Stem Cells International

Hindawi

Special Issue on

Fetal Stem Cells in Prenatal Therapy and Beyond

CALL FOR PAPERS

Stem cell-based therapy is emerging as a promising area of research to enhance treatment for a variety of diseases. Both embryonic and adult tissues are sources of stem cells with therapeutic potential but with significant limitations in the clinical practice such as ethical considerations, difficulty in obtaining, and tumorigenicity.

Stem cells can be isolated from fetal tissues, such as placenta, amniotic fluid, and umbilical cord at the time of delivery, or from samples that once used for genetic tests are usually discarded. Fetal stem cells possess an intermediate phenotype between embryonic and adult cells that makes them ideal candidates for regenerative medicine. Moreover, they are genetically more stable carrying fewer mutations than adult cells, being younger and less epigenetically modified. Furthermore, fetal stem cells represent a useful cell source to largely expanding in culture, thus overcoming the limited *ex vivo* expansion capacity of adult cells. Also, their multipotent differentiation ability, anti-inflammatory properties, and low immunogenicity make them ideal candidates for regenerative medicine.

The promises that fetal stem cells offer include regeneration of tissue for injuries for which natural repair mechanisms do not deliver functional recovery and for which current therapeutic strategies have minimal effectiveness.

More interestingly, in the last few years, the in utero fetal stem cell transplantation has been demonstrated as a treatment of congenital disorders that affect organ systems such as osteogenesis imperfecta.

Moreover, fetal cells represent an easily accessible source for deriving induced pluripotent stem cells. They hold several advantages over the adult sources especially regarding being less prone to aging dependent genetic and epigenetic modifications.

For all the reasons listed above, fetal stem cells represent an attractive cell source for regenerative medicine and repair of the human body in disease and aging.

In this special issue, we would like to invite researchers who investigate the application of fetal stem cell in regenerative medicine, to submit original research articles as well as pertinent reviews that summarize state-of-the-art and future applications of fetal stem cells.

Potential topics include but are not limited to the following:

- New methods of isolation, culture, and differentiation
- Development of clinical-grade protocols towards clinical application
- In utero therapies for congenital malformations
- Tissue engineering, cell transplantation, and gene therapy applications
- Anti-inflammatory and immune-modulatory properties
- Modeling human disease in a dish generating induced pluripotent stem cells
- Clinical trials ongoing

Authors can submit their manuscripts through the Manuscript Tracking System at http://mts.hindawi.com/submit/journals/sci/fscptb/.

Lead Guest Editor
Caterina Pipino, University "G. d'Annunzio" Chieti-Pescara, Chieti, Italy
c.pipino@unich.it

Guest Editors
Panicos Shangaris, University College London, London, UK
p.shangaris@ucl.ac.uk

Elisa Resca, TPM Science & Technology Park for Medicine, Mirandola, Italy
elisa.resca@tpm.bio

Sheng W. S. Shaw, Chang Gung University, Taoyuan, Taiwan
dr.shaw@me.com

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