

# Linked Investigator Research in Cancer Biology

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# Background

- **Cancer is a complex and diverse disease**
- **Enormous progress has been made in understanding tumor cells**
- **Emerging focus: understanding and modeling the tumor as an organ with many interacting systems, such as:**
  - **Gene networks in cancer cells**
  - **Signaling pathways**
  - **Tumor and its microenvironment**
- **Team or multi-disciplinary approaches are needed to fully characterize the tumor**

# Background

- **Two multi-disciplinary integrative programs are focused on addressing these needs**
  - Integrative Cancer Biology Program (ICBP)
  - Tumor Microenvironment Network (TMEN)
- **Both programs have the common goals of:**
  - creating a nucleus of investigators that would attract and galvanize additional efforts from among the broader cancer biology community
  - establishing resources for the research community

# ICBP and TMEN Multidisciplinary Groups

- **ICBP**
  - **9 Centers**
  - **Systems biology of cancer**
  - **Predictive mathematical modeling**
  - **Analysis of “omic” data sets**
  - **Educational and research resources – software and tools**
  
- **TMEN**
  - **9 Groups**
  - **Characterize the tumor microenvironment**
  - **Elucidate tumor–stromal interactions as they relate to the initiation, progression and metastasis continuum**
  - **Generate resources: reagents, models and markers for TMEN investigators and cancer community at-large**

# Goals of the PAR

- **Enhance collaborations between the research community and the ICBP and TMEN**
- **Extend scientific scope of the ICBP and TMEN to new organ sites and approaches, new technologies and models, new PIs**
- **Increase the broad impact of ICBP and TMEN programs**

# Linked Investigator PAR

- **Mechanism**
  - **Multiple-PI R01**
    - **Multiple PI award now routinely used by NIH, includes “Leadership Plan” in the application and review**
- **Requirements**
  - **One PI must be associated (key personnel) with ICBP or TMEN, must include someone not part of the program**
- **NCI/DEA review**
  - **1-2 receipt dates**
  - **Intimately linked to the parent programs**
- **Awards**
  - **Estimate 6-8/year**
  - **No budget set aside, utilize R01 payline**

## Potential ICBP Topics

- **Integration of models across temporal and spatial scales**
- **Application of new technology to generate quantitative measurements of interrogating and modeling cancer processes**
- **Novel approaches to validate and refine current ICBP models**
- **Application of integrative approaches to the identification and testing of new therapeutic agents**
- **Integration of current modeling approaches within the ICBP to additional organ systems**

## Potential TMEN Topics

- **Alterations in normal organ- and tumor-associated stroma: functions of and interactions among the component cells, growth factors/chemokines, and extracellular matrix**
- **Critical alterations in the microenvironment responsible for tumor development, progression, and metastasis**
- **Roles of the inflammatory/immune and bone marrow derived cells in tumor initiation, progression and metastasis**
- **Identification of tumor stem or progenitor cells and characterization of their interactions with stromal cells**
- **Development of novel technologies and model systems for the study of the microenvironment**
- **Characterization of tumor microenvironment in additional organ sites**

# Current Portfolio Analysis

- **Current Program Funding (FY 2007)**
  - **ICBP\* - \$14.479 million**
  - **TMEN\* - \$8.279 million**
- **There are only a few R01s that exclusively focus on these areas, and no multi-PI grants**
  - **Cancer Systems Biology Grants (FY07) - 15 R01s**
  - **Tumor Microenvironment Grants (FY07) – 25 R01s**

\* Both of these programs are relatively new and recently examined by the BSA

# Cancer Biology Linked R01 PAR

Questions?

## Cancers not well represented in TMEN or ICBP

- Lung
- Melanoma
- Head and Neck
- Pancreas
- Renal
- Pediatric tumors
- Ovary
- Bladder