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(54) Title: CARDIOMYOCYTE PRODUCTION

(57) Abstract: Methods and composition for the production of cardiomyocytes from differentiation of pluripotent stem cells are provided. For example, in certain aspects methods including differentiating pluripotent stem cells in a large volume of suspension culture in the presence of ROCK inhibitors are described. In further aspects, methods for differentiation of stem cells into cardiomyocytes that overcome variability between different stem cell clones and different batch of culture medium are provided.

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

A61K 35/12(2006.01)i, A61K 38/18(2006.01)i, C12N 5/0735(2010.01)i, A61P 9/04(2006.01)i, A61P 9/00(2006.01)i

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)

A61K 35/12; C12N 5/00; C12N 5/071; A61L 27/00; C12N 5/08; A61K 48/00

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Korean utility models and applications for utility models
Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) & Keywords: cardiomyocyte, pluripotent stem cell, ROCK inhibitor, myosin II inhibitor, aggregate formation, BMP, differentiation factor

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	Michael A. Laflamme et al., Cardiomyocytes derived from human embryonic stem cells in pro-survival factors enhance function of infarcted rat hearts. Nature biotechnology, 25(9): 1015 - 1024 (2007)	1-19
X	see pp. 1021 - 1022.	20
Y	Mark D. Ungrin et al., Reproducible, ultra high-throughput formation of multicellular organization from single cell suspension-derived human embryonic stem cell aggregates. PLoS one, 3(2): e1565 (2008)	1-19
A	see figs. 2 & 6.	20
A	US 2007/0134215 A1 (KEIICHI FUKUDA et al.) 14 June 2007 see abstract; claims 1 - 18.	1-20
A	EP 2 014 766 A1 (ASUBIO PHARMA CO., LTD.) 14 January 2009 see abstract; claims 1 - 16.	1-20
A	KR 10-2009-0090586 A (KOREA RESEARCH INSTITUTE OF BIOSCIENCE AND BIOTECHNOLOGY) 26 August 2009 see abstract; claims 1 - 9.	1-20

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

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"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	Date of mailing of the international search report
22 JUNE 2011 (22.06.2011)	**23 JUNE 2011 (23.06.2011)**

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

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