FEATURES

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Pediatric Brain Tumor Cell Lines

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Pediatric brain tumors as a group, including medulloblastomas, gliomas, and atypical teratoid rhabdoid tumors (ATRT) are the most common solid tumors in children and the leading cause of death from childhood cancer. Brain tumor-derived cell lines are critical for studying the biology of pediatric brain tumors and can be useful for initial screening of new therapies. Use of appropriate brain tumor cell lines for experiments is important, as results may differ depending on tumor properties, and can thus affect the conclusions and applicability of the model. Despite reports in the literature of over 60 pediatric brain tumor cell lines, the majority of published papers utilize only a small number of these cell lines. The authors list approximately 60 currently-published pediatric brain tumor cell lines and summarize some of their central features as a resource for scientists seeking pediatric brain tumor cell lines for research.

Neuroprotective Effects of Viral Overexpression of microRNA-22 in Rat and Cell Models of Cerebral Ischemia-Reperfusion Injury

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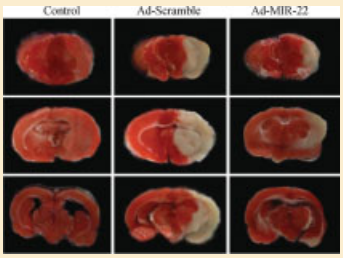

Several studies have reported that microRNA (MIR) is involved in the pathogenesis and progression of ischemic diseases, including cerebral ischemia, and that MIR-22 may inhibit the inflammatory response and cell apoptosis, which contribute to ischemia/reperfusion (I/R) injury. However, the specific function of MIR-22 in cerebral I/R injury remains far from clear. The study aimed to examine the potential protective effect of MIR-22 against cerebral I/R injury and its mechanism. As predicted, adenovirus-mediated MIR-22 overexpression markedly reduced the neurological score and infarct size ($P<0.05$). MIR-22 overexpression resulted in a reduction in inflammatory cytokines TNF-α, IL-6, COX-2, and iNOS, whereas the level of IL-10 was enhanced. MIR-22 overexpression significantly inhibited NF-kB activity by decreasing NF-kB coactivator NCOA1 expression. MIR-22 could reduce the apoptotic rate of cortical neurons. Caspase-3 activity was inhibited by MIR-22, and the expression of the anti-apoptosis gene Bcl-2 in neurons was increased and that of the pro-apoptosis gene Bax decreased following MIR-22 overexpression. The results suggest that MIR-22 could be used to treat cerebral I/R injury and that its neuroprotective effect may be attributed to a reduction in inflammation and apoptosis.