

# Medical Scientist (MD/PhD) Training Program at Stony Brook University



# What is an M.D.-Ph.D.?

- Someone with a passion for both medicine and research
- Opportunity for an integrative career as a clinician and a scientist
  - Direct patient care
  - Clinical research
  - Basic research with an understanding of human disease

# Just about any medical specialty offers opportunities for research-oriented physicians

- Emergency Medicine
  - Radiology
  - Gynecology
  - Cardiology
  - Pediatrics
  - Psychiatry
  - Oncology
  - Anesthesiology
  - Hematology
  - Infectious Disease
- ...and many more

# Integrating Graduate Work into Clinical Medicine

- You may pursue your Ph.D. in many fields:
  - Biochemistry
  - Anatomy
  - Physiology
  - Cell Biology
  - Physics
  - Bio-Engineering
  - Chemistry
  - Psychology
  - Sociology
  - Genetics
  - Microbiology
  - Neuroscience
  - Pathology
  - Pharmacology

# **Clinical Research Exposure Training Experience (CRETE)**

Independent of their thesis project work, students design and carry out a clinical research project in the Medical School's GCRC (General Clinical Research Center) under the supervision of a clinical mentor and the GCRC staff. This introduces the students to translational research, generates clinical contacts, and provides an experience in student's potential medical field of interest. Students are also funded to attend a national meeting of clinical researchers to present their results.

# Graduates of MSTP can...

- Pursue residency and fellowship in a clinical specialty
  - Clinical research oriented
  - Basic research oriented
  - Strictly clinically oriented
- Pursue a postdoctoral position in an academic institution
  - Career in academic research
- Pursue a postdoctoral position at a pharmaceutical or biotechnology company
  - Career in drug-design and industry

# Options for graduate study

- Students can choose from investigators at:
  - Stony Brook's Main Campus
  - Stony Brook's Health Sciences Center
  - Stony Brook's new Center for Molecular Medicine
  - Brookhaven National Laboratories (BNL)
  - Cold Spring Harbor Laboratories (CSHL)



# Cutting Edge Research at Stony Brook...

- Cause of Lyme Disease identified
- First monoclonal antibody used as immune therapy
- Discovery of the link between smoking and emphysema
- Construction of the first nuclear magnetic resonance image of a living organism
- Virtual colonoscopy
- Proteomic diagnosis of breast cancer
- The two-hybrid system

# Brookhaven National Laboratory

## Facilities used by Life Sciences



- 1 Biology Department, STEM
- 2 Instrumentation Division
- 3 BLIP and BAF
- 4 PET/Cyclotron Facility
- 5 MRI Facility
- 6 SPECT Facility
- 7 Animal Facility
- 8 Synchrotron Light Source
- 9 Center for Data Intensive Computing

# BNL- Biology & Medical Departments



The August 26, 1999 issue of Nature describes landmark progress in understanding the structure of the ribosome, based primarily on x-ray diffraction data collected at the BNL National Synchrotron Light Source.

also MacKinnon's recent Nobel-winning work

also unique neuro-imaging capabilities

An aerial photograph of the Cold Spring Harbor Laboratory campus. The image shows a large body of water (the harbor) with many sailboats and a marina. The surrounding area is densely forested with trees in various shades of green and autumn colors. Several large, multi-story buildings are visible, along with parking lots and roads. The overall scene is a mix of natural beauty and academic infrastructure.

# *Cold Spring Harbor Laboratory: Research Areas*

**Neuroscience**

**Cancer biology**

**X-ray crystallography**

**Computational biology**

**Signal transduction**

**Human genetics**

**Plant genetics**

**RNA interference**

**DNA replication**

**Human disease pathogenesis**



**2D Gel Laboratory**  
**Animal Research Facility**  
**Antibody**  
**Bioinformatics**

**Equipment Services**  
**Flow Cytometry**  
**Gene Targeting**  
**& Transgenic Mouse**

**Genomics**

**Microscopy**

**Nucleic Acid Chemistry**

**Protein Chemistry**

**CSHL Cancer Center Shared Resources**

# MSTP at Stony Brook

The MSTP community at Stony Brook is a small, close-knit group of students

