

## International Conference & Exhibition on Cell Science & Stem Cell Research

29 Nov - 1 Dec 2011 Philadelphia Airport Marriott, USA

## Thymic stem cells as a potential approach for immune system regeneration

## Valentin Shichkin

Open International University of Human Development Ukraine, Ukraine

Regenerative potential of pluripotent stromal cells (PSC) of bone marrow, cord blood and adipose tissue is the subject of intensive study, both in terms of experimental studies, and in terms of their clinical application in cell therapy and regenerative medicine. Thymus is a lymphoepithelial organ that also contains the PSC as a structural and functional microenvironment that plays a key role in the development of T cells that control various forms of immune response, protect from infections and are involved in the formation of antitumor resistance. The function of thymus gradually weakens with age, is inhibited by stress, physical and cytotoxic effects, including the medical treatment. Thymus partially or completely is removed in some surgical intervention that can cause frequent infections and the risk of tumors as a result of development the secondary immunodeficiency states. Although the ability of thymus to restore after damages is well-known cell sources and mechanisms of the regeneration still studied incompletely. This particularly applies both to the lymphoid and the non-lymphoid thymic components. Our data assumes that the thymus of adult animals and humans contains resident populations of self-renewing cells with the potential of stem cells. These cells may be considered as a source of the thymic regeneration and could be used for autologous transplantation for regenerative restoration of immune system functions at the immunodeficiency resulting from the surgical thymectomy. This idea may be basis for the development of new approaches for compensation of postsurgical immunodeficiency states and improving of the patient life quality.

## Biography

Dr. Shichkin has got his MS (1981) in Biology from Nizhny Novgorod State University (Russia), PhD (1986) and DSc (1991) in Immunology from Institute of Immunology (Moscow). He then improved his expertise in Immunology in the USA (1998-2003) at the National Cancer Institute – NIH, University of Cincinnati and John Hopkins University. He held academic research positions as a Senior Scientist, Principal Scientist and Laboratory Chief. He is now a professor of Immunology at the University "Ukraine" and Taras Shevchenko National University in Kyiv (Ukraine). He is author more 80 publications in fields of immunobiology, hybridoma technology and cancer immunology.