

(FENa%). Histopathological injury score was also determined according to Jablonski method. To examine the antioxidant system induction by hyperoxia we measured renal catalase and superoxide dismutase activity and renal glutathione and malondialdehyde content. Our data demonstrated that only in 4 h/day HO for 6 consecutive days the renal function tests (Cr, CLCr, BUN and FENa%) and Jablonski histological injury were better than control group ($p < 0.05$). The beneficial effect of oxygen pretreatment in this group was associated with increased renal catalase activity compared with those obtained from control group ($p < 0.05$). The present study demonstrates that repeated exposure to hyperoxic ($\geq 95\%$ O₂) environment can reduce subsequent rat's renal ischemia-reperfusion damage. Induction of endogenous antioxidant system may partially explain this beneficial effect of hyperoxic preconditioning.

Keywords: antioxidant system, hyperoxia, IR injury, preconditioning

P-10-926-1

Effects of knockdown P75 receptor using a small interfering RNA in primary Schwann cell on signaling pathway

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The low affinity neurotrophin receptor (p75NTR) is a multifunctional receptor with different roles in neurotrophin signaling and axon outgrowth and it is best known for mediating neural cell death during development as well as in the adult following injury and later making it a target for treatment of neurodegenerative disease. P75NTR is expressed at high level on Schwann cells. We used siRNA for p75NTR and demonstrated that it mediated silencing of components of the inhibitory silencing cascade including P75NTR followed by RhoA and relevant protein; while changes in levels of protein and cellular immunoreactivity were detected with scramble (siRNA control sequences). Importantly after 24h using siRNA in Schwann cell culture medium, siRNA mediated knockdown of p75NTR and after 48h the level of P75NTR mRNA upregulated higher than 24h and level of mRNA of RhoA decreased compared to control (scramble). This result suggested that P75NTR knockdown by siRNA might be effective in RhoA signaling pathway and RhoA might be a target for disinhibition strategy to promote CNS axon growth and regeneration.

Keywords: p75NTR, siRNA, RhoA, Schwann cell

P-10-747-1

Transplantation of spermatogonial stem cell suspension through rete testis of mice after chemotherapy

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Spermatogenesis is a biological process that results in the conversion of the relatively undifferentiated germ cell into the highly differentiated spermatozoa. The loss of spermatogonia following chemo- or radiotherapy leading to temporary or permanent infertility of the

patient is a well known and unwanted site effect of many oncological therapies. Testis cell transplantation from a mouse into a recipient mouse rete testis results in donor-cell-derived spermatogenesis in nearly all the hosts' testes. This requires the transfer of cells from a donor animal into the testis of a recipient animal, in which the spermatogonial stem cells will colonize and initiate donor-derived spermatogenesis. To isolate germ cells, a two to 4-day old mouse testis cells were dissociated enzymatically. Busulfan treatment is used to eliminate proliferating cells in the testes of recipient mice. The donor cells, suspended in DMEM, were introduced into the rete testis of recipient mice via microinjection method. To distinguish the progeny of the transplanted donor stem cells from endogenous germ cells, BrdU-labeled cells were used. In addition, reverse-transcriptase polymerase chain reaction (RT-PCR) was performed to determine levels of c-kit and cyclin B1 expression in spermatogonial stem cells after transplantation. Transplantation of stem cells into rete testis of the recipients left testis was done and cryosection of the transplanted testis showed a significant increase in the number of spermatozoa in the left epididymal lumen compared with that of the control (right testis). It is interesting that cells that had been cultured on feeder layers were able to colonize busulphan-emptied recipient testes after spermatogonial stem cell transplantation. Spermatogonial stem cell was not alkaline phosphatase activities but C-kit gene was expressed in spermatogonial stem cells. Cyclin B1 expression was reduced after busulfan treatment compared with untreated mouse. The expression of this gene was however increased after germ cell transplantation. Elimination of differentiating germ cells is believed to provide the necessary environment for donor spermatogonial stem cells to migrate to the basement membrane and establish a stem cell niche. BrdU-labeled testis cells were successfully transplanted into recipient mouse rete testis. These cells remained in all recipient testes up to two months after transplantation. Culture of spermatogonial stem cells before transplantation helps proliferation and improves stem cell transplantation efficiently. The present study confirms that regeneration after cytotoxic treatment is based on morphological criteria. We demonstrate the increase in stem cell numbers during regeneration and after transplantation. The results of this study provided functional data in support of stem cell self-renewal, and demonstrated the increase in the number of stem cell during regeneration upon transplantation. Transplantation of spermatogonial stem cell suspension through rete testis of Azoospermic mice considerably enhances the efficiency of the rete testis injection in this species.

Keywords: spermatogonial stem cell, Busulfan, transplantation, cloning, fertility

P-10-935-1

Lentivirus vectors combined with TetON-inducible gene expression system regulates transgene expression in mammalian cell lines

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Efficient transfer and regulated expression of transgenes have been two major achievements in molecular manipulation of target cells and tissues in recent years. In this study, we have combined the transduction power of recombinant lentivirus vectors with tetracycline (tet)-mediated inducible gene expression to express a reporter gene in hardly transfectable mammalian cell lines in a controlled manner. This