

## 89. THE EFFECT OF KIT LIGAND ON FOLLICLE GROWTH INITIATION IN CULTURED RABBIT AND MOUSE OVARIES

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The mechanisms by which primordial follicles initiate growth remain largely unknown, though evidence from mutant mice suggest that the cytokine, kit ligand and its receptor c-kit, play a central role in early follicle development. We investigated the effects of kit ligand on the initial recruitment of primordial follicles in the mouse and rabbit ovary. Whole 4-day-old mouse ovaries and 8-week-old rabbit ovarian cortex explants were maintained in our organ culture system for 8 days. Selected ovaries were co-cultured with 150 ng/mL recombinant mouse kit ligand and/or anti-recombinant mouse kit ligand antibody. Indices of follicle growth initiation (oocyte diameter, follicle diameter and the proportion of primordial follicles to total follicles) were compared with controls and between treatment groups for each species. Initial analysis of mouse ovaries indicates that kit ligand promotes the initiation of primordial follicular growth. Of the follicles present in untreated cultured mouse ovaries, 35% were in the primordial stage, but primordial follicles were found to make up only 6% of follicles in kit ligand treated ovaries ( $P<0.05$ ). There was a concomitant increase in the proportion of early primary follicles from 55% in untreated cultured mouse ovaries to 73% in ovaries cultured with kit ligand ( $p<0.05$ ). Kit ligand also promoted an increase in the diameter of small oocytes and follicles (mean untreated primordial oocyte diameter  $18.9 \pm 0.1 \mu\text{m}$  v. mean kit ligand treated primordial oocyte diameter  $21.1 \pm 0.2 \mu\text{m}$ ,  $P<0.01$ ). These effects were completely inhibited by co-culture with anti-recombinant mouse kit ligand antibody (43% primordial follicles, mean primordial oocyte diameter  $18.8 \pm 0.1 \mu\text{m}$ ,  $P<0.01$ ). In contrast, recombinant mouse kit ligand had no stimulatory effect on primordial follicle recruitment in the cultured rabbit ovarian explants. Further experimentation with homologous ligand is required to confirm the roles of kit ligand and c-kit in rabbit follicular development.