

Innovative Programs

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Tomorrow's Doctors, Tomorrow's Cures

Learn

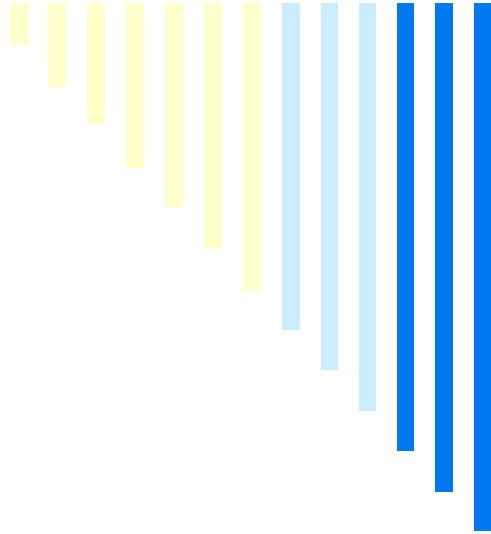
Serve

Lead



Association of
American Medical Colleges

The goal of Gerstner Sloan-Kettering Graduate School (GSK) is to train a cadre of outstanding scientists who will exploit new advances and developing fields in biomedical sciences and apply their training directly to advancing the understanding of human disease



Innovative Programs: Gerstner Sloan-Kettering Graduate School of Biomedical Sciences

GREAT Annual Meeting

October 20, 2007



PhD Program

- Study of human disease using cancer as a model
- Uniquely innovative curriculum
- Integrated training program





Faculty

□ GSK graduate faculty are drawn from both the basic science and clinical arms of MSK

- Sloan-Kettering Institute (SKI) 50%
- Memorial Hospital (MH) 18%
- SKI and MH 32%





Faculty Research

- Chemical biology
- Cell signaling & regulation
- Genomic integrity
- Imaging & radiation sciences
- Structural biology
- Developmental biology
- Immunology
- Computational biology
- Genomics
- Experimental therapeutics
- Cancer genetics
- Experimental pathology
- Oncology
- Animal models of disease





First Year

- GSK Core Course
 - Genome Biology
 - Proteins and Gene Expression
 - Cells and Regulation of the Cell Cycle

 - Signaling and Development
 - Cancer Immunology
 - Cancer Biology

- President's Research Seminar JC
- Graduate Student Seminar
- Responsible Conduct of Research
- Observing in the clinic
- Meet the research and clinical faculty
- Laboratory rotations
- Selection of the research mentor





GSK Core Course format

9. *Topoisomerase poisons and nucleoside metabolism effectors as chemotherapeutic agents*—1 unit, Kenneth Marians and David Spriggs

Topoisomerase structures

The cleavage-religation equilibrium

Inhibitory drugs

Molecular details of quinolone action

Topoisomerases are the intramolecular targets of camptothecin and etoposide

Replication fork arrest as the mechanism of cell killing by camptothecin

Use of camptothecin in the clinic

Pharmacology of nucleosides

Models of chemotherapy

Formulation, testing and approval process for chemotherapy agents

Dose, schedule, route

Principles of combination therapy

Papers

Hsiang, Y.H., et al. (1989). Arrest of replication forks by drug-stabilized topoisomerase I-DNA cleavable complexes as a mechanism of cell killing by camptothecin. *Cancer Res.* 49: 5077-5082.

Berger, J.M., et al. (1996). Structure and mechanism of DNA topoisomerase II. *Nature* 379: 225-232.

Morais-Cabral, J.H., et al. (1997). Crystal structure of the breakage-reunion domain of DNA gyrase. *Nature* 388: 903-906.





GSK Core Course Lecturers

- All sections (146 units/97 topics)
 - Total 82
 - GSK graduate faculty 64 (78%)
 - Clinicians 18 (22%)

- Cancer Biology section (31 units/20 topics)
 - Total 35
 - GSK graduate faculty 19 (54%)
 - Clinicians 16 (46%)





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Clinics visited by first year students

- Brain cancers
- Breast cancers
- Gastrointestinal cancers
- Gynecologic cancers
- Leukemias
- Lung cancers
- Lymphomas
- Myelomas
- Sarcomas





Second Year and Beyond

- Selection of the clinical mentor
- Current Topics JC
- Graduate Student Seminar
- Thesis Proposal
 - Advancement to Candidacy
- Full-time dissertation research July 1 of year two





First Year Timeline

07.30.2007	Orientation
08.06.2007	Laboratory Rotation #1
09.04.2007	GSK Core Course
12.22.2007	Winter Break
01.07.2008	Laboratory Rotation #2
02.04.2008	GSK Core Course
04.12.2008	Spring Break
04.21.2008	GSK Core Course
06.02.2008	Laboratory Rotation #3
07.07.2008	Begin Full-Time Thesis Work



The mission of Gerstner Sloan-Kettering Graduate School of Biomedical Sciences is to advance the frontiers of knowledge by providing to gifted and creative students in an interactive, innovative, and collegial environment the education and training they need to make new discoveries in the biological sciences



Gerstner Sloan-Kettering

Graduate School of Biomedical Sciences