

# JAMES RENNIE BEQUEST

## REPORT ON EXPEDITION/PROJECT/CONFERENCE

**Expedition/Project/Conference Title: Mammalian Oogenesis and Folliculogenesis: *In Vivo* and *In Vitro* Approaches** .....

**Travel Dates: 10 - 12 April, 2003** .....

**Location: Frascati, Italy** .....

**Group Member(s): Kirsty Walters and Dr Evelyn Telfer** .....

**Aims:** To present my work in an environment that allows for discussion and feedback on the results. In addition, to meet, interact and attend talks with well-recognised scientists in the field as a way of broadening my knowledge and understanding. ....

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### OUTCOME (not less than 300 words):-

The conference was held in Italy, in a small town called Frascati, which is south-east of Rome. Scientists, clinicians and other related professionals with an interest in normal and dysfunctional ovarian physiology, fertility control and gonadal preservation attended the three day conference.

The first day was made up of two sessions; 'Developmental aspects of ovarian follicles and oocytes'; and 'Defining oocyte quality'. Dr A Themmen (Rotterdam, Netherlands) gave a particularly interesting talk on 'Early stages of folliculogenesis and Anti-Mullerian hormone (AMH)', where he described how AMH, known for its essential role during male sex differentiation, also plays an important role in the growth and development of ovarian follicles. AMH is expressed in primary follicles immediately after they have started to grow. This expression is switched off at selection, when follicle stimulating hormone (FSH) comes into play. In the absence of AMH, follicles are more responsive to FSH. Therefore, it is thought that primary follicles expressing AMH have a negative effect on primordial follicles and inhibit their sensitivity to FSH. As a result, the follicles are held back till the conditions are suitable for growth and recruitment of the follicle.

A poster gallery was held in the afternoon of the first day where I presented my work; entitled 'The effect of insulin-like growth factor on health and morphology of bovine antral follicles *in vitro*'. I enjoyed presenting my work and meeting others in the field, and I received valuable feedback.

The session entitled 'Follicle culture strategies for domestic animals and humans', which was held on the morning of the second day, was the most relevant to my work. Dr S Ceeconi (L'Aquila, Italy) discussed a possible reason why women suffering from hyperthyroidism may have reduced ovarian function. It has been observed that preantral follicles exposed to high concentrations of thyroid hormone T<sub>3</sub> have an impaired capacity to develop an antral cavity and release oestradiol. Furthermore, the oocyte showed a reduced ability to complete the transition from MI to MII. Dr O Hovatta (Stockholm, Sweden) talked about factors that have been found to be important in the survival of human follicles in culture. By using factors such as cGMP, factors from the TGF- $\beta$  family and kit ligand in the culture system, it has been possible to push the majority of the follicles onto the secondary stage within two weeks, with some entering the early antral stage after three weeks.

'Clinical aspects of "follicle unit biotechnology"' was the title for the session held on the last day of the conference. Dr R.G. Gosden (Virginia, U.S.A.) gave a fascinating talk on 'biology, pathology and technology of germ cell transplantation'. Discussion focused on the use of cryopreservation as a potential application for fertility preservation in young adults and child patients undergoing sterilizing treatment for cancer and other diseases, as well as for animal conservation and research. Methods and results of previously transplanted ovarian and testicular tissues were examined. Some encouraging results were demonstrated, which contribute to the continual progress towards greater efficiency while maintaining reproductive safety for the offspring.