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Mitochondria modulation of postmortem proteolysis and tenderization

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Expected Data Type
This project will generate data relative to protein expression, mitochondrial functionality, enzymatic activity, meat quality, and 2DE proteomic profiling. Data will be collected in a laboratory setting and documented by physical and digital means. All of the data collected in this project will be primary data.

Data Format
The data collected from the experiments outlined in this proposal will be in the following formats:

- **Protein expression:** Protein expression will be collected through gel electrophoresis and western blot analysis to determine relative protein abundance and extent of degradation. This data will be stored in an excel file.
- **Enzymatic activity:** Citrate synthase, Caspase-3 and -9 activities will be determined spectrophotometrically in a microplate setting. This data will be stored in an excel file.
- **Meat quality data:** Analytical meat quality data, including pH, Warner-Bratzler shear force, and myofibrillar fragmentation index will be collected in a laboratory setting and stored in an excel file.
- **2DE proteomics data:** The first stage of the 2DE proteomic analysis will result in a relative densitometry value for each spot on each gel. This relative value will be obtained used the DeCyder software. The second stage of the 2DE proteomic analysis will use mass spectrometry to identify exactly what the specific protein is within some of the spots. The resulting peptide mass and the associated fragmentation spectra will be submitted to a GPS Explorer workstation equipped with a MASCOT search engine to search the database of the National Center for Biotechnology Information non-redundant. This will result in the protein name as well as a confidence interval % for that protein.

Data Storage and Preservation
All data collected will be stored and managed long-term on Utah State University "Box" system. Box uses the cloud technology so the data can be accessed online through USU secured Single-Sign-On. Furthermore, all research data obtained will be stored on different hard drives/servers in the labs of the individuals responsible for collecting that particular piece of data. Upon publication, some data files pertinent to the analysis and/or interpretation of the research manuscript may be made available for viewing and/or download via a permanent institutional server with web access.

Data Sharing and Public Access
After collection, analysis, and interpretation, data suitable to be published will be submitted to appropriate journals and presented in conference meetings. We pledge to get our data to publication/presentation in a reasonable amount of time: we anticipate having all data published within two years of the project end date. After that time, data will be released to the public

Roles and Responsibilities
The PhD student will be responsible for executing experiments, collecting the corresponding raw data, and conducting their analysis and interpretation. The PI will be responsible for both coordinating and ensuring that all data generated in this project is properly stored, backed-up and shared.

Monitoring and reporting
Annual and final reports will be prepared, presented, and preserved by the PI according to NIFA guidelines.