

**Team APG Showcase 2001:**

**Biotech Resources for Business**

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Showcase 2001:**  
**“Biotech Resources  
for Business”**

**January 25, 2001  
9:00 am-3:00 pm**

**Aberdeen Proving Ground  
Edgewood Area Conference Center  
Building E4810**

**\$25 per person**

**Directions:**

*I-95 to Exit 77A towards Edgewood onto Maryland Route 24 South. Follow Route 24 South onto the Edgewood Area of Aberdeen Proving Ground. Upon entering the installation, you are on Hoadley Rd. Stay straight and proceed through one traffic light. The Edgewood Area Conference Center is on the right corner before you come to the intersection of Austin Rd. and Hoadley Rd.*

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**Register at [www.mdhitech.org](http://www.mdhitech.org)  
by January 18, 2001.**

**Registration Information—  
Filomena Thompson 240-453-6200  
Showcase Information—  
Ron Hawkins 410-715-4162.**



ASME International



# Laboratory Tours

***You must have access to the very latest, most state-of-the-art facilities to excel.***

***You must know how to access these facilities to be an industry leader.***

***You must see the APG Biotechnology Showcase.***

## **Team APG Showcase 2001: Biotech Resources for Business**

This is your chance to learn how your business can access world-class Biotechnology labs. You'll also have the opportunity to network with representatives from leading biotechnology firms, tour the state-of-the-art Process Engineering Facility, McNamara Building and Microland Laboratory and begin a partnership with the U.S. Army that will help your business thrive.

**Date:** January 25, 2001

**Time:** 9:00 am-3 pm

**Place:** Aberdeen Proving Ground  
Edgewood Area Conference Center,  
Building E4810

**Cost:** \$25 per person

## **Schedule of Events**

**9:00 am-10:00 am**  
**Coffee and Informal Networking**

**10:00 am-11:45 am**  
**Presentations**

**11:45 am-1:00 pm**  
**Lunch and Poster Sessions**

**1:00 pm-3:00 pm**  
**Laboratory Tours**

### **Tour 1: The Process Engineering Facility**

*The 20,000 square foot Process Engineering Facility (PEF) is dedicated to providing world-class equipment and physical plant capabilities for research, development, scale-up production and optimization studies. The PEF is available for customer-designed batch production runs for material required in initial product testing and evaluation.*

#### **Features:**

- Cryogenic Storage/Database Management
- 5-, 30-, 80-, 150- and 1,500-liter fermentors
- Centrifuges
- Lyophilizers, Milling and Spray Dryers
- Micro- and Ultra-Filtration Protein Purification
- Hollow Fiber Bioreactors
- Combinational Antibody Gene Libraries
- Immunoassay Test and Development

### **Tour 2: The McNamara Life Sciences Research Laboratory**

*Named for world-renowned toxicologist Dr. Bernard P. McNamara, this state-of-the-art facility was developed to conduct research in compliance with Good Laboratory Practices.*

#### **Features:**

- Percutaneous suite
- Subchronic and acute inhalation suites
- Biodetection laboratory (measures electrical effects of drugs)
- Analytical/clinical chemistry
- Physiology, enzymology and teratology
- Biochemistry, microbiology
- Pathology, molecular biology, cellular biology, electrophysiology, aquatic toxicology laboratories and surgery suite
- Extensive engineering controls designed to ensure worker safety and to provide a clean environment

### **Tour 3: Surface Spectroscopy and Electron Microscopy Laboratory (MicroLand)**

*Scientists and technicians can examine virtually any product or material, such as asbestos, the size and shape of food particles, paint and pigments to ascertain the ability of a substance to coat, frozen dairy products to study the composition of cheese or milk, or sampling for industrial standards.*

#### **Features:**

- PHI 5400 X-Ray Photoelectron Spectrometer
- PHI 660 Auger Electron Spectrometer
- Secondary Ion Mass Spectroscopy
- Scanning Electron Microscopy and X-Ray Spectroscopes
- Electron Microscopes (JEOL 35 CFM, JEOL 6300F, Hitachi H7000 Transmission EM)
- Digital Instruments Nanoscope II Scanned Probe Microscope

## Team APG Showcase 2001:

# Biotechnology Topics

### **Maryland TEDCO Initiatives— Dr. Phillip Singerman**

### **The State of Maryland and Biotechnology— Dr. Martha Connolly**

### **Introduction to APG Biotechnology— Dr. James J. Valdes**

### **Bioprocess Design—Dr. Jun Park & Mr. Dennis Luken**

- Capabilities for fermentation, protein purification and product preparation
- Software used for biotechnology economic analysis and process design
- Current products

### **Toxicogenomics and Proteomics— Dr. Jennifer Sekowski & Dr. James J. Valdes**

- A genomics approach to molecular toxicology
- Gene arrays
- Software used for gene analysis
- Applications

### **Recombinant Proteins— Dr. Kevin O'Connell, Dr. Akbar Khan & Mr. Roy Thompson**

- Expression vectors
- Cloning strategies
- Combinatorial libraries, antibodies and peptides

### **In Vitro Approaches to Toxicology— Dr. Cheng Cao & Mr. Darrel Menking**

- Cytotoxicology and the Microphysiometer
- Corneal epithelial cell assay

### **Critical Reagents Cryorepository— Dr. Peter Emanuel**

- Cryopreservation
- Informatics

### **Nucleic Acid-Based Detection of Pathogens— Mr. Michael Goode, Dr. Peter Emanuel, Dr. Lisa Collins & Dr. James Rogers**

- Bioassay systems
- Future strategies for strain analysis

### **Recombinant Enzymes— Dr. Joseph DeFrank & Dr. Tu-Chen Cheng**

- Catalytic decontamination of nerve agents and organophosphorus pesticides

- Non-toxic, non-corrosive and environmentally safe
- Logistics burden reduced 25-50 fold
- Potential use of enzymes in detection, protection and prophylaxis treatment

### **Nanodevice for Bioagent Detection— Dr. Ray Yin**

- Rapid and reliable detection of biological agents including bacteria, spores, toxins and viruses
- Enhance sensitivity by a factor of 10-100
- Enable effective use of an extremely small amount of reagents (i.e. for nano/microarray production)
- Reduce the production cost by at least a factor of 10

### **Portable and Ruggedized Genetic Analysis by PCR—Dr. Anthony G. Gutierrez**

- A high sample throughput rapid turnover thermocycling device
- Battery-powered static temperature blocks
- Capillary sample vessels for rapid heat transfer and realtime read upgrade
- Unique honeycomb (hexagonal) geometry-based movement saves space and maximizes sample output

### **Generation of Genetically Modified Mice with Low Serum Carboxylesterase Activity—**

### **Dr. M. Cerasoli, Dr. M. Maxwell & Dr. E. Lenz**

- Techniques to generate genetically modified "knockout" mice in which specific gene sequences are ablated through homologous recombination
- Provides an inexpensive in vivo model system to test both anti-OP defenses and treatment therapies
- Enhanced applicability of animal results to human results

### **Genetic Expression Technology for Discovery of Toxicity Mechanisms and Selection of Drug Treatment—Dr. John Schlager**

- Changes in specific gene transcripts or proteins that are activated following xenobiotic exposure or physical stress
- Global response to a chemical or physical insult
- Elucidates how potential therapies may intervene at the molecular level

### **Team APG Business Development Office— Mr. Blake Sajonia**

- Cooperative R&D agreements
- Product and method testing in government labs
- Licensing of government patents