

[PB2-3] [ 04/21/2000 (Fri) 10:30 ~ 11:30 / [1st Fl, Bldg 3] ]

**Effects of pomegranate (*Punica granatum*) polyphenol fractions on proliferation of estrogen-dependent (MCF-7) and estrogen-independent (MDA-MB-231) human breast cancer cells**

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Polyphenol-rich fractions, consisting of flavonoids and tannins, were extracted from the seed oil, pericarp, unfermented and fermented juice of the pomegranate, *Punica granatum*. The different fractions were incubated in individual well plates with both estrogen-dependent (MCF-7) and estrogen-independent (MDA-MB-231) human breast cancer cells for 48 hours. At that point, cell viability was assessed with the MTT assay. The fermented juice exerted the strongest overall anti-proliferative effect in both the MCF-7 and MDA-MB-231 lines. The second strongest in both lines was from the aqueous pericarp extract. The unfermented juice also exerted significant anti-proliferative activity of the MCF-7 cells, but only mild anti-proliferative activity in the MDA-MB-231 cells. Overall, the effect in the MCF-7 lines for all pomegranate materials was more pronounced than that for the MDA-MB-231. Polyphenol fraction isolated from the pomegranate seed oil failed to have anti-proliferative effect in either of the assays at the concentrations employed.

[PB2-4] [ 04/21/2000 (Fri) 10:30 ~ 11:30 / [1st Fl, Bldg 3] ]

**Characterization of The EF hand loop region of ATX**

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Autotaxin (ATX) is a recently described member of the nucleotide pyrophosphatase and phosphodiesterase (NPP) family of proteins with potent tumor cell motility-stimulating activity. Like other NPPs, ATX is a glycoprotein with peptide sequences homologous to the catalytic site of bovine intestinal alkaline phosphodiesterase (PDE) and the loop region of an EF-hand motif. The PDE active site of ATX has been associated with the motility-stimulating activity of ATX. In this study, we have examined the roles of the EF-hand loop region and of divalent cations on the enzymatic activities of ATX. Ca<sup>++</sup> or Mg<sup>++</sup> were each demonstrated to increase the PDE activity of ATX in a concentration dependent manner, whereas incubation of ATX with chelating agents abolished this activity, indicating a requirement for divalent cations. Lineweaver-Burke analysis indicated that addition of these divalent cations increases reaction velocity predominantly through an effect on V<sub>max</sub>. Three mutant proteins, Ala740-, Ala742-, and Ala751-ATX, in the EF hand loop region of ATX had comparable enzymatic activity to wild type protein. A deletion mutation of the entire loop region resulted in slightly reduced PDE with normal motility stimulating activity. However, the PDE activity of this same deletion mutant remained sensitive to augmentation by cations, strongly implying that cations exert their effect by interactions outside the EF hand loop region.

[PB2-5] [ 04/21/2000 (Fri) 10:30 ~ 11:30 / [1st Fl, Bldg 3] ]

**The cellular expression of ATX is correlated with an invasive phenotype of breast tumor cells**

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Autotaxin (ATX) is an exo-nucleotide pyrophosphatase and phosphodiesterase (NPP) which stimulates tumor cell motility at low nanomolar concentration. Cellular ATX mRNA expression was most abundant in breast tumor cells in several tumor cells, and breast cancer cells with high invasive and/or metastatic capacity such as MDA-MB-435S and MDA-157 showed relatively higher ATX expression. The pretreatment of cells with pertussis toxin abolished the cell migration response to ATX as a chemoattractant. Taken together, these data strongly suggest that cellular expression of ATX is correlated with an invasive phenotype of breast tumor cells.

[PB3-1] [ 04/21/2000 (Fri) 10:30 - 11:30 / [1st Fl, Bldg 3] ]

### **Effects of acute cocaine administration on the basal ganglial nervous systems : Immunohistochemical studies**

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Cocaine is a potent psychomotor stimulant which has become a popular drug of abuse. The purpose of the study was to examine time-course effects of acute cocaine exposure on dopaminergic, GABAergic and enkephalinergic nervous systems in the basal ganglia using immunohistochemical techniques. Sprague-Dawley rats were sacrificed 0.5, 2, 4 and 24 hr after administration of cocaine (1 mg/kg, i.v.). Immunohistochemical staining was performed using antibodies against tyrosine hydroxylase (TH), dopamine transporter (DAT), glutamic acid decarboxylase (GAD), parvalbumin (PV), and Met- and Leu-enkephalin (Enk). TH-immunoreactivity (IR) was gradually decreased, but DAT-IR was increased, in both the striatum (ST) and the nucleus accumbens (NA) until 4 hr after cocaine administration and then returned to the basal level at 24 hr compared with the saline-treated control. Similar patterns of changes in TH- and DAT-IR were also observed in the substantia nigra (SN). Met-Enk-IR was increased at 2-hr time point and then returned to the control level in the ST without any clear changes in the SN. Leu-Enk-IR was increased until 2-hr time point and then returned to the control level in the globus pallidus whereas no changes were observed in the ST and SN. GAD-IR appeared to be increased until 4 hr and then return to the control level in the SN. PV-IR was not altered in the ST and cerebral cortex compared with the control. The results suggest that immunohistochemical techniques can be used as a useful tool to study neurochemical effects of cocaine on the basal ganglial nervous systems.

[PB3-2] [ 04/21/2000 (Fri) 10:30 - 11:30 / [1st Fl, Bldg 3] ]

### **Scutellaria baicalensis protects CA1 hippocampal neurons after global cerebral ischemia in rats**

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Scutellaria baicalensis is one of the most widely used oriental herbal medicines against bacterial infections of the respiratory and the gastrointestinal tract. Current study was carried out to evaluate neuroprotective effects of Scutellaria baicalensis after transient global ischemia using 4-vessel occlusion model in rats. Methanol extracts of Scutellaria baicalensis administered intraperitoneally