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(54) Title: NANOPARTICLES FOR PROTECTION OF CELLS FROM OXIDATIVE STRESS

(57) Abstract: The present invention concerns metal oxide semiconductor nanoparticles with free radical scavenging activity, compositions comprising such nanoparticles, methods for their use, and methods for their production. In one aspect, the invention concerns a method for enhancing the survival or viability of transplanted cells, comprising administering an effective amount of metal oxide semiconductor nanoparticles to a target anatomical site of a subject before, during, or after administration of transplant cells to the subject. Preferably, the metal oxide nanoparticle is a cerium oxide (ceria) nanoparticle.



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## INTERNATIONAL SEARCH REPORT

International application No.  
**PCT/US2007/085470****A. CLASSIFICATION OF SUBJECT MATTER***C12N 15/06(2006.01)i, C12M 3/00(2006.01)i, C12M 1/36(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)

IPC 8 C12N 15/06

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)

eKIPASS, NCBI PubMed database, Delphion Research Intellectual Property Network database, google scholar  
"free radical", "metal oxide", "nanoparticle", "cerium", "Erbium"**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	SCHUBERT D. et al. 'Cerium and yttrium oxide nanoparticles are neuroprotective' Biochemical and Biophysical Research Communications, February 2006, Vol. 342, pages 86-91. See the abstract, Result and discussion.	1-17
X	US 2005-285073 A1 (SINGH H. et al.) 29 December 2005 See the example 2.	13
X	WO 2006-054202 A1 (L'OREAL) 26 May 2006 See pages 4-7.	14-15
A	SCHMIDT H. et al. 'The Sol-Gel Process as a Basic Technology for Nanoparticle-Dispersed Inorganic-Organic Composite' Journal of Sol-Gel Science and Technology, 2000, Vol. 19, pages 39-51. See the whole document.	1-17
A	US 6,887,856 B1 (GREENBERGER J. et al.) 03 May 2005 See the abstract and column 4-6.	1-17
A	RAJALA M. et al. 'An Industrial Method for Nanoparticle Synthesis with a Wide Range of Compositions' Reviews on Advanced Material Science, 2003, Vol. 5, pages 493-497. See the whole document.	1-17

☐ Further documents are listed in the continuation of Box C.☒ See patent family annex.

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**INTERNATIONAL SEARCH REPORT**

Information on patent family members

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2006-054202 A1	26.05.2006	FR 2877837 B1 FR 2877837 A1	06.04.2007 19.05.2006
US 2005-285073 A1	29.12.2005	US 7332101 B1 US 2005-285073 AA WO 2006-088487 A2 WO 2006-088487 A3	19.02.2008 29.12.2005 24.08.2006 28.12.2006
US 6,887,856 B1	03.05.2005	US 6887856 BA	03.05.2005