



# NCI Alliance for **Nanotechnology** in Cancer

**The NCI Alliance for Nanotechnology in Cancer:  
How it Works**

**Scientific Roundtable | September 13, 2004**

**Gregory Downing, D.O., Ph.D.  
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# Today's Agenda

NCI Alliance for  
**Nanotechnology**  
in Cancer

- ▶ Cancer Nanotechnology Plan
- ▶ Programs of the Alliance for Nanotechnology in Cancer
- ▶ Funding Process and Timetables
- ▶ Resources for More Information

# How We Started: Community Input and Plan Development

NCI Alliance for  
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in Cancer

***Spring '03***

***Fall '03***

***Winter '04***

***Spring '04***

***Summer '04***

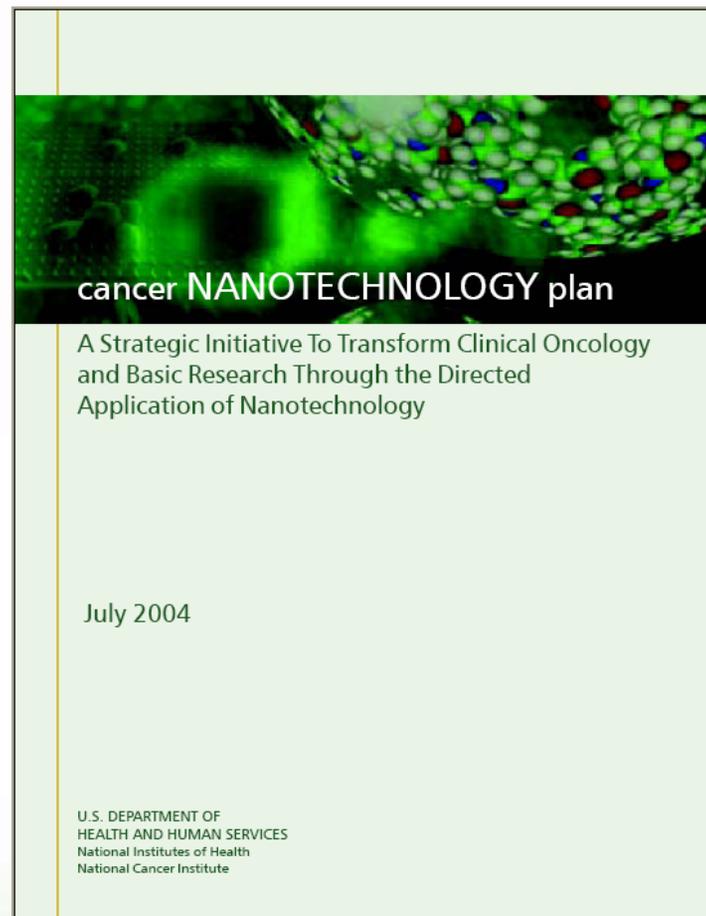
***Fall '04***

- Evaluation of existing NCI technology programs
- Input and guidance from working groups to guide Cancer Nanotechnology Plan development
- National Cancer Advisory Board and Board of Scientific Advisors discussions
- Cancer Nanotechnology Symposia
- Cancer Nanotechnology Plan and Alliance Programs approved
- Program launch and release of RFAs

# Cancer Nanotechnology Plan and Key Research Opportunities

NCI Alliance for  
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- Six key focus areas:
  - Molecular Imaging and Early Detection
  - In Vivo Imaging
  - Reporters of Efficacy
  - Multifunctional Therapeutics
  - Prevention and Control
  - Research Enablers



<http://nano.cancer.gov>

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# Alliance Strategies

## Major Programs of the Alliance:

- 1** Centers of Cancer Nanotechnology Excellence
- 2** Multidisciplinary Research Teams
  - Training
  - Interagency Collaborations
- 3** Nanotechnology Platforms for Cancer Research
- 4** Nanotechnology Characterization Laboratory

# Centers of Cancer Nanotechnology Excellence (CCNEs)

- CCNEs will integrate nanotechnology development into basic and applied cancer research
- Key features of a CCNE:
  - Consortium of ~4 institutions/programs working in a common research area
  - Discrete, specified project performed by named investigators
  - Broad access to array of resources and multidisciplinary expertise
  - 5 – 8 technology platforms
  - Advanced biocomputing capabilities
  - Integration within NCI infrastructure (i.e., Cancer Centers)
  - Affiliation with university or research centers in engineering and physical sciences
  - Partnerships with existing not-for profit/private technology development

# Centers of Cancer Nanotechnology Excellence (CCNEs)

- 6 key focus areas:
  - Molecular Imaging and Early Detection
  - *In Vivo* Imaging
  - Reporters of Efficacy
  - Multifunctional Therapeutics
  - Prevention and Control
  - Research Enablers
  
- Funding
  - Specialized centers/cooperative agreement (U54)
  - Funding of 5 centers, \$90.8M over 5 years
  - Proposal receipt date: March '05

## 2 Multidisciplinary Research Teams

- The Alliance will support training and career development initiatives to establish integrated teams of researchers and engineers with backgrounds in cancer biology and nanotechnology
- Funding (\$15.5M over 3 years for ~30 awards)
  - F33 National Research Service Awards for Senior Fellows
    - Enables experienced cancer researchers and engineers/physical scientists with directed programs of training to be independent researchers and to provide the future building of training programs
    - Estimate 15 awards of 3 years
  - F32 NRSA Individual Postdoctoral Awards
    - Provides cross-disciplinary research training opportunities for postdoctoral fellows with training in either cancer or technology to gain experience in the other discipline
    - Estimate 15 awards of 3 years
- Proposal receipt date: March '05

# Nanotechnology Platforms for Cancer Research

- Individual technology projects to address the 6 key focus areas
- Funding: Research Project Grants (R01)
  - Bioengineering Research Partnerships (BRP)/ Bioengineering Research Grants (BRG)
    - Broadly support basic, applied, and translational multidisciplinary research that addresses important biological or medical research problems
    - Partnership must combine bioengineering and/or allied quantitative sciences with biomedical and/or clinical components

# 4 Nanotechnology Characterization Laboratory (NCL)

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- NCL will:
  - Interface with CCNEs, individual investigators, NIST and FDA to develop standards and characterization data for nanoscale devices to help bring these products to market
  - Perform preclinical toxicology, pharmacology, and efficacy testing of nanoscale devices created both by NCI intramural and extramural efforts and by the private sector
  - Facilitate collaborations among the NCI, academia, and the private sector
  - Serve as a nexus for multidisciplinary research, development, and clinical applications
  - Collaborate with other government agencies to leverage resources and expertise

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# Funding Process

- |                                       |              |
|---------------------------------------|--------------|
| ■ RFAs                                | October '04  |
| <hr/>                                 |              |
| ■ Pre-application information meeting | December '04 |
| <hr/>                                 |              |
| ■ Proposal receipt                    | March '05    |
| <hr/>                                 |              |
| ■ Funding                             | Summer '05   |
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# Next Steps and Resources for More Information

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- Development of Federal agency collaborations

- NIH
- NIST
- FDA
- DOE
- NNI
- NSF



NIST

FDA



- Continued community outreach and education



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Website: <http://nano.cancer.gov>

Email: [cancer.nano@mail.nih.gov](mailto:cancer.nano@mail.nih.gov)



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