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(54) Title: METHODS AND COMPOSITIONS FOR MODULATING THE DEVELOPMENT OF STEM CELLS

(57) Abstract: The application provides, among other things, methods for increasing production of insulin in cells by contacting the cells with a BMP family member and/or an activator of a BMP pathway. The application also provides methods for increasing the production of beta cell precursor cells by contacting suitable cells with an inhibitor of a BMP pathway.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/04639

<p>A. CLASSIFICATION OF SUBJECT MATTER IPC(7) : C12N 5/00, A61K 38/00 US CL : 435/325, 375; 514/2 According to International Patent Classification (IPC) or to both national classification and IPC</p>																
<p>B. FIELDS SEARCHED</p> <p>Minimum documentation searched (classification system followed by classification symbols) U.S. : 435/325, 375; 514/2</p> <p>Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched none</p> <p>Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) Please See Continuation Sheet</p>																
<p>C. DOCUMENTS CONSIDERED TO BE RELEVANT</p> <table border="1"> <thead> <tr> <th>Category *</th> <th>Citation of document, with indication, where appropriate, of the relevant passages</th> <th>Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>HORI Y. et al. Differentiation of insulin-producing cells from human neural progenitor cells. PLoS Med. April 2005, Vol 2, No.4. pages 0347-0356. see entire document.</td> <td>1-46</td> </tr> <tr> <td>A</td> <td>KU H.T. et al. Committing embryonic stem cells to early endocrine pancreas in vitro. Stem Cells.2004, Vol 22. No.7, pages 1205-1217. see entire document.</td> <td>1-46</td> </tr> <tr> <td>A</td> <td>HORI Y. et al. Growth inhibitors promote differentiation of insulin-producing tissue from embryonic stem cells.Proc Natl Acad Sci. December 2002, Vol.99, No.25, pages 16105-16110. see entire document.</td> <td>1-46</td> </tr> <tr> <td>A</td> <td>TANG D.Q. et al. In vivo and in vitro characterization of insulin-producing cells obtained from murine bone marrow.Diabetes. July 2004, Vol.53, No.7, pages 1721-1732. see entire document.</td> <td>1-46</td> </tr> </tbody> </table>		Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	A	HORI Y. et al. Differentiation of insulin-producing cells from human neural progenitor cells. PLoS Med. April 2005, Vol 2, No.4. pages 0347-0356. see entire document.	1-46	A	KU H.T. et al. Committing embryonic stem cells to early endocrine pancreas in vitro. Stem Cells.2004, Vol 22. No.7, pages 1205-1217. see entire document.	1-46	A	HORI Y. et al. Growth inhibitors promote differentiation of insulin-producing tissue from embryonic stem cells.Proc Natl Acad Sci. December 2002, Vol.99, No.25, pages 16105-16110. see entire document.	1-46	A	TANG D.Q. et al. In vivo and in vitro characterization of insulin-producing cells obtained from murine bone marrow.Diabetes. July 2004, Vol.53, No.7, pages 1721-1732. see entire document.	1-46
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<p>Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230</p>	<p>Authorized officer <i>Marcia J. Watson</i> Sumesh Kaushal Ph.D. Telephone No. (571) 272-0547</p>															

INTERNATIONAL SEARCH REPORT

International application No.
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Continuation of B. FIELDS SEARCHED Item 3:

Database: medline, caplus, scisearch, mediconf, uspat, derwent, jpo, epo.

Search terms: insulin, beta cells, pancreatic stem cell, precursor, progenitor, diabetes mellitus, BMP, GDF8, GDF11, ActRIIA, ActRIIB, nkx6.1, nkx2.2, Smad2, Smad3, Smad4, noggin, chordin, follistatin.