these observations, EGF can function as a regulatory factor of the sulfolipid synthesis in SMKT-3 cells.

S4.14

Comparison of Sialyltransferase, Galactosyltransferase and *N*-Acetyl-β-D-Glucosaminidase Levels in Sera from Cancer Patients

G. M. Petiau-de Vries, A. Herman, N. Van Craesbeck and C. Gervy*
*Chimie Générale I CP 160/18, Université Libre de Bruxelles, Avenue F. Roosevelt, B-1050 Bruxelles, *Hôpital Erasme (RIA) Route de Lennik, 508, B-1070 Bruxelles, Belgique.*

Sialyltransferase, β-1,4 galactosyltransferase and some glycosidases levels are modified in biological fluids from tumor bearing patients. We are attempting to determine whether a possible raise in the serum level of glycosyltransferases or glycosidases could be correlated with the presence of serum antigenic markers.

The study includes sera obtained from cancer patients characterized by elevated level in at least one antigenic marker : CEA, CA 125 or CA 19.9 and several sera from tumor bearing patients negative for these markers. In each enzymatic assay, the mean of healthy donor level + 2 STE was chosen as cut off value.

For sialyltransferase, no positive correlation has been found (with asialofetuine as acceptor). In sera positive for different markers (metastasis) the level of β-1, 4 galactosyltransferase was extremely high. A positive correlation was found for this enzyme level and for the CA 125 level (in women and men).

For *N*-acetyl-β-D-glucosaminidase, a positive correlation has been found with the presence of elevated CA 19.9 levels.

Several sera were positive for sialyl- or galactosyltransferase and negative for the three antigenic markers. Our result suggest that enzymatic assays in conjunction with the more widely used antigenic markers could have a predictive value.

We thank GALEPHAR for financial support.

S4.15

Activity and Characterization of Sialyl and Galactosyltransferases in Zajdela Hepatoma Cells

H. Ch. Lorer, D. Ivanov, V. Karaivanova and S. Ivanov
Department of Pathobiochemistry, Inst. Gen. & Comp. Pathol., Bulgarian Acad. Sci., Sofia 1113, Bulgaria.

Studies on the total activity of sialyl and galacosyltransferases and on the relative distribution of the α(2-3) and α(2-6) sialyltransferase and β(1-4), β(1-3) and α(1-3) galactosyltransferase in rat liver and Zajdela hepatoma cells were performed. It was established, that the activity of both enzymes towards protein acceptors (asialofetuin for sialyltransferase and ovomucoid for galactosyltransferase assays) in the tumor cells is different in comparison with that in liver. By using lactose as acceptor for measurement of sialyltransferase activity, it was revealed that as in liver, as well as in hepatoma cells the predominent ^{14}C-labelled product of the sialyltransferase assay was α(2-6) sialyllactose isomer. The galactosyltransferase activity towards *N*-acetylglucosamine as acceptor in hepatoma and liver cells was one and the same and the predominent isomer synthesized was β(1-4)-galactose-*N*-acetylglucosamine. It was found, however, that the activity of α(1-3) galactosyltransferase, assayed with asialofetuin as acceptor was considerably elevated when compared to that in liver. These data suggest that in tumor cells there is an enhancement in the activity of attachment of galactose residues with α(1-3) linkage to galactose-β (1-4)-*N*-acetylglucosamine-R sequence. The results contribute to the biochemical characterization of Zajdela hepatoma cells.

S4.16

Production and Characterization of Monoclonal Antibodies Recognizing Cancer-Associated Antigens Expressed on Mucin-Type Sugar Chains

A. Kurosaka, K. Kamimura, S. Tahara, K. Tsuchida and M. Sunago
Department of Biotechnology, Faculty of Engineering, Kyoto Sangyo University, Kita-ku, Kyoto 603, Japan.

To obtain monoclonal antibodies directed to mucin-type sugar chains, mice were immunized with bovine submaxillary mucin (BSM) which had been conjugated with ovalbumin. Conjugation of BSM with ovalbumin produced complex molecules of high molecular weight that had about ten times higher immunogenicity than that of intact BSM. Eleven hybridomas, all of which secrete monoclonal antibodies toward BSM, were established. Most of the antibodies had low reactivities with glycolipids of brains and submaxillary glands from some animals and several glyco-proteins with serum-type carbohydrate chains. Nine antibodies showed no or decreased reactivities toward BSM upon removal of sialic acid residues from BSM, indicating that these antibodies specifically recognize carbohydrate moieties of mucin-molecules. Immunohistochemical studies revealed that the reactivities of these antibodies toward normal tissues from several human organs were negligible or sometimes very weak and three of the antibodies reacted with human ovary cancer tissues. Furthermore, one of these three antibodies, designated 6G9, reacted with cultured human colonic cancer cells.

We investigated the epitopic structure of the cancer-associated carbohydrate antigen recognized by 6G9. BSM reacted strongly with the antibody, but the reactivity of ovine submaxillary mucin, which is known to express sialyl-Tn antigen[1], namely NeuAcα2→6GalNAc, was weak. De-*O*-acylated BSM did not react with 6G9. Sialic acid having *O*-acyl groups and a de-*O*-acylated Siaα2→6GalNAc fraction isolated from BSM weakly reacted with 6G9. These findings suggest that *O*-acylated Siaα2→6GalNAc is involved in the epitope.

(1) A. Kurosaka *et al.* (1988) *J. Biol. Chem.* **263**, 8724 – 8726.

S4.17

Inhibition of Lectin Mediated Human Ovarian Carcinoma Cell Adhesion

B. Woynarowska, D. Skrinkosky, K. Matta*, M. Sharma and R. J. Bernacki
*Depts. of Experimental Therapeutics and *Gynecological Oncology, Roswell Park Cancer Institute, Buffalo, NY 14226, USA.*

Human ovarian carcinoma cells (HOCC) are capable of localized invasion of normal ovarian tissue, dissemination into peritoneal cavity and invasion of peritoneal lining following