

# MD Anderson Cancer Center & Rice University

## Cancer Nanotech T32 Fellowship

### NIH Funded

This program provides young talented scientists an intensive two-year research experience and training in cancer nanotechnology that is based on a close collaboration between The University of Texas MD Anderson Cancer Center and Rice University.

### Future Nanotechnology Leaders

The program is geared toward scientists who aim to pursue integrated, translational research that is focused on advancing promising new nanotechnology-based diagnostics and therapeutics to improve cancer care.

### Mentorship

Each fellow is co-mentored by two program faculty - one from MD Anderson Cancer Center and one from Rice University.

### Program Co-Directors



**Rebecca Richards-Kortum, PhD, Rice University**  
Malcolm Gillis University Professor of Bioengineering and Electrical and Computer Engineering  
Founder and Director, Rice 360°: Institute for Global Health  
Advisor to Provost, Health-Related Research and Educational Initiatives



**Konstantin Sokolov, PhD, MD Anderson Cancer Center**  
Professor of Imaging Physics  
Director of the Biomedical Optics & NanoDiagnostics Lab  
Adjunct Professor, Biomedical Engineering at UT Austin  
Adjunct Professor, Bioengineering at Rice



**Sunil Krishnan, MD, MD Anderson Cancer Center**  
John E. and Dorothy J. Harris Professor  
Director, Center for Radiation Oncology Research  
Professor, Radiation Oncology  
Professor, Experimental Radiation Oncology

### Rice University Mentors

#### Department of Bioengineering

**Gang Bao, PhD** - Nanomedicine, molecular imaging, and genome editing

**Michael Diehl, PhD** - DNA nanotechnology, super-resolution imaging, nanoscale architecture of cells, cancer biomarker detection

**Rebekah Drezek, PhD** - Gold nanoparticle platform technologies for targeted imaging and therapy of cancer

**Amina Qutub, PhD** - Novel computational methods to study mechanisms of brain tissue regeneration and cancer

**Rebecca Richards-Kortum, PhD** - Optical imaging and spectroscopy tools to reduce the incidence and mortality of cancer

**Junghae Suh, PhD** - Genetically encoded nanoparticles

**Jeff Tabor, PhD** - Synthetic biology

**Tomasz Tkaczyk, PhD** - Optical devices, multidimensional imaging modalities

**David Zhang, PhD** - Nucleic acid nanotechnology

#### Department of Chemistry

**Naomi Halas, PhD** - Nanoscale plasmonics, ultrasensitive chemical sensing, active plasmonics, and biomedical and energy applications

**Lon Wilson, PhD** - Bringing carbon nanotechnology to the fields of biology and medicine

### Two Tiers

Our program has two tiers: a predoctoral program that is geared towards PhD students and a postdoctoral program.

# 1

**The predoctoral program** provides mentorship, training, and funding for 2 years to students who have been accepted into the PhD program in Bioengineering, Chemistry, or Applied Physics at Rice University and have completed 1 or 2 years of their didactic coursework.

# 2

**The postdoctoral program** provides a 2-year fellowship to recent PhD awardees with training in physical science, chemistry, or bioengineering with a demonstrated background and interest in nanotechnology.

### MD Anderson Cancer Center Mentors

#### Imaging Physics

**James Bankson, PhD** - Magnetic resonance imaging, spectroscopy and spectroscopic imaging

**Richard Bouchard, PhD** - Clinical photoacoustic-ultrasonic and acoustic radiation force (ARF)-based elasticity imaging technologies

**Sang Hyun Cho, PhD** - Modeling nanoparticle-radiation interactions and novel x-ray fluorescence imaging

**David Fuentes, PhD** - High performance human assisted computational tools for image-guided interventions

**John Hazle, PhD** - Image guided therapy, MR temperature imaging, pre-clinical imaging

**Konstantin Sokolov, PhD** - Applications of nanotechnology and biophotonics in early detection, diagnosis/prognosis, and treatment of cancer

**Jason Stafford, PhD** - MRI, image-guided interventions, image-guided therapy, thermal therapy

#### Cancer Systems Imaging

**Pratip Bhattacharya, PhD** - Hyperpolarization, induced polarization, and dynamic nuclear polarization

**Chun Li, PhD** - Targeted imaging probes, novel drug-delivery systems for selective delivery of diagnostic and therapeutic agents

**Steven Millward, PhD** - Imaging of apoptosis and autophagy, ovarian cancer metabolism, directed evolution of imaging agents

**David Piwnica-Worms, MD, PhD** - Molecular imaging, signal transduction, genetically encoded reporters, bioluminescence, PET

#### Clinical Program Faculty

**Sunil Krishnan, MD** - Imaging tumors and enhancing cancer radiotherapy effectiveness with metallic nanoparticles

**Vikas Kundra, MD, PhD** - Imaging gene expression, gene therapy, and responsive therapy

**Anirban Maitra, MBBS** - Pancreatic cancer, experimental therapeutics, cancer epigenetics

**Anil K. Sood, MD** - Neuroendocrine stress hormones on ovarian cancer, development of new strategies for in vivo siRNA delivery, and novel antivascular therapeutic approaches

**Frederick F. Lang, Jr., MD, FACS, FAANS** - Surgery for deep brain tumors, gene therapy for brain tumors, primary and metastatic brain tumors.

## Program Eligibility

Per program requirement, fellows “must be a citizen or a noncitizen national of the United States or have been lawfully admitted for permanent residence at the time of appointment.” Noncitizen national of the United States applies to those born or with ties to the outlying U.S. possessions of American Samoa and Swains Island.

## Application

Interested candidates should send *via email* their applications as a single pdf file with “2017 T32 Cancer Nanotechnology Application” denoted in the Subject Line.

Application packages for this year are *due by May 31st, midnight CST* and should include:

- I. Personal information – name, postal address, e-mail address, phone number, citizenship, graduate school name, location, and your GPA. Also specify if you are applying for a **postdoctoral** or **predoctoral** position.
- II. Cover letter describing specific research interests and your preferred co-mentors (no more than 1 page)
- III. CV
- IV. Names of three references
- V. For predoctoral candidates only, submit your Rice Graduate transcript too.

## More About the Cancer Nanotech T32 Fellowship

This training program includes both multidisciplinary, hands-on coursework, seminar experiences, and multidisciplinary mentorship of translational research projects.

Shared laboratory facilities and equipment provide program fellows with an outstanding research environment that combines state-of-the-art instrumentation, facilities for animal research, and vast opportunities to be an integral part of clinical trials.

The program includes a total of 25 faculty mentors (18) and co-mentors (7) from MD Anderson Cancer Center (8 mentors and 6 co-mentors) and Rice University (10 mentors and 1 co-mentor).

## More About MD Anderson & Rice University

These two institutions are home to some of the most active basic research on nanoparticles and nanotechnology in the world, as well as some of the most innovative clinical translational research in cancer.

There is a natural alignment and complementarity of interests between Rice University, which provides the technological infrastructure and intellectual leadership in bioengineering, physics and chemistry, and The MD Anderson Cancer Center, which provides a clinical base for translational research in cancer imaging and therapy.

Physically, these centers of excellence in their respective realms are located within a mile from each other.

MD Anderson Cancer Center is the largest medical institution in The University of Texas System. It is located in the 1,300-acre Texas Medical Center (TMC), the largest medical district in the world. MD Anderson’s TMC campus is 15 million gross square feet. It is consistently ranked among the nation’s top two cancer hospitals in U.S. News & World Report’s “America’s Best Hospitals” survey.

Currently ranked 18<sup>th</sup> in U.S News & World Report’s “Best Colleges”, Rice University is renowned for its innovative teaching and research. Rice has produced 101 Fulbright scholars, 11 Truman scholars, 24 Marshall scholars, 12 Rhodes scholars, 3 Nobel Laureates, and 2 Pulitzer Prize winners.

Please Email Your Application To:

*The UT MD Anderson Cancer Center*



**Mai Dinh, MBA**

[mai.dinh@mdanderson.org](mailto:mai.dinh@mdanderson.org)

MD Anderson Cancer Center  
Department of Imaging Physics  
Department Administrator

*Rice University*

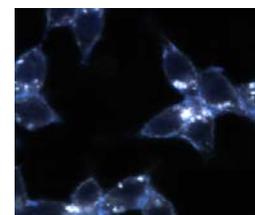
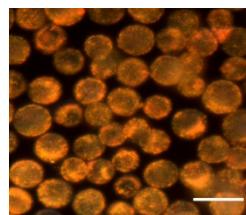
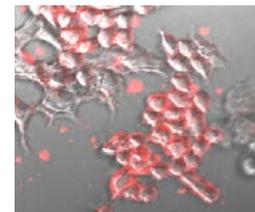
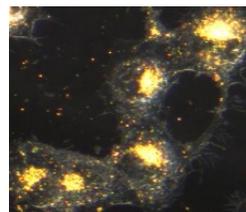
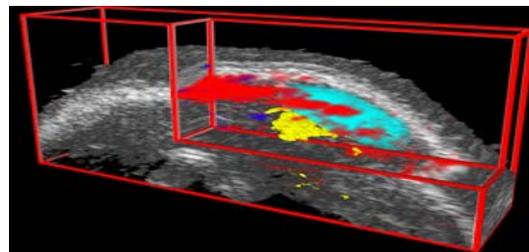


**Stacey Kalovidouris, PhD**

[sk7@rice.edu](mailto:sk7@rice.edu)

Rice University  
Institute of Biosciences &  
Bioengineering, IBB Special Projects Director

[www.mdanderson.org/nanotechT32](http://www.mdanderson.org/nanotechT32)



# Postdoctoral Fellowship in Translational Cancer Nanotechnology