

Title of the Abstract: Amniotic membrane mapping discloses novel promising features of amniotic membrane epithelial cells for regenerative medicine purposes

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Abstract:

The amniotic membrane (AM) is the innermost part of the placenta, in direct contact with the amniotic fluid. In recent years the interest toward placenta stem cells has been increasingly growing, due in part to the absence of any ethical issues concerning their isolation. At present, two main stem cells populations have been identified in AM: amniotic epithelial cells (AECs) and amniotic mesenchymal stromal cells (AMSCs). Although AM is an excellent source of cells for regenerative medicine, also due to its immune-modulatory properties and low immunogenicity**,** only a few papers have studied its sub-regions. Thus, our focus was to map the human AM under physiological conditions to identify possible differences in morpho-functional features and regenerative capacity of its components. Human term placentas were collected from healthy women after vaginal delivery or caesarean section at Fondazione Poliambulanza-Istituto Ospedaliero of Brescia, University Hospital of Cagliari and SS. Annunziata Hospital of Chieti. Samples of AM were isolated from four different regions according to their position relative to umbilical cord (central, intermediate, peripheral, reflected). By means of immunohistochemistry, morphometry, flow cytometry, electron microscopy, CFU assays, RT-PCR and AECs *in vitro* differentiation we demonstrated the existence of different morpho-functional features in the different regions of AM, highlighting that AECs are a heterogeneous cell population. This should be considered to increase efficiency of amniotic membrane application within a therapeutic context.

Biography:

Roberta Di Pietro got the degree in Medicine cum Laude in 1985 and the Specialization in Sports Medicine cum Laude in 1988, University of Chieti, Italy. She worked as a Visiting Scientist at the Biochemistry Department, AFRC, Cambridge, UK; at the Pathology Department, USUHS, Bethesda, USA, and at the Institute of Human Virology, University of Maryland, Baltimore, USA. She got the position of Full Professor of Histology and Embryology at the University of Chieti since 2005. She joined the Editorial Board of Current Pharmaceutical Design as an Executive Guest Editor and, recently, the Editorial Academy of the International Journal of Oncology as an Honorary Member. She was recognized as a Registered Referee for Archives of Ophthalmological Reviews and Reproductive Biology and Endocrinology. She is now author of 200 scientific publications plus international e-book chapters, editorials, Italian textbooks and 1 Italian patent.

Research Interests:

1. Morphological and functional aspects of cell ageing and apoptosis in different experimental systems (T lymphocytes, satellite stem cells)
2. Analysis of proliferation and differentiation mechanisms induced by physical (ionizing radiation, hypoxia, starvation) and chemical agents including cytokines (TNF, TRAIL), drugs (GnRH agonists and antagonists), natural extracts (Curcuma Longa) and differentiating compounds (hemin, DMSO, insulin)
3. Isolation and characterization of human amniotic fluid stem cells
4. Molecular, structural and ultrastructural analysis of bone regeneration induced by biomaterials and amniotic fluid stem cells
5. Mapping of the human placenta

References:

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Suggestions of colleagues/Professors/scholars to send invitation (if any)

Suggestions of Sessions to the conference (if any) Regenerative Medicine