ONE-ON-ONE WITH THE NIH

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Michael Shmilovich, Esq, CLP
Senior Licensing & Patenting Manager
National Heart, Lung, and Blood Institute
Office of Technology Transfer and Development
March 22, 2019
NHLBI Office of Technology Transfer and Development

- Nat’l Heart, Lung and Blood Institute
- Nat’l Inst. of Biomedical Imaging and Bioengineering
- Nat’l Inst. of Arthritis and Musculoskeletal and Skin Disease
- Nat’l Inst. on Alcohol Abuse and Alcoholism
- Nat’l Inst. on Deafness and Other Communication Disorders
- Nat’l Inst. of Environmental Health Sciences
- Nat’l Inst. of Nursing Research
Technology Area Highlights

- Cardiovascular Interventional Devices:
  - Catheters
  - Mitral valve repair devices
  - Image Processing/Acquisition Technology (hardware systems and software)

- Microscopy

- Imaging Agents
Data dating back to 1948
- Over 16,000 patients and their offspring
- **Systems Approach to Biomarker Research** (SABRe) in cardiovascular disease initiative:
  - a large-scale population-based study that seeks to discover, validate, and characterize biomarkers of atherosclerotic cardiovascular disease and its major risk factors;
  - proteomics, metabolomics, and DNA methylation → human disease

**NHLBI intramural lab led by Dan Levy, MD** – genetic markers for:
- Coronary Heart Disease
- Pulmonary Hypertension
- Atherosclerosis
  - Heart Failure
Microscopy and Imaging (NIBIB)

- High Resolution Optical Imaging
  - Development of new imaging tools to study fast 3D cellular processes and structures:
    - Cell motility
    - Physical properties of highly-bent DNA molecules
  - Super-resolution microscopy
  - Single molecule fluorescence

- Laboratory of Molecular Imaging and Nanomedicine
  - Construction of nanoparticle platforms for effective therapeutic delivery
    - Evans Blue conjugates
  - Probe synthesis for multimodality whole-body imaging of both extracellular and intracellular events
  - Clinical translation of molecular imaging probes targeting important biological processes
  - “All-in-one” theranostics for disease detection and monitoring as well as therapeutic delivery
NHBLI Immunotherapy Projects

- Childs lab
  - Transformation of CD8+ with TIL-derived T cell receptors
  - NK cell transformation (innate immunity against cancer)
    - NK-mRNA Transfection Electroporation
    - NK Lentiviral Transduction
  - Targets: Multiple Myeloma, Renal Cell Carcinoma
SBIR-TT Program

- NHLBI Strategic Vision
  - Unmet scientific need
  - Commercial potential

- Phase I -- $225,000
  - 12 months max

- Phase II -- $1,500,000
  - 24 month max
Contact

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