352 Protein kinase c activities in human endometrium. K.Yamada, H.Sakamoto, S.Nakagawa*, A.Saitoh, T.Takahashi, H.Suzuki, K.Den, S.Takagi, K.Satoh, Dept. Obst. and Gynec., and *Dept. Biochemistry, Nihon Univ. Sch. Med., Tokyo.

Protein kinase C(PKC) activity was determined in the human endometrium under different conditions: normal proliferative phase, normal secretory phase, endometrial cancer, cervical cancer, and pregnancy. In normal cycling women, the PKC activity was 70.3±12.2 fmol/mg/min. The level of activity was significantly higher during secretory phase. An analysis of the inter-relationship (multiple regression analysis) of the PKC activity with age, plasma LH, FSH levels, plasma estradiol(E_2) and progesterone(P_4) levels showed that the activity was mainly affected by P_4. The equation was $Y=72.9-1.5age+1.2LH+3.6FSH+0.05E_2+9.4P_4$, Analysis of the activity and P_4 levels, however, revealed a nonlinear correlation. Compared to normal controls, the PKC activity in the cancerous endometrium and decidua was significantly lower (11.9±4.1 fmol/mg/min(mean±SEM); $p<0.05$) but not in cervical cancer in which no invasion to the endometrium was identified. Analysis of the PKC activity in the cell cytoplasm and membrane showed that the cancerous endometrium had a greater PKC activity in the membrane fraction. These data suggest that the PKC activity in the normal human endometrium is affected by P_4 and that of the decidua or cancerous endometrium is under different control.

353 Growth promotion by transforming growth factor-β in human endometrial cancer cells. M.Sakata, Y.Fujita, K.Kadowaki, Y.Nishikawa, K.Morishige, H.Kurachi*, O.Tanizawa, Dept. Obstet. and Gynec., Osaka Univ.Med.Sch., *Dept. Obstet. and Gynec., Osaka Prefectual Hosp., Osaka.

Roles of growth factors on the growth of human endometrial cancer cells have not been fully elucidated. In the present study, the effects of transforming growth factor-β (TGF-β) on a human endometrial cancer cell line, IK-90 cells were investigated. The cells possessed the receptors for TGF-β and epidermal growth factor (EGF). The exposure of IK-90 cells to 1 ng/ml TGF-β resulted in elevated levels of EGF receptor mRNA by measurement with the cDNA clone pE 7 which encodes human EGF receptor mRNA, as a hybridization probe. This increase in mRNA accumulation could be detected after 4 h exposure to TGF-β with a maximum at 8 h. The addition of TGF-β to culture medium (0.001-1 ng/ml) enhanced the growth of IK-90 cells in a dose-dependent manner. A significant increase in [^{3}H]thymidine incorporation by TGF-β was also demonstrated. These findings suggest that TGF-β, a member of a large family of growth-inhibiting substances, has growth-promoting effect on human endometrial cancer cells.

354 Histochemical study on blood group substances in endometrium with special reference to the expression of type I chain. T. Shiozawa, M. Kanai, Y. Tsukahara, T. Fukuta, T. Katsuyama*, Dept. Obst. and Gynec., *Dept. Lab. Med., Shinshu Univ. Sch. Med., Nagano.

Immunohistochemical study was undertaken to elucidate the oncogenic alteration of complex carbohydrates carrying type I lactosamine backbone in human endometrial tissues using a panel of monoclonal antibodies including anti-type I chain (K21), ABH, Lewis^a and Lewis^b. The effect of prior sialidase digestion was also evaluated. Specimens examined included 20 cases of normal endometrium (nlEM) and 20 cases of endometrial carcinoma tissues (EMCa). In nlEM, type I chain was not observed, and in EMCa, only 3 cases were positive, although the prior sialidase digestion disclosed the antigen in 2 and 13 cases of nlEM and EMCa respectively. Among various blood group antigens, Lewis^b antigen was weakly detected in nlEM of 3 cases, whereas in EMCa, H, Lewis^a and Lewis^b antigens were positive in 6, 6, 13 cases , respectively. The effect of prior sialidase digestion was not evident for these antigens. These results suggested that the complex carbohydrates with type I chain was neosynthesized accompany with oncogenic transformation, and type I lactosamine backbone itself was partially sialylated and partially fucosylated.