 Downey Street, Radford, VA 24141 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): PICCARIELLO, Thomas [US/US]; 203 Murphy Street, Blacksburg, VA 24060-2534 (US). KIRK, Randal, J. [US/US]; P.O. Box 3426, Radford, VA 24143-3526 (US). OLON, Lawrence, P. [US/US]; 306 Galway Road, Bristol, TN 37620-3034 (US).

(74) Agents: PEREZ, Jeffrey, T. et al.; Hunton & Williams, LLP, 1900 K. Street, N.W., Suite 1200, WA, DC 20006-1109 (US).

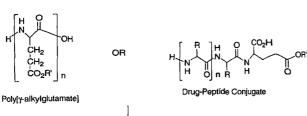
(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

[Continued on next page]

(54) Title: ACTIVE AGENT DELIVERY SYSTEMS AND METHODS FOR PROTECTING AND ADMINISTERING ACTIVE AGENTS

Mechanism of Alcohol Drug from Glutamic Acid Dimer Scheme

5



Intestinal Peptidases

Pyroglutamic Acid

(57) Abstract: The present invention relates to active agent delivery systems and more specifically to compositions that comprise amino acids, as single amino acids or peptides, covalently attached to active agents (Figure 1) and methods for administering conjugated active agent compositions.



WO 2003/079972 A3



(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(88) Date of publication of the international search report: 18 March 2004

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.

Published:

with international search report

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/05524

A. CLASSIFICATION OF SUBJECT MATTER						
IPC(7) : A61K 38/02, 38/03, 38/04, 38/16 US CL : 514/2						
According to International Patent Classification (IPC) or to both national classification and IPC						
B. FIEL	DS SEARCHED			, <u> </u>		
Minimum documentation searched (classification system followed by classification symbols) U.S.: 426/426, 457, 460, 468, 486, 499, 648; 514/2; 530/300, 333, 338, 342, 345, 405, 409						
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						
	UMENTS CONSIDERED TO BE RELEVANT					
Category *	Citation of document, with indication, where a			Relevant to claim No.		
X	US 5,534,496 A (LEE ET AL) 09 July 1996 (09/07/96), see entire document, especially the Abstract, page 2, line 55 - page 3, line 35, page 4, lines 17-25, page 8, lines 29-39, page 8, line 65 - page 9, line 15, claims 1-8.			1, 3, 5, 7, 8, 10, 18- 20, 23, 26-38, 40-42, 44-46, 48-51, 55, 56		
X	US 5,910,569 A (LATHAM ET AL) 08 June 1999 (08/06/99), see entire document, especially column 1, lines 26-50, column 2, lines 51-52, column 4, lines 38-39, column 8, lines 62-64.			1-3, 5, 7-11, 13, 18- 20, 22, 26, 31-51, 55, 56		
X	US 5,891,459 A (COOKE ET AL) 06 April 1999 (06/04/99), see entire document,			1-13, 18-21, 23, 26,		
v	especially column 7, line 54 - column 8, line 4,			31-51, 55, 56		
Х	US 6,030,941 A (SUMMERTON ET AL) 29 February 2000 (29/02/00), see entire document, especially the Abstract, column 2, line 58 - column 3, line 28, column 8, lines 12-30, column 15, line 61 - column 16, line 39, column 21, lines 42-65, column 24, lines 34-67, column 25, lines 13-18, column 26, lines 30-41.			1, 7-11, 13, 18-20, 23- 42, 45-51, 55, 56		
				•		
Further	documents are listed in the continuation of Box C.	S	ee patent family annex.			
* S ₁			later document published after the interdate and not in conflict with the applica			
	defining the general state of the art which is not considered to be lar relevance		principle or theory underlying the inver			
"E" earlier app	plication or patent published on or after the international filing date	(document of particular relevance; the c considered novel or cannot be consider when the document is taken alone			
"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)		"Y" document of particular relevance; the considered to involve an inventive step combined with one or more other such		when the document is		
"O" document	referring to an oral disclosure, use, exhibition or other means		being obvious to a person skilled in the			
	published prior to the international filing date but later than the are claimed	"&" document member of the same patent family				
Date of the actual completion of the international search		Date of ma	iling of the international searc 1.9 DEC 200.	report		
03 May 2003 (03.05.2003)		Authorized	officer			
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US		Additionized officer Only 180 Assist				
Commissioner for Patents		Date of mailing of the international search report 1.9 DEC 2003 Authorized officer Jeffrey E. Russel Telephone No. (703) 308-0196				
P.O. Box 1450 Alexandria, Virginia 22313-1450		Telephone	No. (703) 308-0196	101		
Facsimile No. (703)305-3230		•		0'		

Form PCT/ISA/210 (second sheet) (July 1998)

PCT/US03/05524

INTERNATIONAL SEARCH REPORT

C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

C. (Contin	nuation) DOCUMENTS CONSIDERED TO BE RELEVANT	
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Х	WO 98/04277 A1 (UNIVERSITY OF PITTSBURGH OF THE COMMONWEALTH SYSTEM OF HIGHER EDUCATION) 05 February 1998 (05/02/98), see entire document, especially page 3, line 24 - page 4, line 2, page 7, lines 19-21, page 7, line 29 - page 8, line 7, page 12, lines 17-19, page 15, lines 8-11, page 16, lines 7-10.	1, 3-10, 13, 18-26, 31-38, 40-42, 44-46, 48-51, 55, 56
Х	US 4,356,166 A (PETERSON ET AL) 26 October 1982 (26/10/82), see entire document, especially the Abstract, column 3, lines 56-58, column 4, lines 15-24, column 7, line 57 - column 8, line 23.	1, 3-13, 18-25, 32-42, 44-51, 55, 56
x	US 5,183,883 A (TANAKA ET AL) 02 February 1993 (02/02/93), see entire document, especially the abstract.	53
X Y	US 5,948,750 A (GARSKY ET AL) 07 September 1999 (07/09/99), see entire document, especially the Abstract, column 3, lines 24-29, column 4, line 10 - column 5, line 25, column 11, lines 10-63, column 17, lines 4-25, column 24, lines 9-33, column 27, lines 31-34, column 39, line 65 - column 41, line 42.	1, 3-10, 14, 15, 18- 20, 23-42, 44-52, 54- 56
X Y	US 6,309,633 B1 (EKWURIBE ET AL) 30 October 2001 (30/10/01), see entire document, especially column 10, lines 11-33, column 21, lines 26-37.	1, 14, 15, 52, 54
Y	US 5,529,915 A (PHILLIPS ET AL) 25 June 1996, (25/06/96), see entire document, especially the Abstract, column 5, lines 4-16.	16, 17

	PCT/US03/05524	PCT/US03/05524	
INTERNATIONAL SEARCH REPORT			
Continuation of B. FIELDS SEARCHED Item 3:			
EAST, DIALOG search terms: conjugate, peg, cyclodextrin, fatty acid			

Form PCT/ISA/210 (second sheet) (July 1998)