54 Effect of growth hormone (GH) and placental lactogen (PL) on the regulatory mechanism of maternal serum Insulin-like growth factor 1(IGF-1)concentration during pregnancy. S.Nakago, A.Kobayashi, T.Funakoshi, Y.Ueda, M.Deguchi, H.Morikawa, M.Mochizuki, Dept.Obst.and Gynec.,Kobe Univ.Sch.Med.,Kobe.

Aim of this study is to clarify the regulatory mechanism of IGF-1 concentrations in maternal blood during pregnancy.IGF-1 concentrations measured by IGF-1 RIA in rat maternal blood decreased from D15 to D21.Serum IGF-1 concentration in nonpregnant rat after hypophysectomy decreased significantly,and serum IGF-1 concentration was restored after GH administration to this hypophysectomized rat,but PL administration did not restore it. In the culture system using rat adult hepatocytes, medium IGF-1 increased significantly after addition of GH into the medium. But no significant change in medium IGF-1 concentrations was observed after GH addition was inhibited by the simultaneous addition of PL with GH into medium.However,no significant changes in medium IGF-1 concentrations were observed after PRL addition or after simultaneous addition of PRL with GH into the medium. These results suggest that the production of IGF-1 during pregnancy is controled by the promoting action of GH and by the suppressing action of PL.

55 Purification of gonadotropes and intracellular free calcium oscillation: Effects of gonadotropin releasing hormone and interleukin 6. N.Masumoto,K.Tasaka,J.Mizuki,S.Ohtsuka,H.Jikihara,A.Miyake,O.Tanizawa, K.Kasahara,Dept.Obst.and Gynec., Osaka Univ. Med. Sch., Osaka.

The intracellular free calcium concentration ($[Ca^{2+}]i$) in single gonadotropes was measured with fura-2 and a digital imaging fluorescence microscopic system to determine how interleukin-6 (IL-6) increases release of gonadotropins. IL-6 induced increase in the basal $[Ca^{2+}]i$ or the amplitude of spontaneous oscillation of $[Ca^{2+}]i$ in gonadotropes in a mixed population. Next, purified gonadotropes were prepared by fluorescence-activated cell sorting (FACS) and argon laser treatment of the cells. Gonadotropes labeled with anti-LH antibody were sorted by FACS, and then cultured as monolayers for 24-48h. In this way, gonadotropes were concentrated from 5-10% to 70-85% from whole pituitary cells. After relabeling with anti-LH antibody, 100% purified gonadotropes were obtained by killing other types of cells with argon laser. Gn-RH induced almost the same responses of $[Ca^{2+}]i$ in the purified cell population as in the mixed cell population, but IL-6 did not affect $[Ca^{2+}]i$ in the purified gonadotropes. These results suggest that IL-6 affects calcium mobilization in gonadotropes indirectly via paracrine pathways.

56 Effects of saturated fatty acids on prostaglandin E_2 9-ketoreductase (PGE_2-9-KR). T.Ohshige,T.Ohtsuka,M.Mibe,M.Yamaguchi,N. Mori, Dept.Obst.and Gynec.,Miyazaki Medical College,Miyazaki.

NADP-dependent prostaglandin E_2 9-ketoreductase (PGE_2-9-KR, EC 1.1.1. 189), which catalyzes the conversion of prostaglandin E_2 (PGE_2) into prostaglandin $F_{2\alpha}$ ($PGF_{2\alpha}$) may regulate the intracellular $PGF_{2\alpha}/PGE_2$ ratio. The presence of specific inhibitors of PGE_2-9-KR in human placenta has been suggested, but it is yet unclear whether regulatory mechanisms of the enzyme activity actually exist or not. On the other hand, endogenous inhibitors of 15-hydoxyprostaglandin dehydrogenase (PGDH), which catalyzes the first reaction of PGE_2 inactivation, have been isolated from pregnant rabbit lung, human placenta and human milk. Recently, we observed that endogenous inhibitors of PGDH contains myristic acid 14:0, palmitic acid 16:0 and stearic acid 18:0, and that these saturated fatty acids, in that order, inhibit PGDH activity. We partially purified PGE_2-9-KR from human term decidua and examined the effects of these fatty acids on the enzyme activity. Palmitic acid inhibited PGE_2-9-KR activity dose-dependently, whereas the other two fatty acids had no effect. Our findings suggest that in spite of the structural similarity of these fatty acids, only palmitic acid has a specific inhibitory effect on PGE_2-9-KR.