

Neuroscience Research at the Medical College of Georgia

Current status of neuroscience research at MCG. Comprises 25 faculty that maintain 47 projects for a total of approximately 2.9 million dollars in grant support (41% of funding dollars obtained through NIH sources). Primary Neuroscience research faculty have principal appointments in the Departments of Cell Biology and Anatomy, Biochemistry and Molecular Biology, Pharmacology and Toxicology, Physiology and Endocrinology, Ophthalmology, Psychiatry, and IMMAG. Secondary Neuroscience research programs include: vision - 1.7 million dollars, 88% NIH funding, 12 faculty; neurobehavioral - 1.1 million dollars, 49% NIH dollars, 6 faculty; movement balance disorders - 0.45 million dollars, 7% NIH dollars, 7 faculty; Alzheimer's disease/dementia - 0.33 million dollars, 0% NIH dollars, 4 faculty. Despite the number of neuroscience faculty (54 faculty), many of whom have, or have the potential to develop, exceptional research programs, and the considerable total extramural support (~6.5 million dollars), the state of the Neuroscience Research Community at MCG is not encouraging. Several rationales underlay this status: 1) the neuroscience research community lacks senior faculty leadership considered critical to the representation of neuroscience interests and concerns at the administrative level, to the development of organizational direction, to the establishment of communication between basic science as well as clinical departments; and, perhaps most importantly, to the support and mentorship of neuroscience junior faculty campus-wide; 2) research interests among neuroscience faculty are diverse, thus lacking the necessary focus and critical mass necessary to promote/foster long-term, creative interactions among neuroscience faculty; 3) a somewhat justifiable interpretation of us versus the Institute of Molecular Medicine, both in terms of dollars and administrative support/direction; and 4) the lack of common/contiguous laboratory space among a core of neuroscience faculty, which in itself would promote interactions among faculty.

Two avenues as possible means to establish an encouraging environment for neuroscience research merit discussion. First, the recruitment of an internationally recognized neuroscientist to build outside-in a neuroscience biomedical research and graduate program; and second, a recognition and restructuring of what is present at the Medical College of Georgia.

What is needed to achieve programmatic funding. While at first glance, the recruitment of renowned senior faculty, and subsequently junior faculty, as a means to develop outside-in a neuroscience program appears attractive, it may not be the most logical avenue for immediate consideration on several accounts. First, the recruitment of a scientist with international credibility to the Medical College of Georgia (considering the present status of the neuroscience research program as well as the financial stability of the School of Medicine) would prove realistically more difficult than imagined. Second, the recruitment and development of a new program would require financial support and structural facilities that are not presently available. But allocation of limited resources to the existing neuroscience research community or to do nothing at all are also not realistic options.

Alternatively, as a first step toward the development of a recognized neuroscience program, after much discussion with other neuroscience faculty, development of a joint clinical and basic science effort directed toward the establishment of a research directive in epilepsy may be an appropriate initiative to support. From a clinical perspective, the epilepsy program at the Medical College of Georgia is considered the premier program for the Southeast. Clinical epilepsy faculty are nationally and internationally recognized, serving on multiple clinical and scientific advisory boards. However, the program has not risen to the forefront of epilepsy programs (for example, as compared to the epilepsy program at Yale University) in large part because it lacks a basic science component. The recruitment of 3-4 junior faculty in molecular/cellular neurobiology as related to epilepsy yields instant benefit to an already renowned clinical program. Additionally, already here at the Medical College is a collective of excellent basic science junior faculty whose research efforts are directed toward neuronal cell excitability and function: Drs. Nevin Lambert (Pharmacology and Toxicology), Clare Bergson, (Pharmacology and Toxicology), Deborah Lewis (Pharmacology and Toxicology), Christopher Wingard (Physiology and Endocrinology), and Corey Smith (Physiology and Endocrinology). These scientist would provide a core group that could easily attract and integrate top-quality molecular/cellular neurobiologists. A research group of this size would have the critical mass and diversity of interest and techniques to compete effectively for programmatic funding. Dr. Thomas Swift (Chairman of Neurology, MCG) and Dr. Mark Lee (Chairman of Neurosurgery, MCG), enthusiastically endorse and support this possible collaborative development. Importantly, Drs. Swift and Lee would provide the critical, but previously missing, senior faculty leadership, at least initially.

Eight Georgia institutions, led by Emory University, have received NSF funding of ~20 million dollars for 5 years to establish a behavioral neuroscience center. The development of an excellence in molecular/cellular neurobiology at the Medical College would complement, but not duplicate, a State effort in behavioral neuroscience.

What is needed to acquire translational funding. The development of a research initiative in a clinical program reverses the typical approach to the development of a basic science program. Nonetheless, the epilepsy program is one of the outstanding clinical and/or basic science programs at the Medical College of Georgia. Translational funding and interest are natural fallouts of the presented approach.

What areas have relevance to the State of Georgia. Epilepsy has no geographical boundaries; affecting 1% of the population, 2 % of all children.

What is needed to achieve international recognition. The development of a single prominent program (i.e., epilepsy) should be viewed as a small step in the right direction. Accordingly, the development of a prominent comprehensive neuroscience program should be considered necessarily a long-term goal. To this end, the development of a permanent neuroscience advisory group that includes clinical and basic science faculty should be pursued immediately as a means of developing a long-term vision and plan for the development of an internationally recognized program in neuroscience. Should the

administration support the possibility, Dr. Thomas Swift (Chairman of Neurology, MCG), Dr. Mark Lee (Chairman of Neurosurgery, MCG), Dr. David Hess (Chairman of Neurological Services and Director of Research, Veterans Administration), Dr. Nevin Lambert (Pharmacology and Toxicology), Dr. Clare Bergson (Pharmacology and Toxicology, and Dr. Christopher Wingard (Physiology and Endocrinology) support this effort and have agreed to represent the clinical and basic science faculty, respectively, as the initial committee.

Additionally, no basic science program that revolves about a clinical problem can be successful in the absence of effective support from neuropathology. Given the pending retirement of Dr. Yaghmai, Chairman, Section of Neuropathology, the recruitment of a neuropathologist at 50% clinical/50% research effort is critical. Discussions with Dr. Hessler, a recently recruited neuropathologist, clearly indicate that neuropathology clinical services will be stretched to the extent that possible efforts in establishing a research component may be an unreasonable expectation in the absence of additional faculty.

Deborah Lewis
Jim Fick
Richard Cameron