Pathological Analysis of Cerebellar Lesions In Human IL-2 transgenic mice

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Human IL-2 (hIL-2) transgenic mice (hIL-2 mice) show ataxic gait starting at 12 days of age. The ataxia is known to be associated with severe infiltration and tissue destruction in the cerebellum, but the pathogenesis of the cerebellar lesions is incompletely understood. The present study was carned out to characterize inflammatory processes of cerebellar lesions in hIL-2 mice.

Histopathologically, the cerebellar lesion was first detected at 4 days of age. At the early stage of the lesion, lymphocytes, neutrophils and macrophages accumulated in the subarachnoid cavity. Large granular lymphocytes (LGL), neutrophils and macrophages infiltrated into the parenchyma at older ages. The increase in the number of infiltrated cells correlated with the severity of parenchymal destruction via apoptosis and demyelination. The cerebellum became extremely small by postnatal day 18.

Reverse transcriptase-PCR was used to determine cytokine mRNAs in the cerebellum. The expression of hIL-2 mRNA was detected in hIL-2 mice between embryonic day 16 and postnatal day 18. Interferon (IFN)-γ mRNA expression in hIL-2 mice was stronger than that in control mice.

These results suggest that LGLs, macrophages and neutrophils are responsible for the destruction of cerebellar parenchyma in hIL-2 mice. Expression of hIL-2 and IFN-γ is likely to promote local proliferation and/or activation of inflammatory cells, rather than directly causing tissue injury. Apoptosis of intrinsic cerebellar cells may play a role in the development of the cerebellar lesion.

Intracytoplasmic sperm injection in the cattle : effects of oocyte activation and sperm treatment on sperm head decondensation

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In the present study, efficiency of oocyte activation and sperm treatment on sperm head decondensation in association with bovine intracytoplasmic sperm injection (ICSI) were investigated. In experiment 1, effects of additional treatment of the injected oocytes with calcium ionophore (A23187) on sperm head decondensation were examined at 4–6 hr of culture after ICSI. Frozen-thawed bovine spermatozoa, which had been incubated with heparin and frozen without cryoprotectant, were injected into bovine oocytes matured *in vitro* using a manually-driven fine glass pipette (conventional ICSI) or an electrically-driven glass pipette (piezo ICSI).