Brain Health and Disease Across the Lifespan – 2024 Annual Retreat updates

Accomplishments to date

- *Strategic Neurosciences faculty recruitment.* Task force members (including Dr. Erik Roberson) helped to lead the renewed Strategic Neurosciences recruitment program, which seeks to recruit up to 20 faculty at all ranks as part of a major strategic initiative in the Neurosciences. This effort was launched in June 2023, and as of February 2024 this initiative has received over 150 applications and led to 10+ faculty candidate interviews and 3 successful recruitments.
- *Brain-PRIME postdoctoral program.* In August of 2023, the task force launched a new program to enhance recruitment of postdoctoral scholars to the UAB HSOM. Termed Brain-PRIME (Postdoctoral Research Initiative for Multidisciplinary Exploration), this program offers increased stipends, career development funds, advanced career mentoring and training, and a cohort-based streamlined application process. Directed by BHTF lead Dr. Jeremy Day, Brain-PRIME was designed to coincide with an overall expansion of Neuroscience faculty at UAB, and will foster a vital pipeline for diverse junior investigators to drive neuroscience research at UAB to new heights. In less than 6 months, the program has already received 16 applications and has made its first successful award offer to Dr. Aanishaa Jhaldiyal from Johns Hopkins University.
- *High resolution spatial transcriptomics*. The task force partnered with I-4ward focus area leader Dr. Fran Lund, D-Tech leaders, and other campus leaders in this space to help fund the purchase of a 10X Genomics Xenium instrument. This instrument permits high-performance *in situ* gene expression mapping to enable breakthrough discoveries using postmortem human brains, brain organoid systems, and brain samples from animal models. We contributed $100,000 towards purchase of this instrument and obtained partner donations from many other campus centers and departments. Brain Health and I-4ward task force leaders worked together to obtain HSF-GEF support for this instrument in November 2023, and the instrument is now on campus awaiting installation in the UAB Flow Cytometry and Single Cell Core Facility.
- *Bioinformatics recruitment.* The task force proposed additional recruitment of bioinformatics specialists into existing data science core facilities to prime the pump in this area and promote the implementation of big data and machine learning approaches for brain health. In pursuit of this goal, the BHTF committed $25,000 (in partnership with additional commitments from the I-4ward theme) towards focused recruitment of a new data scientist into the HSOM bioinformatics community. We envision that this recruitment, in coordination with the UAB Biological Data Sciences Core, will enhance capabilities in spatial and single cell transcriptomics, which was a shared goal across focus areas.
- *NeuroScholars awards.* In January 2024, we launched a new program called NeuroScholars, which seeks to boost recruitment of top neuroscience graduate trainees to UAB. Modeled on the highly successful AMC21 Scholar Program, NeuroScholars offers scientific discretionary funds to enhance the training experience, laboratory support, and advanced career training of GBS Neuroscience and Neuroengineering PhD students. Two NeuroScholar awards will be extended in this recruitment cycle.

Short and long term goals. In the coming year, we plan to continue working towards the previously established goals, in addition to continuing efforts on the accomplishments and initiatives outlined above.

- *Spatial transcriptomics voucher program*. As a short-term goal, we have plans to launch a voucher program to support application of spatial transcriptomics (e.g., 10X Xenium platform) by HSOM users in Task Force relevant domains. This program will be launched in Spring 2024.
- *Creation of a UAB Brain, Biospecimen, and Data Repository*. As a long-term goal, we propose a strategic investment to grow a facility that would facilitate collection of biosamples and other relevant clinical/diagnostic data across the UAB Health System and Children's Hospital of Alabama, integrate biosample metadata with existing patient genetic databases, and collect/maintain relevant "neurodata" from ongoing neurosurgery, PET, and MRI activities at UAB.
- *Support for research activities by residents*. Traditionally, medical residents have not been well integrated into UAB's research enterprise. We hope to focus efforts towards developing and growing research-track residency programs in mental health, neurodegeneration and aging, pediatric neurology, and addictions.
- *Infrastructure investments*. Longer term goals include plans to invest in computational infrastructure for brain health, including a UAB Neuroscience Supercomputer and additional capital equipment.