

UMass Life Sciences Task Force: Nanotechnology Working Group Update

Co-Chairs:

Paul Kostecky, UMass Amherst

Stephen McCarthy, UMass Lowell

February 8, 2008

Nanotechnology Working Group

- *Paul KostECKi, Amherst (co-chair)*
- *Stephen McCarthy, Lowell (co-chair)*
- *Richard Antonak, Boston*
- *Jeff Brancato, President's Office*
- *Paul Calvert, Dartmouth*
- *Todd Emrick, Amherst*
- *Rudolf Faust, Lowell*
- *Doug Golenbock, Worcester*
- *Zhiyong Gu, Lowell*
- *Shaw Ling Hsu, Amherst*
- *Eicke Latz, Worcester*
- *John Mordes, Worcester*
- *Lakis Mountziaris, Amherst*
- *Bob Nicolosi, Lowell*
- *Babs Soller, Worcester*

Working Group Meetings

- *Conference call – Jan 9, 2008*
- *Meeting – Jan 25, 2008 (side session of NanoMedicine Institute retreat)*



Undertaking innovative science and technology | Supporting sustainable economic growth | Providing a trained workforce | Guiding citizens to health and well being
 Supporting cultural diversity | Contributing to national security | Conserving and preserving the environment | Providing access to quality public higher education

**Shared Infrastructure
& Additional R & D
Thrusts**

**MASS Stem Cell
Initiative**

- ❑ hESC Bank
- ❑ hESC Registry

**Bioinformatics
Cores**

Tissue Engineering

Diagnostics

Biomaterials

**Computational
Sciences**

**Advanced
Therapeutics Cluster**

**Stem Cell Biology
Cluster**

- ❑ Research Cores
 - hESC
 - Animal stem cells

RNAi Institute

- ❑ RNAi Translational Research

**Gene Therapy
Cluster**

- ❑ Research Core
- ❑ Gene Delivery Mechanisms

Nanotechnology

**Nanomanufacturing
Center**

- ❑ Plastics & Composites Engineering
- ❑ New Materials & Processes for High Rate Manufacturing
- ❑ Expertise from detection to drug delivery and therapeutics to tissue

**Nanomedicine
Research Institute**

- ❑ Applications of Nanotech to Medicine

Others TBD

**Technology
Innovation Centers**

Industry Support

- ❑ Medical Device
 - M2D2
- ❑ UMB VDC
- ❑ Biotech Incubation
- ❑ Preclinical Pipeline
- ❑ Clinical Trials

**Biomanufacturing
Center**

- ❑ Mass Production of viable products with large scale facility
- ❑ UMD business assistance biotech facility

Others TBD

**Workforce & Policy
Initiatives**

Human Capital

- ❑ Life Sciences Talent Initiative
- ❑ STEM Efforts
- ❑ Pipeline Programs
- ❑ Nursing Education & Research

Policy

- ❑ Policy Development & Analysis
- ❑ Minority Health & Health Care Disparities
- ❑ Evaluating the State's Investment in the Life Sciences

Health and Behavior

**Environmental
Sciences**

- ❑ Impact of Genetics
- ❑ Development of Community Partnerships
- ❑ Nutritional and Exercise Sciences
- ❑ Lifestyle Change

**Impact of Wellness
Initiatives**

- ❑ Environmental Impact of Health Initiatives

Behavioral Health

Food Safety

- ❑ Health Effects of Food Component

Definition of Scope

- *Nanotechnology – having "mission critical" structures made up of, or containing, components of less than 1 micron (1,000 nm) in size*
- *Life Sciences – using biologically-based systems, including non-biomedical/human health fields (e.g., biofuels)*

Working Group Activities

- *Inventory of nanoscience and engineering research related to the life sciences:*
 - *Building a searchable database (expertise keywords, research projects, publications, patents, etc.);*
 - *Identification of relevant research centers (CHM, MRSEC, CUMIRP, CHN, NanoMedicine Inst., etc.);*
 - *Designed to be web-based and available to researchers, partners, policymakers and other stakeholders;*
 - *Begin with working group members and expand across each campus.*

Outstanding Issues

Overcoming challenges to collaboration

- *Lack of information : see previous slide*
- *administrative barriers to cross-campus partnership (e.g., library access): raise issue at UMass Research Council*

Next Steps

- *Greater in-depth interaction with other pillars*