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60/153,121 8 September 1999 (08.09.1999) US
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(54) Title: BMP-9 COMPOSITIONS AND METHODS FOR INDUCING DIFFERENTIATION OF CHOLINERGIC NEURONS

(57) Abstract: BMP-9 compositions and methods for their use are disclosed. The BMP-9 compositions act as a differentiating factor for the cholinergic phenotype of CNS neurons. The compositions may be used in the treatment of diseases and disorders caused by degeneration and/or malfunctioning of cholinergic neurons.

# INTERNATIONAL SEARCH REPORT

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<b>A. CLASSIFICATION OF SUBJECT MATTER</b> IPC 7 A61K38/18 A61K35/30 A61P25/28 C12N5/06				
According to International Patent Classification (IPC) or to both national classification and IPC				
<b>B. FIELDS SEARCHED</b> Minimum documentation searched (classification system followed by classification symbols) IPC 7 A61K C12N				
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) BIOSIS, EPO-Internal, WPI Data, PAJ				
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>				
Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.		
X	WO 99 01159 A (UNIV UTAH RES FOUND) 14 January 1999 (1999-01-14) page 9, line 18 -page 11, line 27 page 22, line 1 -page 23, line 8 page 48, line 14 -page 49, line 29 page 53, line 32 -page 54, line 24 claims 1-3,7-12,16-21,25-28,32-43,46-59 --- -/--	15, 16		
<input checked="" type="checkbox"/> Further documents are listed in the continuation of box C. <span style="margin-left: 200px;"><input checked="" type="checkbox"/> Patent family members are listed in annex.</span>				
° Special categories of cited documents :				
<table style="width: 100%; border: none;"> <tr> <td style="width: 50%; border: none; vertical-align: top;">                     *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                 </td> <td style="width: 50%; border: none; vertical-align: top;">                     *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.                      *&amp;* document member of the same patent family                 </td> </tr> </table>			*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
*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  <p style="text-align: center;">28 February 2001</p>	Date of mailing of the international search report  <p style="text-align: center;">13/03/2001</p>			
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  <p style="text-align: center;">Stein, A</p>			

**INTERNATIONAL SEARCH REPORT**

Int. l. Application No  
PCT/US 00/24555

**C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT**

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A	<p>KALYANI ANJALI ET AL: "Spinal cord neuronal precursors generate multiple neuronal phenotypes in culture." JOURNAL OF NEUROSCIENCE, vol. 18, no. 19, 1 October 1998 (1998-10-01), pages 7856-7868, XP002161574 ISSN: 0270-6474 abstract page 7863, right-hand column, line 11 - line 34 page 7865; figure 6 page 7866, right-hand column, line 34 -page 7867, left-hand column, line 3 page 7867, left-hand column, line 32 - line 35</p>	15,16
A	<p>WO 99 37320 A (CREATIVE BIOMOLECULES INC) 29 July 1999 (1999-07-29)</p> <p>the whole document</p>	1,3,4, 8-10, 13-15
A	<p>US 5 756 457 A (TORIUMI DEAN M ET AL) 26 May 1998 (1998-05-26)</p> <p>the whole document</p>	15,16
A	<p>LOPEZ-COVIELLA I ET AL: "Bone morphogenetic protein-9 modulates acetylcholine content and choline acetyltransferase and vesicular acetylcholine transporter gene expression in the SN56 murine septal cell line." JOURNAL OF PHYSIOLOGY PARIS, vol. 92, no. 5-6, October 1998 (1998-10), pages 460-461, XP000982562 Xth International Symposium on Cholinergic Mechanisms, Part III; Paris, France; 1998 ISSN: 0928-4257</p> <p>the whole document</p>	1-16
A	<p>WO 95 33830 A (CELESTE ANTHONY J ; GENETICS INST (US); ROSEN VICKI A (US); THIES S) 14 December 1995 (1995-12-14)</p> <p>the whole document, especially page 8 lines 22-25</p>	1-14
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT		
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P, X	<p>LOPEZ-COVIELLA I ET AL: "Bone morphogenetic proteins (BMPs) as cholinergic differentiating factors for basal forebrain neurons." SOCIETY FOR NEUROSCIENCE ABSTRACTS, vol. 25, no. 1-2, 1999, page 517 XP000982558 29th Annual Meeting of the Society for Neuroscience, Part 1; Miami Beach, Florida, USA; October 23-28, 1999 ISSN: 0190-5295 the whole document -----</p>	1-16

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