259 Hormonal regulation of gonadotropin receptor mRNA in rat ovary during follicular growth and luteinization. K.Nkamura, I.Mnegishi, Y.Hasegawa, Y.Ibuki, M.Igarashi Dept. Obst. and Gyne., Gunma Univ., Sch. Med., Maebashi

The present study was designed to relate FSH and LH/hCG recepotor expression to changes in gonadotropin receptor mRNAs of only PMSG or PMSG-hCG primed female rats. In PMSG priming, northern blot analysis revealed FSH receptor mRNA of 2400 nucleotides which reached to a peak on day 3, leading to a slight decline on day 4, while the level of LH/hCG receptor mRNA, a major mRNA of 5400 nucleotides and minor species of 7500, 3600, 2300 and 1200 nucleotides, were kept increasing during four days. Treatment with hCG resulted in decrease FSH and LH/hCG receptor mRNA levels, and the level of FSH receptor mRNA was completely suppressed. On the other hand, while the level of LH/hCG receptor mRNA was also suppressed by 12hr-24hr after hCG injection, it increased to the control level by 48hr and exceeded this level several fold by 72hr. These studies demonstrate that hormonal regulation of gonadotropin receptor mRNAs in rat ovary is reflected to the changes in gonadotropin receptor levels.

260 The role of Cu,Zn- and Mn-SOD in the rat and human ovary. K.Tamate, K.Sengoku, S.Saitoh, M.Ishikawa, T.Shimizu, Dept.Obst.and Gynec., Asahikawa Medical College, Asahikawa.

We studied the effect of Cu,Zn- and Mn-Superoxide dismutase (SOD) which are specific scavenging enzymes of superoxide radical, on the ovulation in the rats and we examined the localization of SOD in rat and human ovaries. The results were as follows. 1)Cu,Zn-SOD (8mg x 4) administrated group the number of ova (27.8 ± 5.4 : $p < 0.1$) was significantly reduced compared to the control group (49.0 ± 3.3). Simmillary, the number of ova in the Mn-SOD (2mg x 2) administrated group (16.9 ± 7.6 : $p < 0.1$) was significantly different compared to the control (52.9 ± 6.3). 2)In the rat ovary, Cu,Zn-SOD was localized in the granulosa cells of mature follicles, primordial follicles, colpus luteum and epithelial cells of fallopian tube by immunohistological methods. Mn-SOD was localized in the external theca cells. The activity of SOD estimated by the modified Nitroblue Tetrazolium method was consisted with the immunohistological localization of both SODs. 3)In the human ovary, Mn-SOD was localized in the external theca cells. We believe that active oxygen and SOD play an important role in the rat and human ovulation, and Cu,Zn- and Mn-SOD have different localization and action in the ovaries.

261 GONADOTROPIN INDUCES EXPRESSION OF C-FOS AND C-JUN GENES IN RAT OVARIES. H.Shibata; K.Nakamura; M.Oosawa; I.Kondo; S.Inagaki; Y.Asada; N.Suganuma; O.Narita; Y.Tomoda Department of Obstetrics and Gynecology, Nagoya University, Aichi.

Gonadotropin regulates ovarian steroidogenesis and cellular proliferation. Since the expression of proto-oncogene c-fos and c-jun is known to mediate the action of tropic hormones such as ACTH and TSH, we investigated whether gonadotropin affects the expression of c-fos and c-jun genes in rat ovaries. The expression of P450scc (side chain cleavage) and β-actin genes was also studied. Effect of gonadotropin on ovaries was studied in medical hypophysectomized rats by Gn-RH agonist (TAP 144SR). Ovaries were resected by time course after gonadotropin administration, and RNA was extracted. Changes in the mRNA levels were studied by Northern and dot blot analysis. It was demonstrated that gonadotropin induces increases in mRNAs encoding c-fos and c-jun in rat ovaries. The mRNA levels of both genes increased rapidly and transiently, the peak levels were at 15min after gonadotropin administration. Both mRNAs declined to near control levels by 30-60min. On the other hand, the levels of mRNAs encoding P450scc and β-actin began to increase after 1hr. These results suggest that increased expression of c-fos and c-jun genes may have important roles in mediating in action of gonadotropin on the ovaries.