

Institute for **Bionanotechnology** in Medicine

**bridging disciplines at the forefront of
science, technology & medicine**

- IBNAM catalyzes interdisciplinary initiatives with impact on medicine.
- combining the frontiers of nanotechnology, biology and medicine, our mission is to develop advanced strategies in regenerative medicine and targeted therapeutics.
- this can be done only through an integrated and synergetic approach which requires collaboration, innovation, and communication across disciplinary lines.

Institute for BioNanotechnology in Medicine (IBNAM)

2000: IBNAM opens as a partnership of Northwestern's Feinberg School of Medicine, R. R. McCormick School of Engineering and Applied Science and Weinberg College of Arts and Sciences.

2005: IBNAM moves to the new R. H. Lurie Medical Research Building, occupying 25,000 sq.ft. of laboratory space and offices. an additional 25,000 sq.ft. are to be built out by 2007.



research at IBNAM

IBNAM teams medical, engineering and science faculty to tackle critical challenges in human health.

IBNAM members are from 28 NU's academic departments, and are focused around three evolving research foci:

regenerative medicine

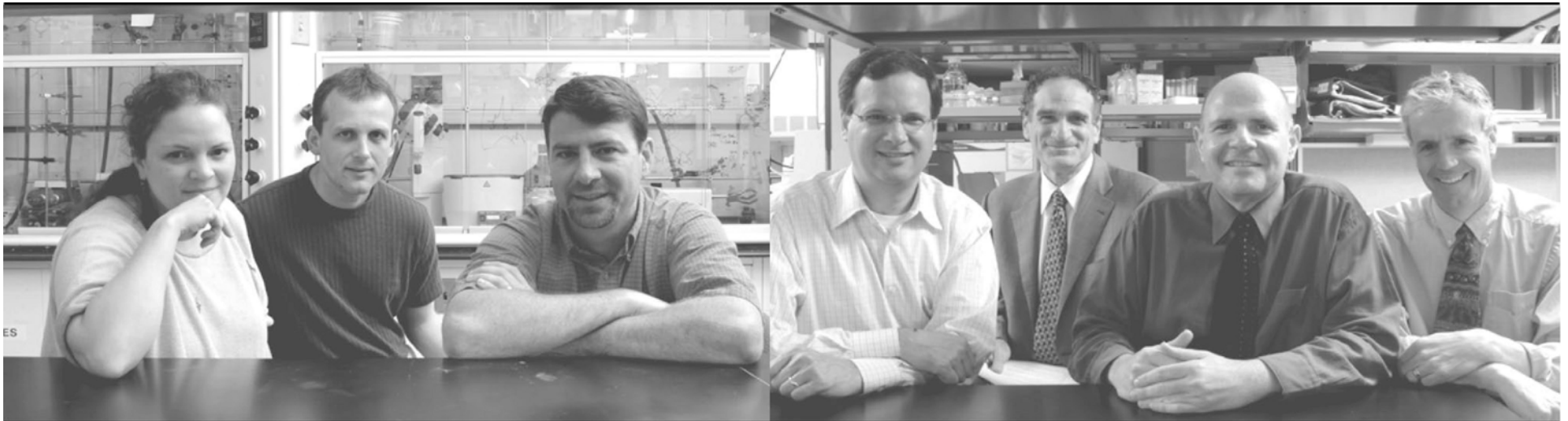
targeted therapies

nanoscale diagnostics

external support of IBNAM efforts comes from the National Institutes of Health, National Science Foundation, U.S. Army, Department of Energy, Juvenile Diabetes Research Foundation, Baxter Healthcare Corporation, and Johnson & Johnson.

bioengineering research partnership

regenerative scaffold technologies
for cns and diabetes



Annelise Barron

Lonnie Shea

Phil Messersmith

Dixon Kaufman

Jack Kessler

Sam Stupp

Bill Lowe

National Institutes of Health



Repair of Human Biology

**regenerate tissues
and organs
throughout life**



**inert metal, ceramic,
polymer hardware
to repair tissue
structures or substitute
for organ functions**

Great Targets in Regenerative Medicine

- reversal and prevention of paralysis or blindness through spinal cord or retina regeneration
- heart regeneration after infarcts
- curing Parkinson's and Alzheimer's disease
- minimizing stroke dysfunction through neuron repair
- a cell-based cure for diabetes
- access to new cartilage in adulthood
- universal repair of all bone fractures
- healing all wounds (in diabetic patients; without scars)
- new teeth

Project 6: Multifunctional Nanostructures for Therapeutic Targeting of Breast Cancer

Thomas V. O'Halloran, Morrison Professor of Chemistry and of Biochemistry, Molecular Biology, and Cell Biology

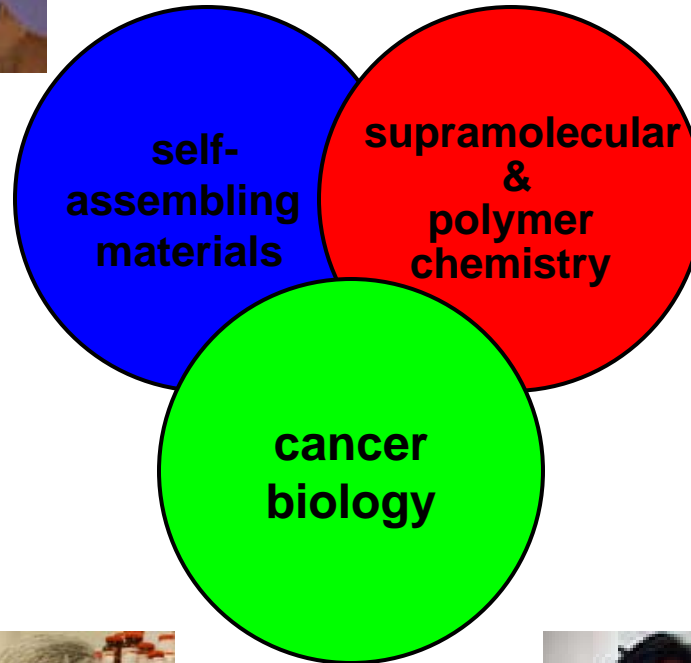


Samuel I. Stupp, Board of Trustees Professor of Materials Science, Chemistry, Medicine, Director of IBNAM



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Vimla Band, Professor of Medicine, Director, Division of Cancer Biology Evanston Northwestern Healthcare Research Institute

collaborative IBNAM awards

- NIH/NIBIB Bioengineering Research Partnership: *Regenerative Scaffold Technologies for CNS and Diabetes* 2004-09
- JDRF Program Project: *Advanced Technologies for Cell Replacement Therapies in Diabetes* 2004-07
- NIH Nanomedicine Development Center: *Nanomachinery of the Cytoskeleton* 2004-05 (planning grant)
- NSF/MEXT: *U.S.–Japan BioNanotechnology Exchange Program* 2005
- U.S. Army/Telemedicine and Advanced Technology Research Center's program: *Bionanotechnology for Wound Repair, Soft Tissue Engineering, and Biosensing* 2005-08
- IBNAM/Baxter Healthcare Corp. Incubator Program 2002-05
- IBNAM/Baxter Healthcare Corp. Early Career Awards 2003-06