Think Tanks in Cancer Biology

Organized by:

Scientific Staff
Division of Cancer Biology

Think Tanks in Cancer Biology

Purpose:

- **To assess the status of cancer biology along the cancer initiation/progression/metastasis continuum**
- **To determine where the science is and where it is going in specific areas**
- **To ask what NCI could or should do to facilitate progress.**

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Initiation **Progression** **Metastasis**

•Basis of Cancer Susceptibility
- Inflammation
- Mechanisms of Etiologic Agents
  - •Epigenetics of Cancer

•Tumor Microenvironment

- Tumor Immunology
- Cell Decision-Making Mechanisms
- Tumor Stem Cells

← Integrative Cancer Biology →

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Format:

- **Small groups of 15-20**
- **Participants include established leaders and "rising stars", as well as investigators from related fields**
- **No formal presentations, but discussion topics focused on specific issues within the field.**
- **Participants are invited before the meeting to be prepared to lead various of the discussion topics**

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Questions Participants Are Asked To Consider:

- Where does the field stand today?
- What would we have to know to move the field forward dramatically?
- What are the gaps and/or roadblocks to progress?
- Are there areas of expertise that need to be, but have not been, brought to bear on the problems in this field? If so, how can this be remedied?
- What cross-cutting tool, enabling technology and/or infrastructure needs to be developed?

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Tumor Immunology

Issues Highlighted:

- **Need for continued research on immune regulation, with special emphasis on the interactions between the immune system and the tumor microenvironment**
- **Need to develop animal models and new imaging technologies to study immune function in vivo.**
- **Need for an interdisciplinary, systems biology approach to immunology and immunotherapy.**
- **Need for access to promising immunomodulatory reagents for clinical development and improved availability of new clinical grade biologic reagents.**

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Tumor Microenvironment

Issues Highlighted:

- **Need for resources, such as banks of normal and cancer stromal cells and matrix molecules**
- **Need to develop organotypic models that will allow analysis of the tumor/microenvironment interactions**
- **Need for a systems biology approach to the tumor/ microenvironment interaction**
- **Need for improved imaging technologies**
- **Need for facilitated interactions among investigators, that would allow collaborations and provide an infrastructure to generate and provide resources to the research community**

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Target Dates for Future Think Tanks

- Mechanisms of Etiologic Agents – March 2004
- Tumor Stem Cells and the Genetic Basis of Self-Renewal - April 2004
- Epigenetics of Cancer – May 2004
- Cell Decision-Making Mechanisms: Apoptosis vs. Proliferation – May 2004
- Basis of Cancer Susceptibility – June 2004
- Inflammation and Cancer – June 2004

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Outcomes:

- **Summary reports of the scientific discussions which will be posted on the DCB Website and published when appropriate**
- **Recommendations**
- **Crafting of proposed initiatives that reflect the overarching needs of the research community**

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Integrative Cancer Biology Program – RFA CA-04-013

The goal of this initiative is to promote the analysis of cancer as a complex biological system, with an ultimate goal of developing reliably predictive *in silico* or computational models of cancer initiation and progression and for the development of cancer interventions.

The overall thrust of this program will be the integration of experimental and computational approaches towards the understanding of cancer biology.

This initiative will encourage the emergence of integrative cancer biology as a distinct field.