

SIR Foundation Summer Medical Student Internship Program

Institution Name: Memorial Sloan Kettering Cancer Center

Responsible mentoring physician: Stephen B Solomon, MD

Length of proposed curriculum: **The internship should be 8 weeks and at least 40 hours per week.**

A. Please provide a brief description of how each of the following curriculum elements will be demonstrated/taught through your program.

The IR medical student curriculum at Memorial Sloan Kettering Cancer Center is one which provides a supportive mentored research experience. Medical students participate in an orientation where they are introduced to MSK and the surrounding area in New York City.

The orientation includes internal online learning and external online learning. The external learning is provided by the Collaborative Institutional Training Initiative (CITI Program), which is "dedicated to serving the training needs of colleges and universities, healthcare institutions, technology and research organizations, and governmental agencies, as they foster integrity and professional advancement of their learners." Students have support from MSK staff to complete the orientation. Once completed the students will begin working with their mentor, who will support the student on an individually mentored research project. This may be a pre-clinical translational project, a basic laboratory research project or a clinical research project. Students work within a team and are provided the support needed to successfully complete their project.

Throughout the summer students are encouraged to observe different clinical areas/procedures in IR and with the support of IR Faculty, clinical fellows, nurses and radiology assistants.

In addition, there are a wide selection of seminars for the students to participate in during the summer, students may select these based upon their area of interest. In addition to MSK students may attend and participate in seminars from the Tri-

Institutional Collaboration Network [TCN], which "serves the research communities of MSK, The Rockefeller University, and Weill Cornell Medicine. TCN activities include workshops and seminars by sponsors' representatives, policy makers, institutional officials, faculty members and other experts and stakeholders, on topics such as seeking increased research support and venues for new and more effective collaborations, grant writing, E-tools for better research management for faculty and administrators, understanding and navigating review processes, compliance matters, general research funding trends, and more, as driven by participants' needs and new directions.

Students are provided with mentoring in presentation skills and all students present their research at the end of the summer. In addition, students are encouraged to publish their research and present it at the annual SIR meeting.

B. Please provide the details on the instructional setting and methodology (laboratory, classroom), description of any educational resources (PowerPoint presentations, textbooks, selected readings), and assessment techniques (question and answer sessions, tests) to be used in the process of instruction.

Medical Students will be placed at MSK's Main Campus located at 1275 York Avenue in New York City.

C. Please provide a brief outline of available research topics, one of which the student will select for completion as part of the program. The projects should be of a scope appropriate for completion within the limited time frame provided.

The MSK IR research team is working on a number of different research areas, including:

- Methods for improving the anti-tumor immune response after embolization or ablation.
- Genetic, imaging, and other tests to predict response after embolization or ablation.
- New devices for endoluminal ablation (ureter, bile ducts, bronchi, bowel).
- New intra-arterial therapies for liver and pancreatic cancer.
- Transgenic pig model for liver and pancreatic cancer.
- Imaging technologies for rapid diagnosis from biopsy specimens.
- Outcomes after cancer interventions.
- Evidence-based cancer imaging.