Research Development Fund – Fall 2022 Application Template
Submission Deadline: ***12:00PM CDT Monday – October 10, 2022,*** **to rdf@tamu.edu**

*****Applications exceeding page limits for any section or do not follow the template will not be reviewed*****

Application Title: **Biological Applications of Isothermal Titration Calorimetry (ITC)**

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Key Participating Units: School of Veterinary Medicine & Biomedical Sciences, College of Engineering, College of Agriculture & Life Sciences

RDF Amount Requested: $114,250

Executive Summary

Isothermal titration calorimetry (ITC) is a state-of-the-art technique to determine basic details of a binding interactions (affinity, thermodynamics and stoichiometry) in a single experiment under native conditions. Since most biochemical and chemical processes associated with both applied and translational research involve interactions an ITC instrument is an essential and basic tool for determining protein-protein, drug-protein and drug-drug binding interactions. For example, research in the Safe Laboratory is focused on drug repurposing and development and targeting critical intracellular receptors and the ITC instrument will be essential for studies in two new grants from the National Cancer Institute the Department of Defense on cancer and Parkinson's disease therapy. Similar approaches will be used by many other investigators in which ITC instrumentation will be used to study interactions that underly their own basic and translational research problems. The ITC instrument represents an important strategic investment in core research resources that will benefit numerous departments and colleges The ITC instrument will be housed in the Veterinary Research Building. The ITC instrument will support campus-wide activity and also be available to faculty in the only NIH funded P30 Texas A&M Center for Environmental Health Research (TiCER). Such a creative investment will potentially have a significant impact on the Texas A&M research infrastructure. The availability of this instrument will enhance research productivity by providing the necessary "high end" preliminary data that is essential for successfully competing for external grant funding in the life sciences.