

13<sup>th</sup> International Conference on

# Tissue Engineering & Regenerative Medicine

July 12-13, 2018 Paris, France

## The regulation of autophagy in embryonic stem cells

**Irina I Suvorova**

Russian Academy of Sciences, Russia

Embryonic stem cells (ESCs) possess the remarkable ability of continuous replication and have the capacity to generate differentiated cells comprising all three embryonic germ layers. Under favorable culture conditions ESCs could be successfully maintained in a proliferative and pluripotent state that creates the possibility of their therapeutic application in regenerative medicine. However, ESCs become heterogeneous after long-term passaging in vitro as evidenced by morphological changes, reduced self-renewal and spontaneous differentiation. Hence, the maintenance of genetically stable pluripotent stem cells after long-term in vitro culture is one of the most important tasks in the field of cell therapy. Autophagy, a major intracellular degradation pathway essential for cellular and energy homeostasis, functioning in the clearance of misfolded proteins and damaged organelles, is conserved from yeast to mammals. Over the last decade, autophagy has thus become an important biological process to study owing to its implications in various human physiological and pathological conditions, including development, immunity, cancer, neurodegeneration and longevity. It can be assumed that spontaneously arising differentiated ESCs in vitro as well as ESCs carrying mutations in vitro originate from the cells with deregulated autophagy. Therefore, in this project is predicted that autophagy would be crucial for the quality control mechanisms and maintenance of cellular homeostasis in ESCs.

### Biography

Irina I Suvorova is Senior Researcher at Laboratory of molecular mechanisms of cell differentiation of Institute of Cytology of the Russian Academy of Sciences. She has received her Bachelor's and Master's degrees from Saint-Petersburg State University in Molecular biology Science and her PhD from Institute of Cytology of the RAS under the supervision of Professor Valery A Pospelov. Her current research focuses on research of fundamental features of embryonic stem cells including the mechanisms of pluripotency maintenance in cells cultured in vivo. Her research is supported by the Russian Foundation for Basic Research (RFBR) and by the Russian Science Foundation (RSF). Recently, she has received a Presidential Scholarship as a support for her research in the field of autophagy research in embryonic stem cells.

irsuvorov@yandex.ru

**Notes:**