Graduate and Postdoctoral Training in Environmental Health and Technology

Brown University has several interdisciplinary training programs that provide opportunities for collaboration between campus-based and hospital-based faculty and for basic and translational research in environmental health as well as community outreach activities and remediation of toxic waste sites and Brownfields in Rhode Island.

1. NIEHS T32 Training Grant in Environmental Pathology

Dr. Agnes Kane, Director
Dr. Kim Boekelheide, Co-Director

2. Superfund Training Core – P42 Research Program Grant

Dr. Agnes Kane, Director

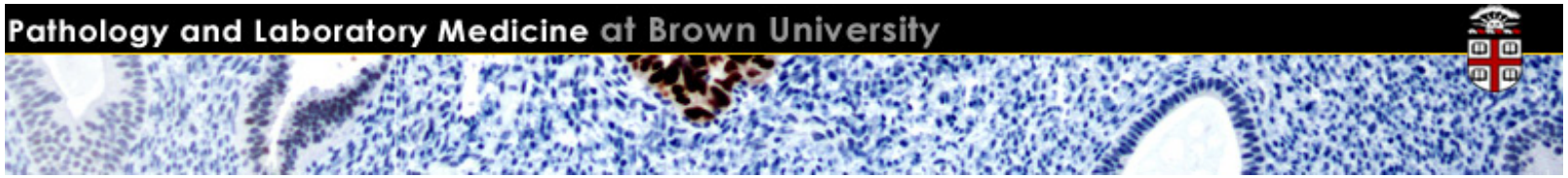
3. Mellon Postdoctoral Fellowship

Co-sponsored by the Center for Environmental Studies and the Department of Pathology and Laboratory Medicine.

4. Department of Education GAANN Training Grant:
Interdisciplinary Training in Applications and Implications of Nanotechnology

Dr. Robert Hurt, Director
Dr. Agnes Kane, Co-Director

Overall, these training grants provide support for 16-18 predoctoral students and 4 postdoctoral trainees in the biological sciences, physical sciences, social sciences, and engineering at Brown University and its affiliated hospitals.



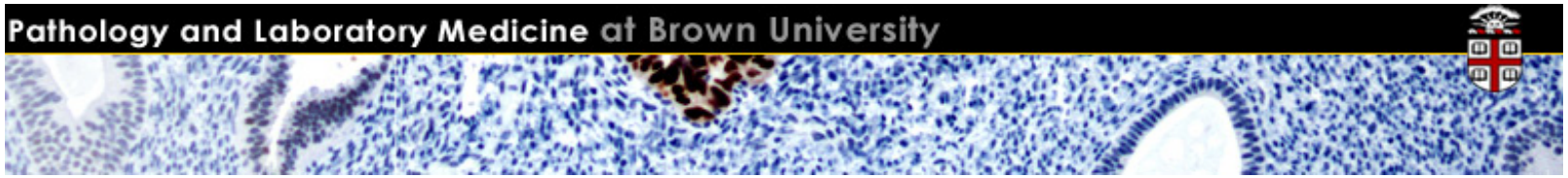
NIEHS T32: Training Grant in Environmental Pathology 1992-2012

Director: Agnes B. Kane, M.D., Ph.D.
Co-Director: Kim Boekelheide, M.D., Ph.D.

1. Supports 6 predoctoral and 3 postdoctoral trainees in environmental pathology and toxicology.
2. **Objective:** To train a new generation of scientists who will use the tools of cell biology, molecular biology, biochemistry and epidemiology to study basic mechanisms of disease related to environmental exposures.
3. **Disease endpoints:** Cancer, altered reproductive function, adverse developmental and pregnancy outcomes, genotoxicity, oxidative cell injury, and fetal basis of adult disease.

PATHOBIOLOGY GRADUATE PROGRAM
BROWN UNIVERSITY

BROWN



NIEHS T32 Predoctoral Trainees

Matt Maccani — Mentor: Carmen Marsit

Placental MicroRNA Alterations Associated with Birth Outcomes and Exposures

Ben Moyer — Mentor: Mary Hixon

Effects of In-Utero Exposure to MEHP on the Adult Female

Sara Pacheco — Mentor: Kim Boekelheide

Genome-Wide Approaches to Identifying Sperm Biomarkers of Toxicant Exposure

Jessica LaRocca — Mentor: Mary Hixon

Adult Effects of In-Utero Exposure to Bisphenol A

Camelia Saffarini — Mentor: Kim Boekelheide

Human Fetal Prostate and Endocrine Disruption

Jennifer Joukhadar — Mentor: Surendra Sharma

Novel Targets of Pregnancy Disrupting Environmental Toxicants

NIEHS T32 Postdoctoral Trainees

Carolyn Banister, PhD. Mentor: Carmen Marsit

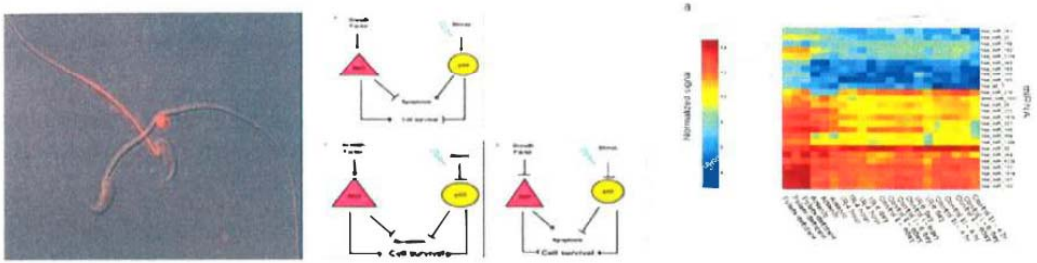
The Significance of the Intrauterine Environment on Epigenetic Regulation

Scott Langevin, PhD. Mentor: Karl Kelsey

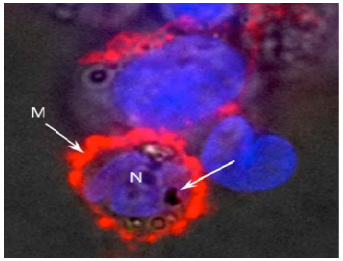
Epigenetic Profiles in Human Blood as Biomarkers for Head and Neck Cancer

Ashish Jackak, PhD. Mentor: Agnes Kane and Robert Hurt

Biocompatibility of Graphene Nanomaterials



Pathology faculty are using systems biology and genomics to identify biomarkers of exposure and effect related to infertility and adverse pregnancy outcomes.

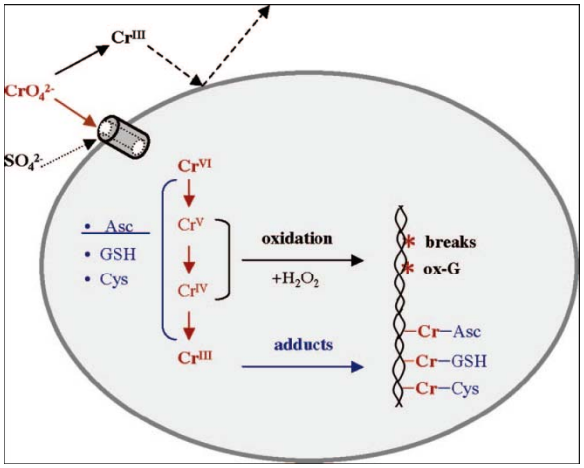


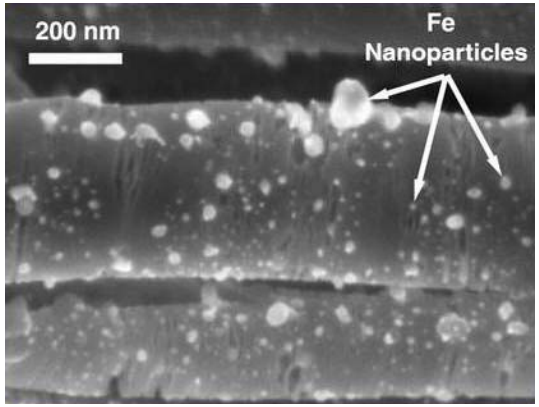
Internalization of graphene nanosheets by macrophages in vitro.

Superfund Training Core
NIEHS P42 Research Program Grant
2005-2014
Director: Agnes B. Kane, M.D., Ph.D.

1. Supports 4 predoctoral students working on Superfund biomedical research projects, environmental remediation, nanotechnology, and community outreach.

2. **Objectives**:
   - To develop didactic courses and laboratory training opportunities related to environmental contaminants, human health effects and rehabilitation of Brownfields and Superfund sites in Rhode Island.
   - To organize interdisciplinary research teams of undergraduates, graduate students, and postdoctoral researchers involved in Superfund biomedical and engineering projects.
   - To provide opportunities for field work and community outreach in Rhode Island.





Superfund Trainees

Natasha Catlin — Mentor: Kim Boekelheide

Microarray Studies of Low Dose Co-Exposures to Testicular Toxicants

Dave Ciplet — Mentor: Phil Brown

Community Environmental College; Community Advocacy

Devin Koestler — Mentor: Carmen Marsit, E. Andres Houseman

Computational Algorithms for DNA Methylation and Exposure Biology

Yang Qui — Mentor: Robert Hurt, Agnes Kane

Structure-Activity Relationships for Carbon Nanotubes

Peterson/ Puritan, Inc. abandoned property (left) in Cumberland and Lincoln, RI before clean up. Following rehabilitation, the CCL Custom Manufacturing company (right) is now located on this site.

Brown University

Institute for **Molecular and Nanoscale Innovation**

ADVANCED MATERIALS | NANOSCIENCE AND SOFT MATTER | NANOHEALTH

Interdisciplinary Training in Applications and Implications of Nanotechnology

Department of Education GAANN Training Grant, 2009-2012

Director: Robert Hurt, Ph.D.

Co-Director: Agnes B. Kane, M.D., Ph.D.

1. Supports 6-8 predoctoral students who will pursue interdisciplinary research and teaching in the applications and implications of nanotechnology.
2. GAANN fellows will be supervised by co-mentors who are actively engaged in externally-funded research on the nano-bio interface, nanoscale imaging, nanoscale tissue engineering, and the environmental and human health impacts of nanotechnology.

BROWN

MBL

Brown University

Institute for Molecular and Nanoscale Innovation

ADVANCED MATERIALS | NANOSCIENCE AND SOFT MATTER | NANOHEALTH

GAANN Nanotechnology Fellows

Don Ho

Nanomaterials for Biomedical Applications

Mentor: Shouheng Sun
Chemistry

Jennifer Mitchell

Nanofibers as Guides for Nerve Regeneration

Mentor: Diane Hoffman- Kim
Biomedical Engineering

Danielle Rand

Gold Nanoparticles for Tumor Imaging

Mentor: Christoph Rose-Petruck
Chemistry

Megan Creighton

Characterization and Toxicity of 2D Graphene

Mentors:Robert Hurt, Agnes Kane
Engineering
Pathology and Laboratory Medicine

Pam Davies

Microfluidics for Biomedical Diagnosis

Mentor: Anubav Tripathi
Engineering

The Next Generation of Environmental Scientists and Engineers

BROWN

- In-depth training in a major discipline in biological sciences, physical sciences, social sciences, or engineering.
- Interdisciplinary education and research experiences.
- Mentored teaching experience at Brown and in the community (Community Environmental College).
- Participation in public health policy, community outreach, internships in politics or industry.
- Balance future benefits and potential risks of emerging technologies.

For more information, please contact:

1. NIEHS T32 Training Grant in Environmental Pathology

Pathobiology Graduate Program Coordinator: Tami-Marie Mildner
Tami-Marie_Mildner@Brown.edu
Director: Dr. Agnes Kane
Agnes_Kane@Brown.edu

2. Superfund P42 Research Program Grant

Director: Kim Boekelheide
Kim_Boekelheide@Brown.edu

3. Mellon Postdoctoral Fellowship

Director: Dr. Phil Brown
Phil_Brown@Brown.edu

4. GAANN Grant: Interdisciplinary Training in Applications and Implications of Nanotechnology

Director: Dr. Robert Hurt
Robert_Hurt@Brown.edu