Section 11. Description of Institutional Environment and Commitment to Training

The Graduate School of Biomedical Sciences at The Icahn School of Medicine at Mount Sinai (ISMMS) was established in 1968 and has PhD programs in Neuroscience and in Biomedical Sciences. All graduate programs at ISMMS are approved by the Middle States Commission on Higher Education. The Neuroscience Graduate Training Program provides multidisciplinary training through a distinct curriculum, bridging basic and clinical Departments, Centers and Institutes, including the Friedman Brain Institute (FBI). Mount Sinai has targeted Neuroscience for robust growth in numbers of training Faculty over the past 10 years, with well over 135 faculty that participate in the Training Program. Faculty are organized into research "Areas of Excellence" that include Addiction, Aging, Cognition, Circuit Therapeutics, Computational Psychiatry, Depression and Anxiety, Epigenetics, Glial Biology and Myelination, Molecular Psychiatry, Neural Development and Autism, Parkinson's, Alzheimer's and other Neurodegenerative Disorders, Stem Cells, Schizophrenia and others. Mount Sinai's Department of Neuroscience currently ranks **2nd nationally in NIH funding** (*Blue Ridge Institute for Medical Research*), and has varied from #1 - #4 over the past 10 years. ISMMS has allocated nearly 5,000 sq feet of space to the educational and research activities of the Neuroscience Department and FBI that serve the Training Program. There is, additionally, ~100,000 sq feet of research laboratories that house the Department's and the Institute's research programs and 4,500 square feet dedicated to Institutional CORE facilities. The latter provides substantial support for innovative, state-of-the-art technologies, including scientific computing, essential to our research programs. Collaborative interactions among the Neuroscience Graduate Training Faculty, and co-sponsorship of students and postdoctoral fellows is common. The Program leverages close partnerships with the School of Medicine and The Mount Sinai Hospital and Health Care System to foster groundbreaking research and student mentoring in basic, clinical and translational neuroscience, exploiting diverse model systems ranging from flies and worms, to transgenic rodents, to human and non-human primates, and is typified by a first-year Core course where PhD students have direct patient contact. **The Neuroscience program director is Dr. George W. Huntley, Professor of Neuroscience and member of the FBI.**

The Program matriculates ~15-20 students per year, with the average time to obtain a PhD in Neuroscience ~5.3 yrs. To ensure a smooth and successful transition to Graduate School, to help navigate policies, courses and requirements, and to help students formulate their academic and career-goal milestones, all incoming students are assigned a faculty Advisor and a "big sibling". This support team helps each student choose their rotations (minimally two are required) and select a thesis lab. During the first year, all Neuroscience students are required to take a 5-part Core sequence comprising *Cellular and Molecular Neuroscience, Systems Neuroscience, Behavioral/Cognitive Neuroscience, Pathophysiology of Human Brain Disorders* and a final course in *Clinical Topics in Neuroscience* which provides direct-patient contact along with didactic lectures in psychopathology facilitated by Mount Sinai clinicians. Students are also required to take *Modern Statistics for Modern Biology* (a neuroscience data-focused course emphasizing core probability, null hypothesis significance testing, baysian parameter estimation approaches to statistical inference, linear modeling, et al), *Responsible Conduct in Research*, *Rigor & Reproducibility* (which covers best practices in managing laboratory data, communication, and data-archiving) and *Techniques and Approaches in Neuroscience*. These courses are completed by mid-April of the students' first year. Additional course requirements, mostly taken in year 2, include completion of *Neural Data Science* (which addresses advances statistical principles and computational methods), *Effective Science Communication*, *Principles of Writing Scientific Proposals* and minimally two Advanced Electives, chosen from across the Institution, and customized to training needs.

By the end of their first year, students complete their rotations and choose a thesis lab. Once a thesis lab is chosen, a thesis advisory committee is formed. This committee comprises 3 faculty chosen by the student and their sponsor for specific expertise in fields relevant to students' training goals and thesis project. Together, the thesis advisory committee, thesis sponsor/co-sponsor, and student complete an Individualized Development Plan (IDP), where milestones and timelines are clearly specified. By the end of the second year, students present their thesis proposal to their thesis advisory committee. The thesis proposal exam includes a written document (NRSA format) and an orally-defended exam which includes a general knowledge component regarding the students' proposed research domain. To prepare their written document, students participate in *Principles of Writing Scientific Proposals*, an advanced course providing training in grantsmanship and NIH-style scientific grant writing. Successful completion of the qualifying examination requires: 1) a coherent written proposal demonstrating knowledge and synthesis of relevant background, relevant and feasible research

strategy; and 2) a comprehensive oral defense of the proposed hypotheses and methods, with demonstrated awareness of potential pitfalls, alternative approaches, and translational implications. Student progress is regularly monitored, and support is provided in the event of deficiencies. Students must maintain at least a B average in required course work, receive successful evaluations following their research rotations, and successful defense of their thesis proposal. Students not meeting these standards are evaluated by the Graduate School Committee of Academic Review to determine appropriate corrective actions. Additionally, students are required to meet every 6 months with their Thesis Advisory Committee, where they formally present their progress. The committee evaluates progress of student's milestones laid out in their IDP.

There are several venues for students to gain skills in data presentation and to remain engaged in current neuroscience research. All students attend and present a poster or short-talk at the annual FBI Retreat. Additionally, students present regularly in Works-in-Progress and Journal Club seminars. Students also must attend a weekly Neuroscience Seminar Series, where they can interact with experts in diverse topics from different institutions. Each of these outlets provides a rich forum for spirited interactions among students and neuroscience researchers, representing both clinical and basic science endeavors.

The Graduate School provides a rich support system for career development. The Office of Career Services and Strategy supports students in pursuit of their professional goals. They host numerous workshops on topics including CV-to-resume conversion and successful interview strategies. Through **his/her/their** continued engagement with these career development opportunities, **your NAME** will be well-equipped to achieve **his/her/their** professional goals as a postdoctoral fellow **(or whatever is appropriate)** and principal investigator following the completion of **his/her/their** PhD in Neuroscience. In addition to supporting students' professional development, all students have free, unlimited access to mental health and well-being resources provided by organizations like: Student and Trainee Mental Health (STMH) and Trainee Health and Wellness Committee (THAW). The ISMMS hosts regular well-being events for all students.

To foster mentoring and teaching skills, students can serve as Teaching Assistants for our Core and elective courses. Financial remuneration is provided to teaching assistants, but it is not required for graduation. Students can also participate in MiNDS (Mentoring in Neuroscience Discovery at Sinai), a Neuroscience Outreach Program organized by Mount Sinai Neuroscience graduate students. MiNDS hosts an annual Brain Awareness Fair to promote public awareness of brain research, where a number of fun, brain-centric exhibits and games are created for local NYC elementary, middle, and high school students and their parents. MiNDS predoctoral trainees also travel to local public schools principally in our East Harlem neighborhood, where they teach and demonstrate basic neuroanatomy to high school and junior high school students. Lastly, Sinai's CEYE program (Center for Excellence in Youth Education) partners with some of New York's prestigious science and engineering public high schools to provide a pipeline of science-bound high-school students who spend 2 yrs conducting mentored research in the lab.

Additional details of **your NAME's** IDP plan can be found in **his/her/their** Applicant Background and Training Plan as well as the Sponsor Statement.

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