[*Clinica Chimica Acta*, **265**, 57-63 (1997)] [Lab. of Pharmaceutics]

The Tumor-derived Fetal-intestinal Alkaline Phosphatase cDNA is Identical in Sequence to the Adult Intestinal Alkaline Phosphatase Isozyme Gene.

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The alkaline phosphatase (AP) of Caco-2 cells derived from a human adenocarcinoma of the colon is quite similar to fetal intestinal AP in its enzymatic properties. The nucleotide sequence of a cDNA encoding AP produced in Caco-2 cells was examined. The sequence was identical to one of the three sequences of adult inteistinal AP reported previously. We further investigated the entire nucleotide sequence of cDNA of intestinal-type AP produced in cancer cell lines such as HuH-7 cells, FL-amnion cells, and HuG-1 cells. The sequence of these cell APs was identical to that of Caco-2 cell AP. These results indicate that cancer cells producing intestinal-type AP have the same nucleotide sequence as that of adult intestinal AP, and suggest that the differences in electrophoretic mobilities of these cell APs compared with adult intestinal AP may be due to post-translational modifications.

[*Clin. Biochem.*, **30**, 545-551 (1997)] [Lab. of Pharmaceutics]

Intestinal Alkaline Phosphatase Isoforms in Rabbit Tissues Differ in Glycosylation Patterns.

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Intestinal alkaline phosphatase (IAP) and IAP-like enzyme were purified from rabbit intestine and kidney, respectively, because the rabbit liver or kidney expresses an IAP-like enzyme as the predominant isozyme, unlike humans. Some of their catalytic and physicochemical properties differed. In particular, the net charge, molecular mass, and hydrophobicity of IAP from rabbit intestine was slightly different from the IAP-like enzyme from rabbit kidney. There was a difference in the sugar chain structure between the two enzymes according to the results of lectin affinity chromatography, and part of the peptide maps differed slightly. However, there was no difference in the peptide maps after treatment with endo-N-acetylglucosaminidase F.

[*Cancer Biochem. Biophys.*, **15**, 275-284 (1997)] [Lab. of Public Health]

Invasive Properties of Cadmium-resistant Human Fibrosarcoma HT-1080 Cells High Invasiveness of Cd-resistant Tumor Cells

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Invasive properties of tumor cells having acquired heavy metal resistance were investigated. We selected the cadmium-resistant (Cd-R) cells from human fibrosarcoma HT-1080 cells. Total metallothioneins level in cytosol of HT-1080 Cd-R cells were significantly higher than original lines, and were highly resistant potency to cytotoxicity of cisplatin as well as heavy metals. The HT-1080 Cd-R cells showed higher invasiveness into recombinant basement membrane Matrigel. However, HT-1080 Cd-R cells were inferior in locomotion ability. Significant differences in adhesive ability to extracellular matrix proteins were not observed between HT-1080 and HT-1080 Cd-R cells. High invasiveness of HT-1080 Cd-R cells was caused by their extremely strong enzymatic activities. High level of 92kDa matrix metalloproteinase-9 (MMP-9) was recognized from the conditioned medium of HT-1080 Cd-R cells, whereas 72kDa MMP-2 was secreted equally from both cell lines.

[*Bioorg. Med. Chem.*, **7**, 833-836 (1997)] [Lab. of Public Health]

Inhibitory Effect on HT-1080 Tumor Cell Invasion in Vitro using 9-(2'-Hydroxyethyl)adenine 2'-Phosphates

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For the purpose of finding a new type of anti-invasion drug, several 9-(2'-hydroxyethyl)purine derivatives were evaluated for their inhibitory effects on HT-1080 tumor cell invasion using reconstiuted-basement membrane Matrigel. Several 9-(2'-hydroxyethyl)purines did not show any inhibitory activity on the tumor cell. Its 2'-monophosphate derivertive, 9-(2'-hydroxyethyl)purine 2'-monophosphate (**1**), inhibited HT-1080 tumor cell invasion. Further introduction of pyrophosphate on the 2'-monophosphate residue yielding 2'-triphosphte derivertive decreased the inhibitory effect. It is well known that HT-1080 tumor cell secrete MMP-2 and MMP-9, and there are many reports on the relation between MMP-9 secretion and the metastatic activity of cancer cell. Therefore, 9-(2'-hydroxyethyl)purine derivertives were also evaluated for their inhibitory effect on typeIV collagen degradation by MMP-9. Compound **1** inhibited type IV collagen degradation by MMP-9.