An Update on the Microsurgery Core

The Microsurgery Core is dedicated to providing high quality services to investigators in the Northwestern University community. Over the past 8 years, the Core has performed more than 6,000 mouse organ transplants and other surgical procedures for NU investigators. In addition to performing microsurgical procedures, the Core offers companion services including drug delivery, serial blood collection and diagnostic tests, such as liver and renal function panels and blood gas analysis with our new state-of-the-art VetScan VS2 bio-analyzer.

Additionally, the Core provides consultations to PIs on experiment design, animal use protocol preparation, outcome discussion and data interpretation, and new model development. The strengths of the Core are four-fold: 1) decades of rodent-based research experience and expertise in creating innovative murine surgical models, especially vascularized organ transplant models in mice; 2) passionate, hard-working, skillful and collegial staff; 3) state-of-the-art equipment and flexible scheduling; and 4) excellent administrative support from CTC. The Core’s productivity is reflected by >10 publications in peer-reviewed scientific journals and 19 abstracts being presented or to be presented in national and international conferences in 2016. The Core has been instrumental in securing several multi-million dollar grants that fund for research in transplantation, immunology, regenerative medicine and bioengineering. The Core has also achieved external recognition by other institutions and biotech companies for its expertise in experimental microsurgery and advanced research technologies. As a result of this recognition, the Core has attracted other sponsored research projects from pharmaceutical and biotech companies including Baxter, Aplimmune, Inc., Transimmune AG, and other institutions such as Yale University and the University of Pittsburgh. In each of the last three years the Core has scored favorably and noticeably higher than the mean scores in all areas of the annual user survey related to services and staff.

Since June 2015, the Microsurgery Core has been an integral part of the CMV Program Project Grant (NIH P01) led by Dr. Michael Abecassis, as the Microsurgery and Histopathology Core (Core A). The PPG seeks to develop integrating mechanistic insights from diverse in vivo and in vitro models to prevent CMV reactivation following transplantation.

Core A combines histopathological expertise, provided by Dr. Yashpal Kanwar, Professor of Pathology, and techniques with the existing Microsurgery Core. The aim is to provide the necessary skill sets, expertise and experience for the use of mouse transplant models to test the hypotheses and aims proposed by Project leaders while guaranteeing technical success and efficiencies. Core A is responsible for performing the mouse kidney and heart transplant procedures, providing immediate post-transplant animal care and drug administration and technical and analytical support for histopathological evaluation such as renal function monitoring, and tissue sample collection/preservation/processing for light and immunofluorescence microscopy analyses. In addition, Core A supports and facilitates collaborations between Cores and Projects. Core A provides the necessary support for storage of extra transplant samples, maintains the archive of tissue samples for further analyses and coordinates experiments among projects, ensuring maximal utilization of tissue samples from each transplant and proper distribution of tissue samples to the relevant investigators. Core A is staffed by experienced microsurgeons and lab technologists, and is unique in that it has the capability and flexibility to address highly specialized technical needs of both animal surgical models and histologic analyses, as well as to facilitate interactions among projects and investigators. With combined expertise in transplant microsurgery and histopathology, as well as state-of-the-art microsurgery and histology facilities, Core A is well positioned to achieve its long-term goal.

For additional information, please contact Dr. Jenny Zhang (Core Director) at 312-503-1682, email jzhang@northwestern.edu, or visit websites at: http://www.feinberg.northwestern.edu/sites/transplant/research/research-cores/microsurgery-core.html or https://www.facilities.research.northwestern.edu/browse-facilities/microsurgery-core