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(57) Abstract: The following class of molecule is disclosed: a dimer containing a first neublastin polypeptide and a second neublastin polypeptide, wherein: (a) at least one of the polypeptides is glycosylated; (b) at least one of the polypeptides is conjugated at its N-terminus to a water-soluble synthetic polymer; and (c) neither of the polypeptides is conjugated to a water-soluble synthetic polymer at a position other than the N-terminus. Such dimers possess the biological activity of wild-type neublastin while displaying enhanced serum half-life and enhanced potency relative to wild-type neublastin.



INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER				
IPC(8) : A61K 38/00				
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B. FIELDS SEARCHED				
Minimum documentation searched (classification system followed by classification symbols)				
U.S.:				
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)				
Medline, Caplus, Embase, Biosis				
C. DOCUMENTS CONSIDERED TO BE RELEVANT				
Category *	Citation of document, with indication, where a		Relevant to claim No.	
X	WO 02/051433 A2 (Shelton et al) 4 July 2002 (04.0	1-6, 12-14, 23, 24		
	NO:1 Page 62, lines 1-14			
Y			7-11, 17-22	
			1-13, 23	
Y	Y US 6284540 (Milbrandt et al.) 4 September 2001 (04.09.2001), columns 14-15, columns 25,			
VE	lines 45-60; figures 10, 11; SEQ ID NO: 3 Y, E US 6593133 B1 (Johansen et al) 15 Jul 2003 (15.07.2003); SEQ ID NOS: 2, 4-7, 9,12;		1,2	
column 12, lines 29-31				
Y	Y Baloh, et al., 1998, Artemin, a novel member of the GDNF ligand family, suports		23	
_	peripheral and central neurons and signals through the GFR.alpha.3-RET receptor complex.			
	Neuron 21: 1291-1302, Dec.			
1				
Further	documents are listed in the continuation of Box C.	See patent family annex.		
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