[*Biol. Pharm. Bull.*, **20**, 869-873 (1997)] [Lab. of Pharmaceutics]

Hydrolytic Profile for Ester- or Amide-linkage by Carboxylesterases pI 5.3 and 4.5 from Human Liver.

Satomi TAKAI, Ayuka MATSUDA, Yoshiko USAMI, Tetsuo ADACHI, Tadashi SUGIYAMA, Yoshihiro KATAGIRI, Masae TATEMATSU and Kazuyuki HIRANO*

Carboxylesterases (EC 3.1.1.1) pI 5.3 and 4.5 were purified from human liver. The activities of both enzymes were inhibited by typical serine enzyme inhibitors. Carboxylesterse pI 5.3 and 4.5 was identical to the deduced amino acid sequence from cDNA for HU1 and human carboxylesterase (hCE-2), respectively. The two enzymes differed in substrate specificity. Prodrugs of angiotensin-converting enzyme inhibitors were converted to active metabolites by carboxylesterase pI 5.3, but not by carboxylesterase pI 4.5. We found that an amide-linkage in drugs, except for that in aniracetam, was not a good substrate for the two enzymes. Carboxylesterases pI 5.3 and 4.5 may be involved in the metabolism of various drugs containing an ester-linkage.

[*J. Urol.*, **157**, 1941-1945 (1997)] [Lab. of Pharmaceutics]

Factors Contributing to Imaging of Xenografts Using Anti-placental Alkaline Phosphatase Monoclonal Antibody.

Kiyoshi KOSHIDA, Kunihiko YOKOYAMA, Tadao UCHIBAYASHI, Hajime YAMAMOTO, Kazuyuki HIRANO* and Mikio NAMIKI

To investigate factors that influence the imaging of placental alkaline phosphatase (PLAP) producing xenografts using an anti-PLAP monoclonal antibody (MAb). Three xenografts (human seminoma, HeLa Hep 2 cells, and KK-47 bladder cancer cells) were used. Although the highest PLAP level was found in seminoma xenografts, the MAb was not useful for the imaging of seminoma xenografts because of poor accumulation. Fragmentation of the MAb, such as F(ab')2, however, was shown to be efficient for imaging seminoma xenografts. A distribution study with Tl-201 revealed the highest blood flow in HeLa cells and the lowest in seminoma. A difference in blood flow may partially explain the disparity between the amount of MAb accumulation and the level of antigen expression in these three xenografts.

[*J. Pediatr.*, **130**, 730-735 (1997)] [Lab. of Pharmaceutics]

Detection of Maternofetal Transfusion by Placental Alkaline Phosphatase Levels.

Tomoharu KANEDA, Kazuo SHIRAKI, Kazuyuki HIRANO* and Ikuo NAGATA

We investigated the volume of maternofetal transfusion by measuring placental alkaline phosphatase (PLAP) as an indicator of placental passage. The mean volume of maternofetal transfusion was estimated to be 3.33 ± 1.68 ml. The mean estimated volume of maternofetal transfusion per kilogram of birth weight was significantly lower in cases of scheduled cesarean delivery than in cases of vaginal delivery and emergency cesarean delivery. In scheduled cesarean delivery a significant positive correlation between gestational age and the estimated volumes of transfusion per kilogram of birth weight was observed. In cases of vaginal delivery, the estimated volume of transfusion per kilogram of birth weight was significantly lower in the group with short labor than in the group with prolonged labor. PLAP was considered to be useful for estimating the volume of maternofetal transfusion. The transfer volume appeared to relate to uterine contractions and to histologic changes in the placenta with aging.

[*Jpn. J. Clin. Chem.*, **26**, 89-94 (1997)] [Lab. of Pharmaceutics]

Separation and Identification of Urinary Proteins Following Digital Rectal Examination in Patients with Benign Prostatic Hypertrophy.

Yoshiko USAMI, Kazuhiro IGUCHI, Tetsuo ADACHI, Hajime YAMAMOTO, Kiyoshi KOSHIDA, Tadao UCHIBAYASHI and Kazuyuki HIRANO*

Specimens of urine were obtained before and after digital rectal examination from four patients with benign prostatic hypertrophy (BPH) for comparative analysis of protein components by reversed-phase high performance liquid chromatography. Four characteristic peaks were detected in urine after compared with before the physical examination, and their molecular masses on SDS-PAGE were 16, 16, 34 and 46 kDa. After the proteins were reduced, S-pyridylethylated and cleaved with cyanogen bromide, the amino-terminal amino acids were sequenced and a homology search was conducted. The two 16-kDa proteins were both identified as β-microseminoprotein. The 34-kDa protien was identified as a prostate-specific antigen, and the 46-kDa protein was a Zn-α_2-glycoprotein. The present findings provide important information on pre-analytical sampling of urine for the diagnosis of BPH.