〔Biochem. Biophys. Res. Commun., **142**, 395 (1987)〕

Synthesis/Secretion of Nerve Growth Factor is Associated with Cell Growth in Cultured Mouse Astroglial Cells.

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Astroglial cells cultured from 8-day-old mouse brain synthesized and secreted nerve growth factor (NGF). An increase in cell density or the withdrawal of serum from the culture medium caused a drastic decrease in the rate of NGF secretion which could be reversed by reculturing at a low cell density or by refeeding with serum-containing culture medium. The cells cultured for two weeks without serum entered the quiescent phase without loss of the activity of an astroglial marker enzyne, glutamine synthetase. These results suggest that NGF secretion by astroglial cells *io vitro* is regulated in a growth phase-dependent manner. Evidence is also presented to show that NGF secretion is not phase-specific in the cell cycle.

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Production of an hEGF-Like Immunoreactive Factor by Human Gastric Cancer Cells Depends on Differentiational State of the Cells.

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We have extended our recent observation that human gastric cancer cells (MKN-45) synthesize and secrete an hEGF-like immunoreactive factor (designated as EGF-LI) by characterization of EGF -LI produced by five human gastric cancer cell lines in culture. Two cell lines (MKN-45 and KATO -III) derived from poorly differentiated adenocarcinoma synthesized and secreted a much larger amount of EGF-LI than three cell lines (MKN-1, MKN-28, and MKN-74) derived from well-differentiated adenocarcinoma. Treatment of MKN-45 cells by retinoic acid reduced significantly synthesis and secretion of EGF-LI, suggesting that production of EGF-LI is dependeut on differentiational state of gastric cancer cells.

〔Biochem. Inter., **14**, 779 (1987)〕

Synthesis and Secretion of an hEGF-Like Immunoreactive Factor by Human Gastric Cancer Cells (MKN-45).

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A large amount of an immunoreactive factor was detected in the medium conditioned by human gastric cancer cells, strain MKN-45, by our enzyme immunoassay system for human epidermal growth factor (hEGF) based on hEGF isolated from urine. However, the dose-response curve of the immunoreactive factor designated as MKN-45 EGF) was not parallel with the standard curve of hEGF. The molecular weight of MKN-45 EGF was slightly larger that of hEGF and was estimated to be 7,000-8,000 by gel filtration on Sephadex G-50. On isoelectric focusing analysis, MKN-45 EGF gave a major peak at pH 5.0 and a minor one at pH 4.3. These results demonstrate that MKN-45 cells synthesize and secrete into the culture medium a polypeptide immunologically related to hEGF.