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12 July 2012

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(54) Title: METHOD FOR GENERATING INDUCED PLURIPOTENT STEM CELLS FROM KERATINOCYTES DERIVED FROM PLUCKED HAIR FOLLICLES

(57) Abstract: A method for generating induced pluripotent stem (iPS) cells from isolated hair follicles is disclosed. The method comprises: a. culturing isolated hair follicle keratinocytes on a layer of feeder cells, so as to generate colonies of hair follicle keratinocytes; b. detaching the colonies of hair follicle keratinocytes from the feeder cells so as to generate detached keratinocytes; c. infecting the detached keratinocytes with a virus comprising a nucleic acid molecule encoding at least one dedifferentiation factor so as to generated infected keratinocytes; and d. culturing the infected keratinocytes on a layer of feeder cells in a culture medium until iPS cells are formed, thereby generating iPS cells. Populations and uses of the iPS cells are also disclosed.

INTERNATIONAL SEARCH REPORT

International application No
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A. CLASSIFICATION OF SUBJECT MATTER
INV. C12N5/074 A61P43/00
ADD.

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)
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)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WENLIN LI ET AL: "Generation of Human Induced Pluripotent Stem Cells in the Absence of Exogenous Sox2", STEM CELLS, 1 January 2009 (2009-01-01), pages N/A-N/A, XP55019594, ISSN: 1066-5099, DOI: 10.1002/stem.240	26,27,30
Y	the whole document	1-25,28, 29,31
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[X] Further documents are listed in the continuation of Box C. [ ] See patent family annex.

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"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

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Date of the actual completion of the international search	Date of mailing of the international search report
1 March 2012	21/03/2012

Name and mailing address of the ISA/	Authorized officer
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INTERNATIONAL SEARCH REPORT

International application No
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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	MARIUS WERNIG ET AL: "A drug-inducible transgenic system for direct reprogramming of multiple somatic cell types", NATURE BIOTECHNOLOGY, NATURE PUBLISHING GROUP, NEW YORK, NY, US, vol. 26, no. 8, 1 August 2008 (2008-08-01) , pages 916-924, XP008148061, ISSN: 1087-0156, DOI: 10.1038/NBT1483 [retrieved on 2008-07-01] the whole document figures 1a, 5g table 1	26,27,30

X	TROND AASEN ET AL: "Efficient and rapid generation of induced pluripotent stem cells from human keratinocytes", NATURE BIOTECHNOLOGY, vol. 26, no. 11, 1 November 2008 (2008-11-01), pages 1276-1284, XP55019438, ISSN: 1087-0156, DOI: 10.1038/nbt.1503	26,27,30
Y	the whole document	1-25,28, 29,31

X	AASEN TROND ET AL: "Isolation and cultivation of human keratinocytes from skin or plucked hair for the generation of induced pluripotent stem cells", NATURE PROTOCOLS, NATURE PUBLISHING GROUP, GB, vol. 5, no. 2, 1 January 2010 (2010-01-01) , pages 371-382, XP009156425, ISSN: 1750-2799	26
Y	Box 1; page 374 Box 4; page 378 page 380; figure 5 page 382	1-25,31

X	YAMASHITA ET AL: "ES and iPS cell research for cardiovascular regeneration", EXPERIMENTAL CELL RESEARCH, ACADEMIC PRESS, US, vol. 316, no. 16, 10 April 2010 (2010-04-10), pages 2555-2559, XP027264818, ISSN: 0014-4827 [retrieved on 2010-04-10] the whole document page 2557, right-hand column - page 2558, left-hand column page 2558 - last paragraph	26-30