[Neurosci. Lett., **171**, 49-51 (1994)] [Lab. of Molecular Biology]

pS2 gene especially expresses in the late G1/S phase of mouse astrocytes.

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By the reverse transcription-polymerase chain reaction we investigated the localization of pS2 mRNA in the adult mouse. This method revealed that the pS2 mRNA expression was found in various tissues such as brain, heart, spleen, and muscle. The pS2 mRNA was also detected in astrocytes cultured from new born mouse brain. The pS2 mRNA expression in the astrocytes increased with cell growth and declined after the cells reached the stationary phase. In the cells synchronized by the serum deprivation-refeeding technique, the pS2 mRNA was only found at late G1 and S phase. These suggest that the transcripts of pS2 gene are widely distributed throughout the entire body of mouse and that they play some important cell cycle-related role in these tissues.

[J. Neurol. Sci., **121**, 176-182 (1994)] [Lab. of Molecular Biology]

Changes in nerve growth factor content of the submaxillary gland in the genetically dystrophic (*mdx*) mouse.

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We evaluated the nerve growth factor (NGF) contents in the submaxillary gland of the *mdx* mouse, a model for Duchenne muscular dystrophy (DMD), and found that the NGF and NGF mRNA contents in this organ, where extraordinarily high amounts of NGF are synthesized and stored independently of development or maintenance of the nervous system, were markedly elevated in the male *mdx* mouse at 8 and 11 weeks of age.

[Biochem. Mol. Biol. Int., *33*, 515-520 (1994)] [Lab. of Molecular Biology]

Cytokine regulation of pS2 gene expression in mouse astrocytes.

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Treatment of astrocytes with interleukin (IL)-6, -7 and tumor necrosis factor (TNF)-α produced a marked increase in mRNA of the pS2 gene, an estrogen-inducible gene in the human breast cancer cell line MCF-7. The effect of IL-6 and TNF-α was completely inhibited by anti-IL-6 mono-clonal antibody and anti-TNF-α monoclonal antibody, respectively. During the treatment with IL-6and TNF-α, neither increase in thymidine incorporation nor morphological change was observed. Inhibition of protein synthesis by cycloheximide and inhibition of RNA synthesis by actinomycin D abrogated the stimulatory effect on pS2 mRNA expression of IL-6 and TNF-α, suggesting that new protein synthesis as well as new RNA synthesis was required for their action. These suggest that brain injury triggers pS2 gene expression in astrocytes through the induction of cytokines.