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Exploration of Pregnancy Recognition in Ruminants Using a Novel Type I Interferon Receptor Knockout Sheep Model

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DATA MANAGEMENT PLAN

Expected Data Type and Format

1) Physical data will be comprised of serum, DNA, RNA and cDNA samples, and frozen fibroblast cells. For short-term storage serum, DNA, RNA and cDNA will be kept at -20°C. For long-term storage these samples will be stored at -80°C. Frozen fibroblast cell lines will be held in two redundant liquid nitrogen tanks. All samples will be kept for a minimum of five years after publication of the results.

2) Electronic data:

   a) Breeding records will be maintained in a Filemaker Pro data base. This comprehensive data base will include all of the breeding information and test results for the breeding herd and experimental animals.

   b) Gene expression data from IFNA response assays will be acquired using Fluidigm Real-Time PCR Analysis Software (Fluidigm) and will be processed by the same software. Processed data will be exported to Microsoft Excel for final analysis and archiving.

   c) Diagnostic laboratory reports for all hormone assays will be archived as PDF files. All of the data will also be maintained in the form of Excel spreadsheets.

   d) Necropsy reports on any animals that die will be maintained as PDF files.

3) All other data (laboratory notes, protocols, sample collection information) will be stored as Microsoft Word or Excel files. Paper notes such as field and laboratory notes will be typed into Microsoft Word or Excel, or will be scanned weekly and stored as Adobe PDF files.

All statistical analysis data will be stored in text (.txt), Microsoft Word or Excel formats.

Data will be converted to .txt and .csv file formats for long term interoperability when appropriate.

Data Storage and Preservation

All data, whether in electronic or paper form, will be properly named and organized by recording date. All raw, processed and analyzed electronic data will be archived in triplicate. One copy will be archieved in the PD's computer system, which is backed up hourly to an external hard drive. A second copy will be kept on the Center for Integrated BioSystems backup server (Synology 12 Bay NAS RackStation RS18017xs), which has a redundant RAID-5 configuration. A third copy will be deposited in Utah State University's institutional repository, Digital Commons. DigitalCommons@USU supports all the file types and formats. Files are provided with persistent URLs, and if needed, a DOI. All files are backed up at multiple sites, including cloud storage.

Physical data (paper form) will be archived on-site in the Department of Animal, Dairy and Veterinary Sciences and scanned copies will be kept on the Center for Integrated BioSystems backup server and Utah State University's institutional repository, Digital Commons.

Raw, processed and analyzed data will be kept for a minimum of 5 years after publication.

Data Sharing and Public Access

Data to support publications will be made available at the time of article publication. After final publications associated with the grant proposal are completed any remaining data will be made available in appropriate data repositories.

We will make the results of our work available to the scientific community through timely peer-reviewed publications and professional meeting presentations. Our budget contains publication and travel funds that will cover the costs of publication and oral and poster presentations at professional venues like the Society of Study in Reproduction (SSR) meeting, American Society of Animal Science (ASAS) meeting, American Society for Reproductive Immunology (ASRI) meeting, and Biannual Large Animal Genetic Engineering Summit.

Roles and Responsibilities

Dr. Davies will be responsible for the implementation and monitoring of the data management plan. He will make sure all data are deposited in the appropriate sites. In case someone leaves the research group before completion of the proposed studies, Dr. Davies will be responsible for collecting and verifying that all data in that person's possession is appropriately identified, stored and accessible. He will also reassign the responsibility for that data to another laboratory member.

Each student and laboratory technician will be responsible for properly naming, storing and recording their data. All data will be copied weekly to the Center for Integrated BioSystems backup server and Digital Commons. Monthly meetings will be held to assure that data management practices are followed, and data is being shared.

Monitoring and Reporting

This NIFA funded project will adhere to the DMP described above and compliance will be monitored throughout the duration of the project until all data is processed and deposited. The implementation of the DMP will be reported to NIFA through REEport. This will include a summary of data sharing activities, as well as information on data dissemination through activities such as publications and presentations at conferences.