



NCI Alliance for **Nanotechnology** in Cancer

Scientific Roundtable | September 13, 2004

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Deputy Director, NCI

NCI and Nanotechnology: Past and Present

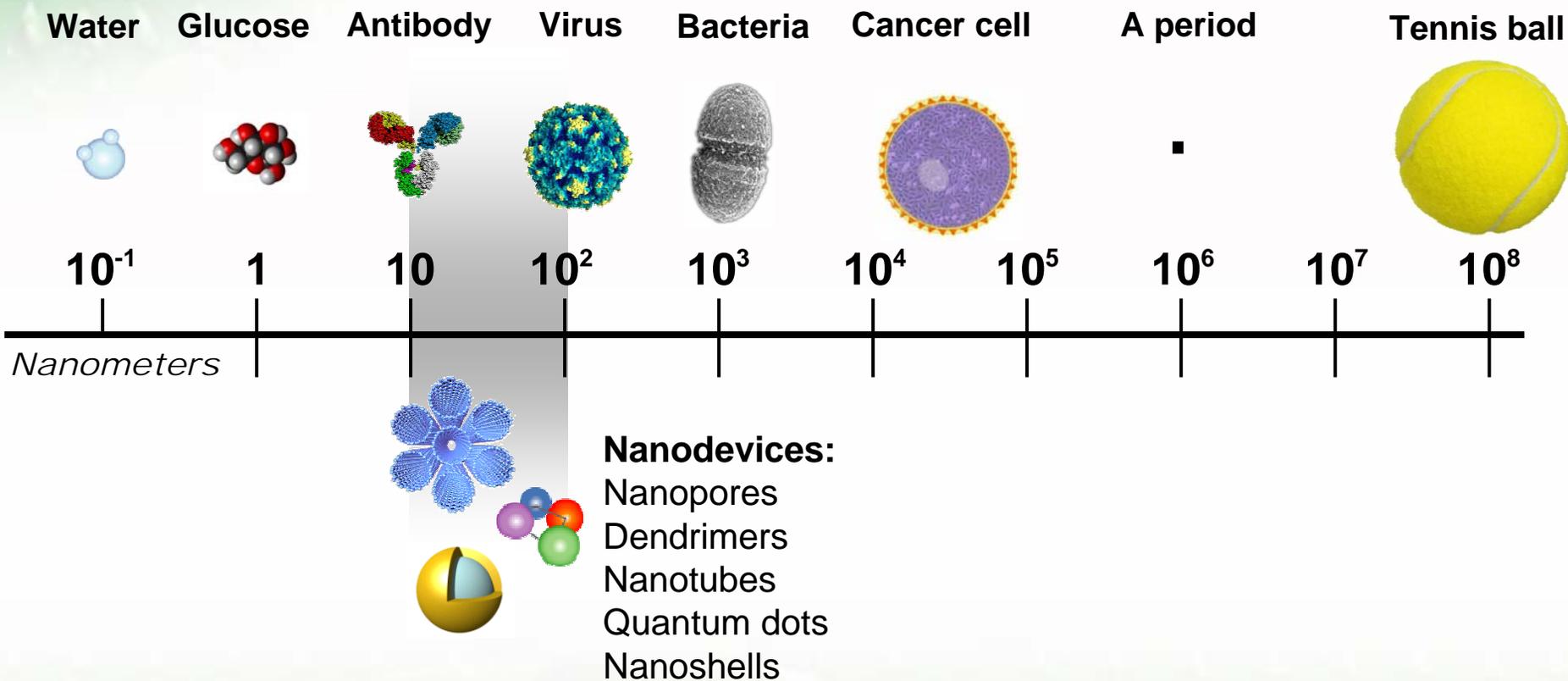
Briefing Focus: To harness the power of nanotechnology and radically improve the way we diagnose, treat and prevent cancer, the National Cancer Institute has established the *NCI Alliance for Nanotechnology in Cancer*

Background: NCI has funded over 6 years of exploratory work on nanotechnology and its potential to eliminate suffering and death due to cancer – and nanotechnologies are already in the clinic

- Nanotechnology has the potential to be a transforming technology to significantly improve cancer outcomes
- Due to advances in genomics, bioinformatics, convergence of science and advanced technologies – time is now right
- NCI developed the Cancer Nanotechnology Plan to establish the Alliance with input from the broad cancer and biomedical research communities

Nanotechnology in Perspective

NCI Alliance for
Nanotechnology
in Cancer



The Alliance and Its Goals

The Alliance is a comprehensive, integrated, multi-sector initiative designed to develop and ensure the application of the best nanotechnologies to cancer

Goals

- Research tools to identify new biological targets
- Agents to monitor predictive molecular changes - prevent precancerous cells from becoming malignant
- Imaging agents and diagnostics to detect cancer in earliest, most easily treatable, pre-symptomatic stage
- Multi-functional targeted devices to deliver multiple therapeutic agents directly to cancer cells
- Systems to provide real-time assessments of therapeutic and surgical efficacy
- Novel methods to manage symptoms that reduce quality of life

The Alliance: Hallmarks and Operations

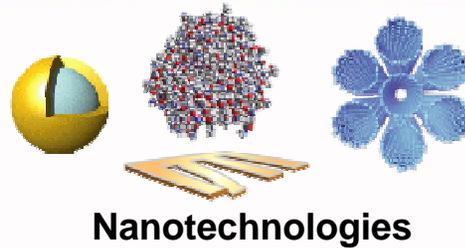
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**Multi-disciplinary
Centers of
Nanotechnology
Excellence**



- University and Medical Centers
- Technology Centers of Excellence
- National Labs
- NCI Technology Development Programs
- Private Sector

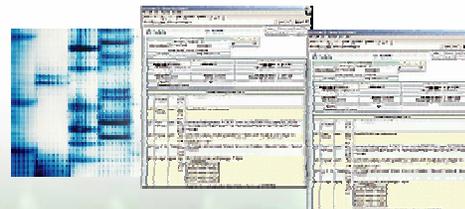
**Goal Oriented –
Project
Management**



Nanotechnologies



**Cancer Patients -
Clinical Applications**



Protocols, Data

**Intra-Agency
Collaboration**



**Nanotechnology
Characterization
Laboratory**

- NIST
- FDA
- NCI

Standards

National Cancer Institute (NCI) Alliance for Nanotechnology in Cancer- Outcomes

NCI Alliance for
Nanotechnology
in Cancer

- Enable the convergence of disparate fields of science – and advance molecular medicine
- Provide new “smart” approaches for the diagnosis, treatment and prevention of cancer and other diseases
- Accelerate the realization of personalized medicine
- Accelerate progress against cancer – and ensure its ultimate conquest
- Reduce healthcare costs

National Cancer Institute (NCI) Alliance for Nanotechnology in Cancer

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Today's Program

- Overview: The Impact of Nanotechnology on Cancer Research

- Nanotechnology and Cancer Research: Technical and Clinical Perspectives
- The NCI Alliance for Nanotechnology and Cancer: How it Works
- Moving Forward Safely and Collaboratively

Upcoming Event

National Cancer Advisory Board

September 14th, 10:45 am – 12:30 pm

Mini-Symposium: The Science of Nanotechnology

Speakers:

- **Harold Craighead, Ph.D.**, Cornell University
- **James R. Heath, Ph.D.**, California Institute of Technology
- **Charles M. Lieber, Ph.D.**, Harvard University
- **Jennifer West, Ph.D.**, Rice University

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Today's Panel

- Dr. Anna Barker, Deputy Director, NCI, Moderator
- Dr. Andrew von Eschenbach, Director, NCI
- Dr. Richard Smalley, Professor of Chemistry, Physics, Astronomy and Nanotechnology, Rice University
- Dr. Sam Wickline, Professor of Medicine, Physics and Biomedical Engineering, Washington University
- Dr. Mauro Ferrari, Professor of Biomedical Engineering, Ohio State University, NCI Special Expert
- Dr. Gregory Downing, Director, Office of Technology and Industrial Relations, NCI
- Dr. Janet Woodcock, Acting Deputy Commissioner for Operations, U.S. Food and Drug Administration
- Dr. Vicki Colvin, Dir. Ctr. For Biological and Environmental Technology, Assoc. Professor, Rice University