REQUIREMENTS - K12 Training Program in Nervous System Tumors

https://www.dfhcc.harvard.edu/insider/training-and-education/career-development/training-program-in-nervous-system-tumors/program-description/

Background:

The overall mission of this Dana-Farber/Harvard Cancer Center (DF/HCC) K12 training program is designed to train neuro-oncologists -- including adult and pediatric specialists in neurology, neurosurgery, radiation oncology, oncology, pathology, and radiology -- in the methods of research. The training program will expose the physician to coursework and hands-on experience in the laboratory. It is anticipated that after their training, graduates will continue to advance the field by developing clinical trials to test new treatments for patients with primary and metastatic tumors of the nervous system.

This DF/HCC K12 research training program in neuro-oncology is based at the Massachusetts General Hospital Cancer (MGH) Center but integrates programs from across the 7 institutions comprising the DF/HCC and the Massachusetts Institute of Technology. The primary objective of this two-year program is to train physician-scientists capable of providing a critical bridge between the biological sciences and experimental therapeutics. In order to achieve this objective, the training program emphasizes a didactic curriculum in clinical research methodology, mentor-supervised clinical and basic science research experiences, and ongoing Scholar monitoring and feedback. All Scholars are assigned a clinical trial project during the training program.

Proposed training:

Our unique training grant devoted to nervous system tumors is designed for clinically trained candidates who desire a basic research experience with the intent of translating this research into the clinical arena. The key elements of the proposed training program will include: 1) two-year commitment to mentored research training; 2) a didactic core curriculum in clinical research methods; 3) a basic or translational science research experience; 4) a clinical research core requirement that enables all Scholars to gain “hands on” experience in the development of one or more clinical trials; 5) regular meetings with a Mentoring Committee consisting of both basic science and clinical science mentors and the Program Co-Directors; 6) electronic evaluations of the Scholars’ performance on a biannual basis; 7) career planning with the Program Co-Directors to review progress annually; 8) exposure to a wide range of contemporary topics in clinical and translational brain tumor research.

Another feature of our training program is the ability to tailor the educational experience of each Scholar. Each Scholar arrives with a unique background, and it is important that we provide a training experience that builds upon the foundation of each person. While there is a basic program structure that is followed for all Scholars, we can customize certain components of the program. For example, some Scholars arrive with extensive course work in clinical methods and biostatistics, and these trainees are allowed to move directly into the laboratory or research setting without a requirement for the formal didactic training described below.

A Mentoring Committee -- including a Laboratory/Research Mentor, a Clinical Mentor, and a program leader (Co-Director) and, potentially, another topic expert(s) recruited to provide external advice -- is assigned to each Scholar. The Mentoring Committee, in collaboration with the Scholar, develops an individual training plan as each trainee arrives in July. **The plan includes 3 key elements: 1) Basic Science Research Core Requirement, 2) Clinical Research Core Requirement, 3) Didactic training. These elements and additional requirements are reviewed below.**

1. Basic Science Research Core Requirement

Each Scholar is expected to have a “hands-on” basic science experience that will carry forward from Year 1 to Year 2. This experience is supervised by the Laboratory/Research Mentor. Each Scholar is expected to attend

all relevant laboratory meetings and to execute a laboratory project that will lead to abstract submission and ultimate publication. In addition to the traditional "bench" laboratory environment selected by the vast majority of Scholars, there is also an option to engage in basic imaging research in animals and humans.

2. Clinical Research Core Requirement

Each Scholar is required to have substantive involvement in the development and approval process of a clinical trial during their research training experience. Ideally, the trial is related to their laboratory work, but this is often a challenge given the 2-year training period of the grant. Thus, most Scholars are assigned a clinical trial in development that is congruent with their research interest. The Scholar is assigned a mentor, typically the Clinical Mentor, to supervise their involvement in the clinical trial design, submission, and execution process. Several Scholars have successfully implemented and executed clinical trials that have led to publications as part of this requirement.

3. Required Didactic Training

Harvard School of Public Health (HSPH) - Program in Clinical Effectiveness (PCE)

Most Scholars will spend the summer weeks of years 1 and 2 attending the Program in Clinical Effectiveness (PCE) at the Harvard School of Public Health (HSPH). As noted, the only exception to this requirement are Scholars who previously had this type of training. This is determined by the Program co-Directors prior to the start of the Scholar's training. The first summer session requires full-time classroom attendance for 7 weeks and involves a formal curriculum in introductory and advanced biostatistics, clinical epidemiology, linear and longitudinal regression, health services research, decision analysis, ethics, medical informatics, principles of clinical trials, and survival methods. The 15+ credit curriculum is rigorous with morning and afternoon classes and a considerable amount of homework (the average participant spends 20 hours/week on homework assignments). All Scholars completing the first summer PCE curriculum are presented with a graduation certificate from the HSPH. Scholars may choose to enroll in a second summer of advanced PCE courses at the HSPH. More detail about the PCE, including current curriculum offered and detailed course descriptions, can be found on the Harvard T.H. Chan School of Public Health Website, https://www.hsph.harvard.edu/clinical-effectiveness/

In addition to attendance of these two summer sessions, appropriate Scholars are encouraged to apply for admission to the HSPH and should be eligible to receive either a Master of Science or a Master of Public Health degree upon completion of the K12 training program. As part of the degree process, Scholars may also take introductory and advanced courses in cancer biology offered in the Department of Cancer Cell Biology at HSPH or at Harvard Medical School. **All Scholars are generally required to take the first summer of full-time course work in the PCE at HSPH.** Because the needs and research plans may vary from trainee to trainee, Scholars may choose to take part-time courses over the 2-year program term in lieu of a 2nd full summer at the HSPH.

4. Additional Program Requirements

a. Responsible Conduct of Research (RCR) Training

All Scholars are required to comply with the MGB Responsible Conduct of Research (RCR) Training Program administered by the MGB Research Compliance Office. The Program consists of 8 hours of instruction. Trainees fulfill the 8 hours of live and/or online instruction requirement by attending a 4-hour Partners RCR seminar plus 4 additional hour-long hospital-based courses, lectures or discussion groups that are deemed "RCR credit eligible." Additional online training courses may be required.

b. Weekly Conferences/Seminars

Scholars attend a weekly session held each Wednesday morning. The first half hour of the session consists of Journal Club in which a Scholar, clinical fellow, or staff member will present a published research paper or

topic review. This session is designed to train fellows in the critical review of contemporary scientific literature as well as to keep Scholars and mentors abreast of the most recent developments in neuro-oncology. The second hour consists of a research seminar given by an invited guest or a Scholar. Every 6 months, Scholars are required to present “Work in Progress Seminars” during a Wednesday morning session. Work-In-Progress seminars allow Scholars to review the background and progress of their research projects with a collection of mentors and fellow postdoctoral trainees.

c. Wellness Program

Scholars participate in a Wellness Program designed to support well-being of Scholars and improve their resilience during their training. The K12 Directors have partnered with the MGB Office of Well-Being to develop and implement this program. Scholars work with Dr. Darshan Mehta, Director of the MGB Office for Well-Being and Director of the Osher Center for Integrative Medicine at BWH.

K12 Scholars participate in a “Stress Management and Resiliency Training (SMART)” Program Workshop with other Dana-Farber/Harvard Cancer Center neuro-oncology fellows and junior faculty once during the two-year K12 training period. The program meets for one hour a week for 8 consecutive weeks. The SMART Program Workshop teaches self-care practices that help buffer daily stress, making participants less emotionally and physically vulnerable to it. More information about the SMART program is found at this website: https://bensonhenryinstitute.org/smart-program.

d. Mentored involvement on the Dana-Farber/Harvard Cancer Center (DF/HCC) scientific review committee (SRC) or institutional review board (IRB)

Scholars are provided “real world experience” in clinical research by serving on the SRC or IRB. The SRC reviews all cancer trials that involve greater than minimal risk. The SRC assesses the novelty and importance of the therapeutic questions, the feasibility of the research plan, the capability of the research team to conduct the trial in a timely fashion, and whether the protocol is competing with other protocols already underway. The IRB reviews and monitors human subjects research with a goal of protecting the rights and welfare of research participants.

Near the end of Year 1 of training, Scholars are matched with a mentor that is an SRC/IRB member with related expertise. Scholars attend meetings every 2 weeks during their second year of training with the mentor. Scholars will assume increasing levels of responsibility for protocol review over the course of the year and become a voting member of the committee. The objective is to expose Scholars to relevant patient-centered research and to increase their understanding of clinical trial design and drug development in neuro-oncology.