# SRF Vacation Scholarship report 2018

The form below should be completed by the student, then forwarded to the supervisor for approval and submission to srf@conferencecollective.co.uk within 8 weeks of completing the project. Please submit the form as a Word document.

A maximum of one figure (with legend of less than 100 words) may be appended if required.

**Please note:** excerpts from this form may be published on the SRF website, so please ensure content is suitable for website publication, and does not compromise future dissemination of data in peer-reviewed papers etc. The SRF reserves the right to edit responses to ensure suitability for publication on the website, newsletter or in promotional material.

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| **Student’s Name:** | Anna Brodie | **Student’s Institution/University:** | Royal Veterinary College  |
| **Degree Title and year of study:** | MSci Bioveterinary Sciences Third Year |  |
| **Supervisor’s Name:** | Dr Ali Fouladi-Nashta | **Supervisor’s Department and Institution:** | Reproduction Royal Veterinary College  |
| **Project Title:** | Assessing development and antrum formation of bovine pre-antral ovarian follicles in long-term culture |

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| **Briefly outline the background and aims of the project** *(max 200 words)* |
| Much research has been done investigating the process of folliculogenesis and antral follicles. However, a negligible amount of research has been carried out investigating pre-antral follicles, despite these follicles making up the majority of the follicle pool. Studies have shown Insulin- like Growth Factor-1, Epidermal Growth Factor and more recently, C- Type Natriuretic Peptide to enhance follicular growth. Three main aims were set out for this project:To assess the effect of FSH in combination with IGF-1 and EGF on growth and antrum formation during long-term culture of pre-antral follicles. To determine whether CNTP enhances development and antrum formation in bovine pre-antral follicles.Assess health, quality and nuclear maturation of the oocytes after long-term follicle culture. |
| **Did the project change from that proposed in the application? If so, what changes were made and why?** *(max 100 words)* |
| Due to the nature of the isolation of the pre-antral follicles, the numbers of follicles isolated from each batch of ovaries were smaller than expected. In order to generate larger sample sizes, EGF was removed as a variable to reduce the number of treatment groups. This left a control group, and IGF-1 and CTNP individually and in combination. |
| **What were the main results/findings of the project?** *(max 300 words)* |
| Due to the small sample sizes and a couple of issues with contamination, no definitive results could be drawn. However, the follicles survived the duration within the culture and some seemed to increase in size. It was also found that the oocytes could be successfully recovered from the follicles. Once removed, the oocytes were denuded and stained to assess their stage in the cell cycle. It was found that some oocytes matured were in previous stages to MII, showing that the follicles had somewhat maintained arrest of the cell cycle. As not all oocytes were recovered from follicles, this meant that it wasn’t possible to compare the treatment groups.In the future, it would also be more useful to stain for the presence of an antrum as opposed to just imaging under a microscope, as the positioning of the follicle would often change when media was changed etc. A graticule could also be used in conjunction with a microscope to take accurate measurements of follicle size.  |
| **What do you conclude from your findings?** *(max 150 words)* |
| In conclusion, further study would be necessary to compare treatment groups between cultured follicles. It would also be beneficial to improve the antrum observing techniques and accuracy of follicle measurement.  |
| **How has this experience influenced your thinking regarding your future/ongoing studies, and/or career choice?** *(max 150 words)*  |
| I thoroughly enjoyed my time working on this project and following its completion, I have decided to undertake a Master’s degree within the field of reproduction and hopefully pursue a career within reproductive biology. Despite some issues during the project, I have still maintained an interest in the topic and within scientific research. |
| **Please use the space below to add any other comments/thoughts about the SRF Vacation Scholarship** *(max 100 words)* |
| ***Student:*** I have found this project to be very enjoyable and rewarding. Over the course of the project, my fine lab skills used when dissecting follicles improved dramatically. Working on this type of project has also given me a better insight of research science in practice. ***Supervisor:*** Anna worked very hard to optimize a working protocol for isolation of preantral follicles from adult cow ovaries. The techniques was quite challenging. She is hoping to continue her project for MSci degree in my laboratory. The experience she has gained will help her to make steady progress towards a highly productive outcome. We have planned to present Anna’s results in the Fertility Conference next year. I would like to thank SRF for providing the opportunity for Anna. This has enhanced her interest in research in the field of reproductive biology. |