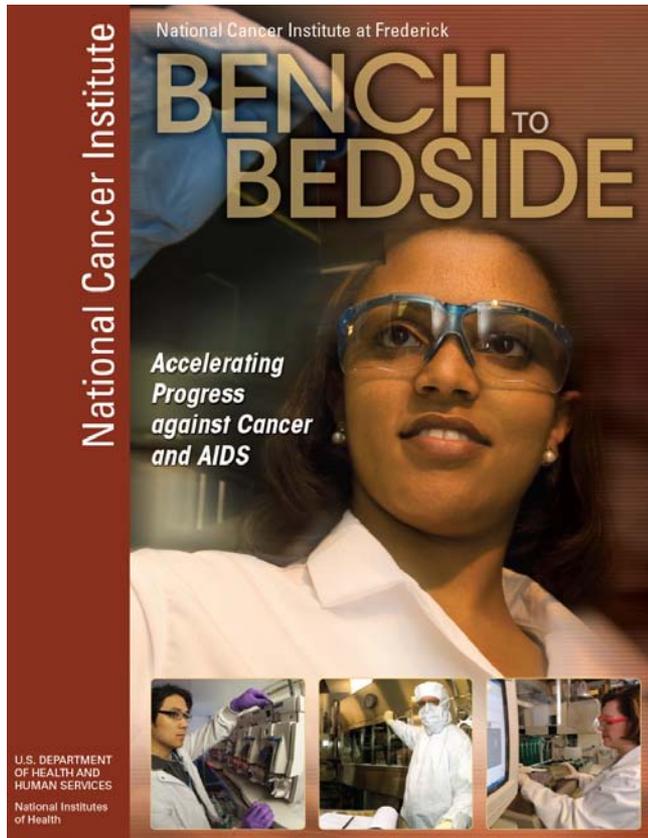


The Advanced Technology Partnerships Initiative: Access to World-Class Bio-Imaging Resources Through Collaboration

Dr. Bruce Crise

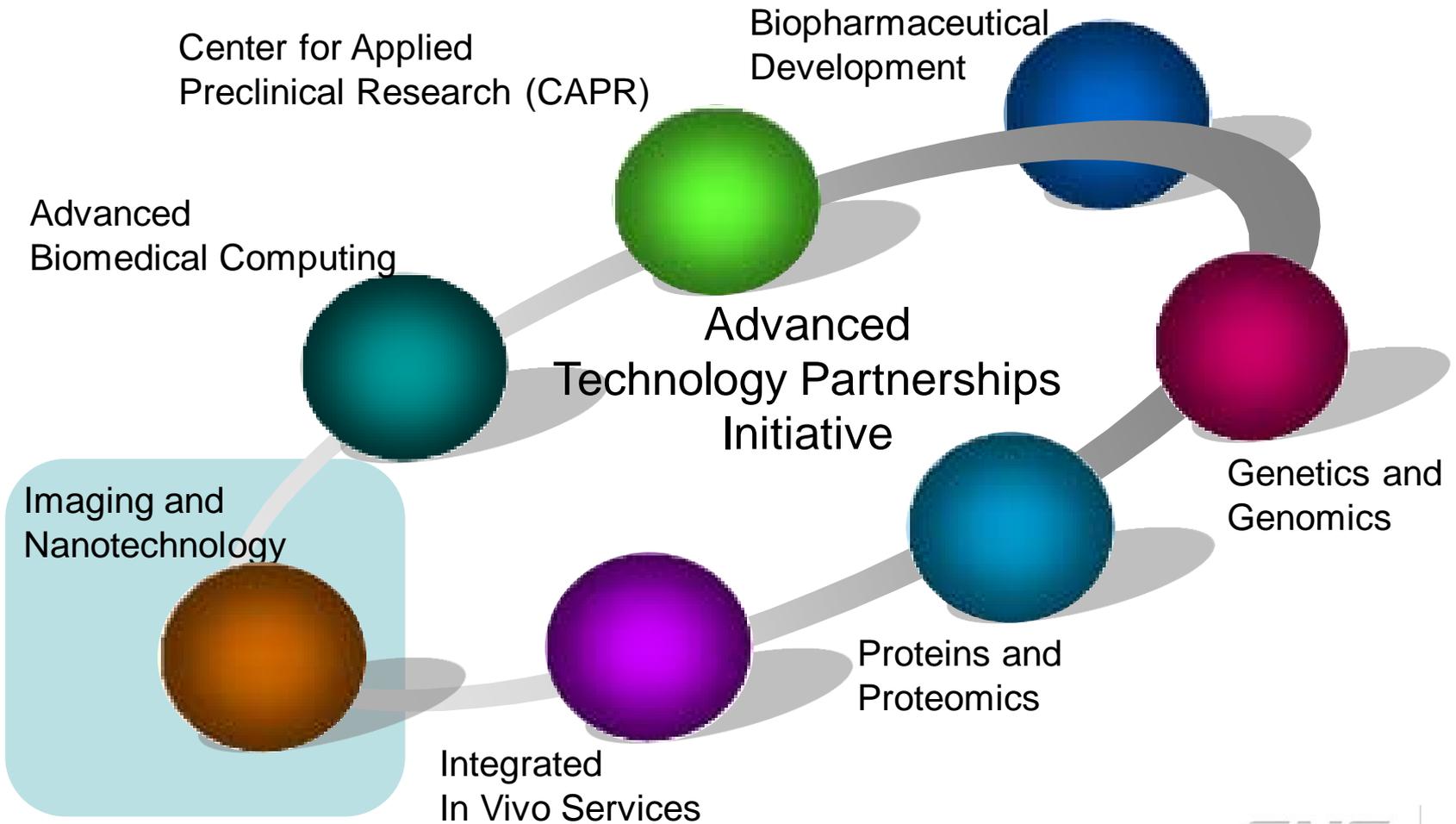
Director, Business Development
Scientific and Technical Operations
Advanced Technology Partnerships Initiative
SAIC-Frederick/NCI-Frederick

Advanced Technology Partnerships Initiative



- The Mission...
- To accelerate new discoveries, technologies, diagnostics and therapeutics to cancer and AIDS patients—by leveraging our unique combination of resources and advanced technologies, and through effective strategic partnerships.

ATPI Technologies, Capabilities, and Expertise



Imaging and Nanotechnology Group (ING)

Optical Microscopy Analysis Lab (OMAL)

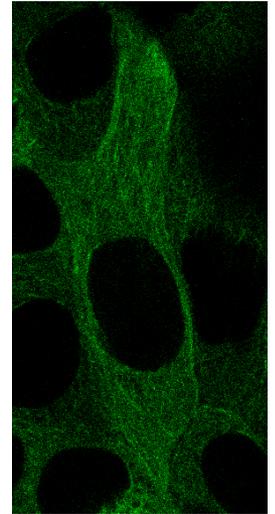
Stephen Lockett

Electron Microscopy Lab (EML)

Kunio Nagashima

Nanotechnology Characterization Lab (NCL)

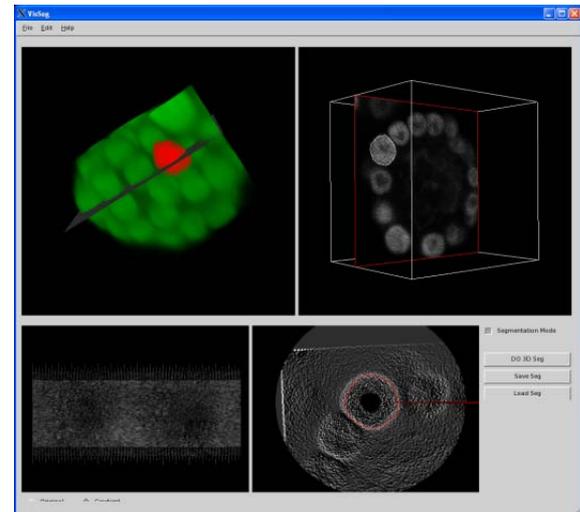
Scott McNeil



Optical Microscopy Analysis Lab (OMAL)

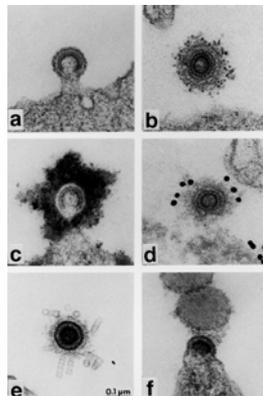
- Four state-of-the-art confocal microscopes
- Fluorescence resonance energy transfer (FRET)
 - to determine intracellular locations of interacting pairs
- Fluorescence recovery after photobleaching (FRAP)
 - to assess cell membrane diffusion and protein binding
- Photo-activated localization microscopy (PALM)

- Live cell imaging
- Highly efficient software for segmentation and delineation of cells and nuclei in intact tissue

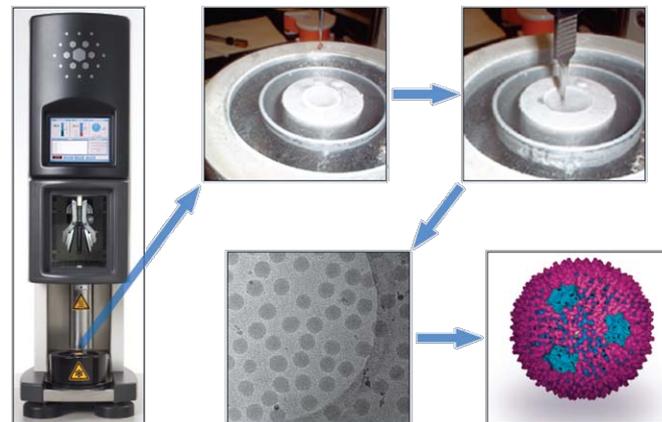


Electron Microscopy Lab (EML)

**Transmission Electron
Microscope (TEM),
Immuno-Electron
Microscopy (IEM)**

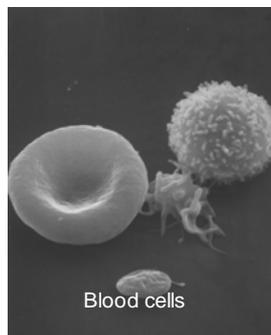


Immuno-markers, Post-embedding IEM



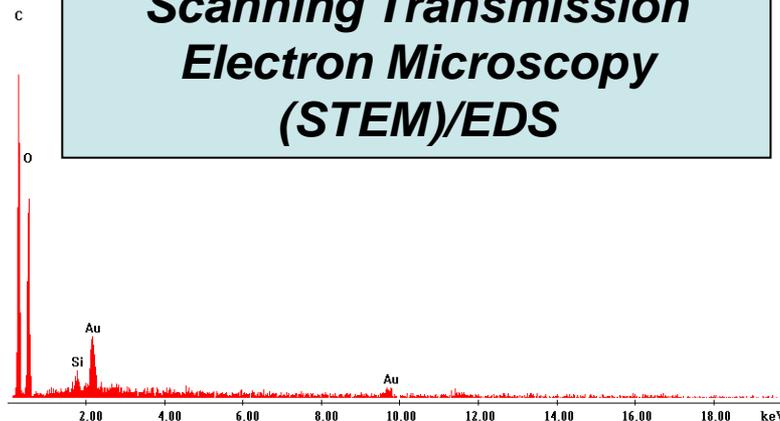
**Cryo-TEM
3D Tomography**

**Scanning Electron
Microscope (SEM)**



Blood cells

**Scanning Transmission
Electron Microscopy
(STEM)/EDS**



Translational Support to Nanotechnology: Nanotechnology Characterization Lab (NCL)

NCL provides infrastructure support to the Alliance and to nanotech researchers to overcome obstacles and translate 'nano' into the clinic.

NCL Objectives

- Characterize nanoparticles using standardized methods
- Conduct structure-activity relationship studies
- Facilitate regulatory review of nanotech constructs
- Engage in educational and knowledge-sharing efforts



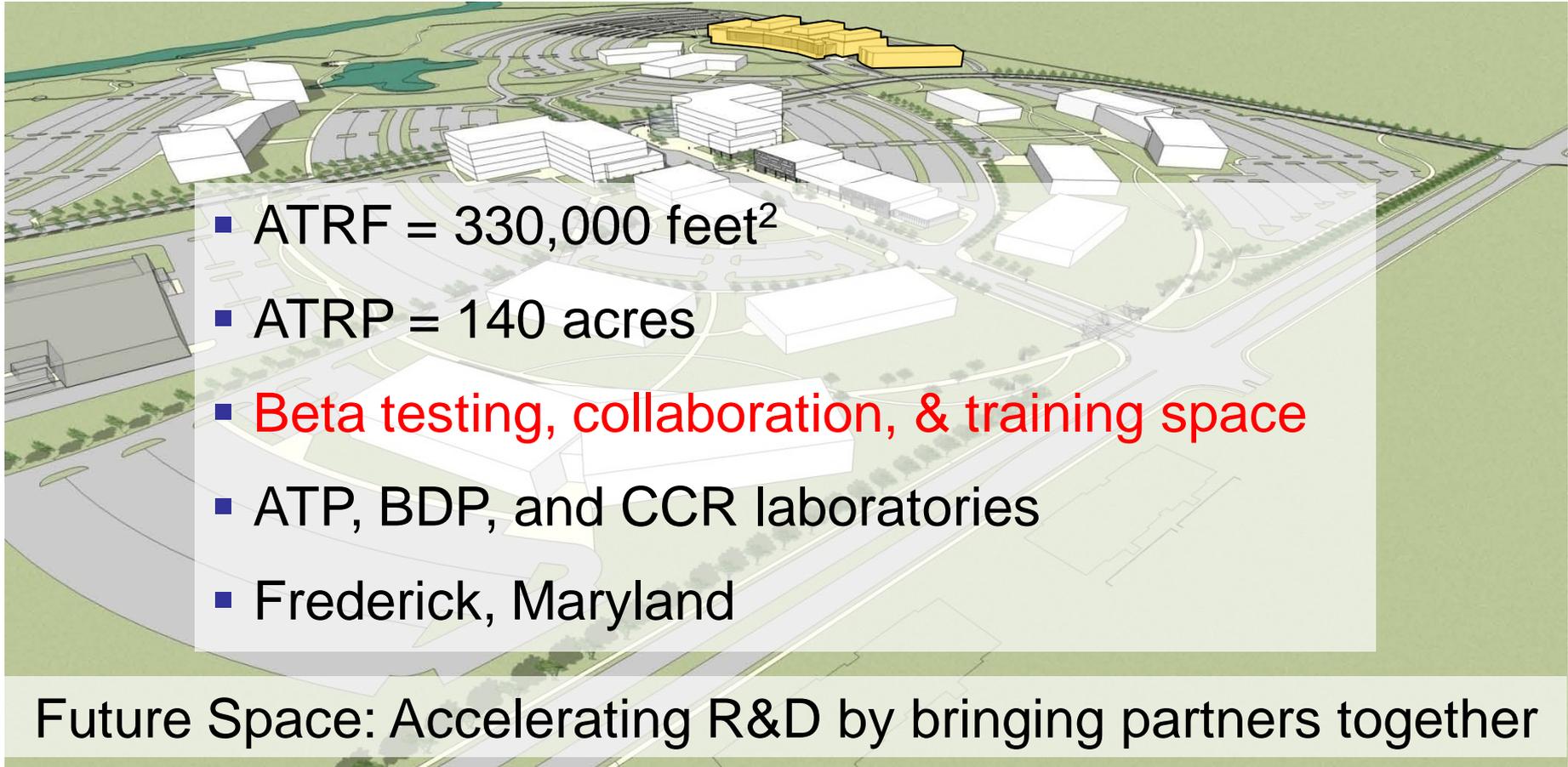
NCL Support Capabilities:

- EM coupled EDX
- Atomic Force Microscopy (AFM)
- TEM
- Cryo-EM
- PET/CT
- MRI
- ICP-MS
- FFF
- DLS/ ZetaSizer
- SEC MALLS



Advanced Technology Research Facility and Research Park

World-Class Design for Co-located R&D Programs



- ATRF = 330,000 feet²
- ATRP = 140 acres
- **Beta testing, collaboration, & training space**
- ATP, BDP, and CCR laboratories
- Frederick, Maryland

Future Space: Accelerating R&D by bringing partners together

Working with SAIC-F FFRDC

A Research Institute for Support

- Support SBIR grant applications (e.g. LOI)
- Consultation
- Contracting and Business Mechanisms
 - Interagency Agreements
 - CRADAs
 - MTAs
 - Beta Testing
 - Collaborative Agreements
 - Training, Guest Researcher Agreements



Advanced Technology Partnerships Initiative

<http://www.ncifcrf.gov/atpi/>