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Abstract

Reconstruction of damaged rat cornea by transplantation of mesenchymal stem cells

To examine whether transplantation of human mesenchymal stem cells (MSCs) could reconstruct the corneal damage, we isolated MSCs from healthy donors. After growth and expansion on amniotic membrane, cells were transplanted into rat chemical burned corneas. Reconstruction of the damaged cornea and the rat vision were measured. The data showed that transplantation of MSCs, like limbal epithelial stem cells, successfully reconstructed damaged rat corneal surface. Interestingly, the therapeutic effect of the transplantation may be associated with the inhibition of inflammation and angiogenesis after transplantation of MSCs rather than the epithelial differentiation from MSCs. This study provides the first line of evidence that MSCs can be used for reconstruction of damaged corneas, presenting a new source for autotransplantation in the treatment of corneal disorders.

Biography

Dr. Lingsong Li graduated from the Molecular and Cellular Biology program, University of Washington. He was further trained in Stanford University School of Medicine as a post-doctoral scientist. He is now a professor in Peking University. His research is involved in the regulatory mechanism for stem cell differentiation, and the application of stem cells in treating human diseases.

EDUCATION

1990 – 1991	Visiting Scholar Department of Neurology, University of Virginia Pathogenesis of Stiff-Man Syndrome
1991 – 1993	Research Fellow Department of Medicine and Immunology, University of Washington Molecular basis of autoimmune diabetes
1993 - 1999	Ph.D., Molecular and Cellular Biology Program, University of Washington PDE VII function in T cells
1999-2000	Senior Research Fellow Stanford University Medical Center, T cell memory and stem cell development
2000-present	Professor Peking University Medical School Chairman: Department of Cell Biology Director: Peking University Stem Cell Research Center