

[Biochem. Mol. Biol. Int., 38, 1095-1101 (1996)]

[Lab. of Cell Biology]

Bone Morphogenetic Protein-2 Is Markedly Synergistic with Tumor Necrosis Factor in Stimulating the Production of Nerve Growth Factor in Fibroblasts.

AKIRA HATTORI, MASAFUMI TSUJIMOTO, KYOZO HAYASHI, MICHIAKI KOHNO*

A possible interaction between TNF and BMP-2 in stimulating the production of NGF in Swiss3T3 cells was studied. TNF's stimulatory activity on fibroblast NGF production was markedly synergized by BMP-2; BMP-2 by itself did not stimulate NGF production in the cells. These findings suggest that BMP-2, in concert with TNF, plays an essential role in regulating the regeneration of peripheral nerves following injury with bone fracture through an indirect mechanism by which it stimulates NGF production in fibroblasts.

[J. Biol. Chem., 271, 17360-17365 (1996)]

[Lab. of Cell Biology]

Characterization of the Bone Morphogenetic Protein-2 as a Neurotrophic Factor.

SHOJI IWASAKI, AKIRA HATTORI, MASAHIRO SATO, MASAFUMI TSUJIMOTO,
MICHIAKI KOHNO*

BMP-2 induced morphological changes in PC12 cells, which are shown to express a single class of high affinity binding sites for BMP-2, with the concomitant expression of three neurofilament proteins. Thus, BMP-2 would appear to be another neurotrophic factor that stimulates the neuronal differentiation of PC12 cells. Unlike NGF and bFGF, BMP-2 failed to induce the activation of MAP kinases and MEK. Also, BMP-2 did not induce the expression of the c-fos gene in PC12 cells. These results suggest that the activation of MAP kinases and MEK is not an absolute requirement for PC12 cell differentiation.

[Tetrahedron Lett., 37, 5931-5934 (1996)]

[Lab. of General Chemistry]

Formation of Novel Spirochlorin and Allylidenechlorin by the Reaction of Bromovinylporphyrin with Tetracyanoethylene.

SHIGEO KAI, MIKIO SUZUKI*

Recently, chlorins (reduced porphyrins) have attracted much interest as possible photosensitizers for the photodynamic therapy of tumors. It is therefore desirable to develop porphyrin photosensitizers with strong absorption near or above 700 nm, where activating light will penetrate more deeply into malignant tissues. We report here the formation of spirochlorin 1 and allylidenechlorin 2 by the reaction of bromovinylheptaethylporphyrin with tetracyanoethylene. The former product 1 is a new class of chlorin and the latter 2 exhibits unusual long-wavelength absorption in the red region of the spectrum.