[Eur. J. Biochem., **225**, 1041-1046 (1994)] [Lab. of Molecular Biology]

**Effect of basic fibroblast growth factor (bFGF) on synthesis/secretion of pS2 protein in human breast cancer cells (MCF-7).**

SADAKAZU MIYASHITA, MASAO HIROTA, TOSHIYA YAMAMOTO, CHIYOKA SIROYAMA, YOSHIKO FURUKAWA*, KYOZO HAYASHI

Exposure of MCF-7 cells to basic fibroblast growth factor (bFGF) resulted in a marked increase in pS2 protein content in the medium, intracellular pS2 mRNA and pS2 immunoreactivity. Coaddition of cycloheximide and bFGF abolished induction of pS2 protein, although it did not affect the induction pS2 mRNA. Actinomycin D did not affect the effect of bFGF on pS2 protein level. bFGF effectively abolished decay of the pS2 mRNA level caused by actinomycin D. These suggest that the induction of the synthesis/secretion of pS2 protein by bFGF occurs at the post-transcriptional level, most probably due to the stabilization of pS2 mRNA.

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**Estimation of pS2 protein level in human body fluids by a sensitive two-site enzyme immunoassay.**

SADAKAZU MIYASHITA, HIROSHI NOMOTO*, HIROAKI KONISHI, KYOZO HAYASHI

A sensitive two-site enzyme immunoassay (EIA) system was established for human pS2 protein, a small estrogen-inducible secretory protein of unknown function originally identified in MCF-7 human breast cancer cells. pS2 protein was detectable at a concentration as low as 3 pg/ml. This EIA system revealed that the amount of pS2-like immunoreactivity (LI) in human urine was 13.6 ng/mg creatinine (median, n= 416) and that there was no correlation between the pS2-LI concentration in urine and sex or aging. pS2-LI levels in plasma and sera of the normal subjects were 392 pg/ml(median, n=14) and 494 pg/ml (median, n=12), respectively. The serum level of the patients with breast cancer (528 pg/ml; median, n=67) was not different from that of normal subject.

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**Nerve growth factor content in rat brains increases following basal-forebrain lesions induced by ibotenic acid, but not by electrolysis.**

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We attempted to measure the change in the nerve growth factor (NGF) content in the hippocampus and parietal cortex following basal-forebrain lesions by ibotenic acid (IA) and electrolysis. The NGF content increased on days 3 to 7, and returned to the control level on day 14 after IA lesions. IA decreased both the choline acetyltransferase (ChAT) activity in the parietal cortex and the dopamine content in the striatum. Electrolytic lesions decreased the dopamine content in the striatum, but not affect the NGF content and ChAT activity. These suggest that NGF synthesis is related to cholinergic, but not to dopaminergic neurons in the basal forebrain.