

Education, Training and Outreach

NCI Integrative Cancer Biology Program

Co-Chairs

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Objectives

- Create new strategies and programs for disseminating the concept of systems cancer biology to inspire future and junior scientists to pursue its study.
- Develop programs to encourage the integration of research approaches from various disciplines (biological, computational, statistical and mathematical science).
- With its strong network of interdisciplinary groups, the ICBP provides a means of sharing that knowledge with other researchers at all levels.

Summer Program for Undergraduates

- Provides a unique opportunity for sophomore or junior college students to gain an understanding and appreciation of major questions and the novel approaches being used within the ICBP Centers.
- Students are paired with a faculty-mentor from an ICBP Center based on the students' indicated research interests.
- Program includes mentored research projects and/or laboratory work (9 weeks), faculty lectures, seminars, discussions, webconferences and other activities.
- Evaluations and Follow up
 - Evaluations (Student's performance by Mentor, Center and experience by Student)
 - Follow-up (Graduate studies and field of study)
- Applications (up 42%); awards (up 69%)

Postdoc Exchange

- Supports a one to six week visit of ICBP or TMEN-associated junior investigator to a “host” ICBP or TMEN Center.
- Goals and Objectives
 - Master and exchange techniques
 - Analyze series of samples, tasks that could not otherwise carried out in their “home” laboratory setting
 - Cross-fertilization of ideas
 - Gain a broader understanding and appreciation of major questions currently under investigation using novel approaches
- Support for travel and housing
- Awards to date: 6

Junior Investigators Meetings

- Attendees: Postdocs, Research Associates and other junior investigators (JIs)
- Meeting fully planned by JIs
- Attended by JIs from all ICBP Centers
- Goals of meeting
 - **Career development:** How to prepare junior investigators to be the next generation of ICBP/Systems scientists, funding opportunities.
 - Share current science
 - Form collaborations

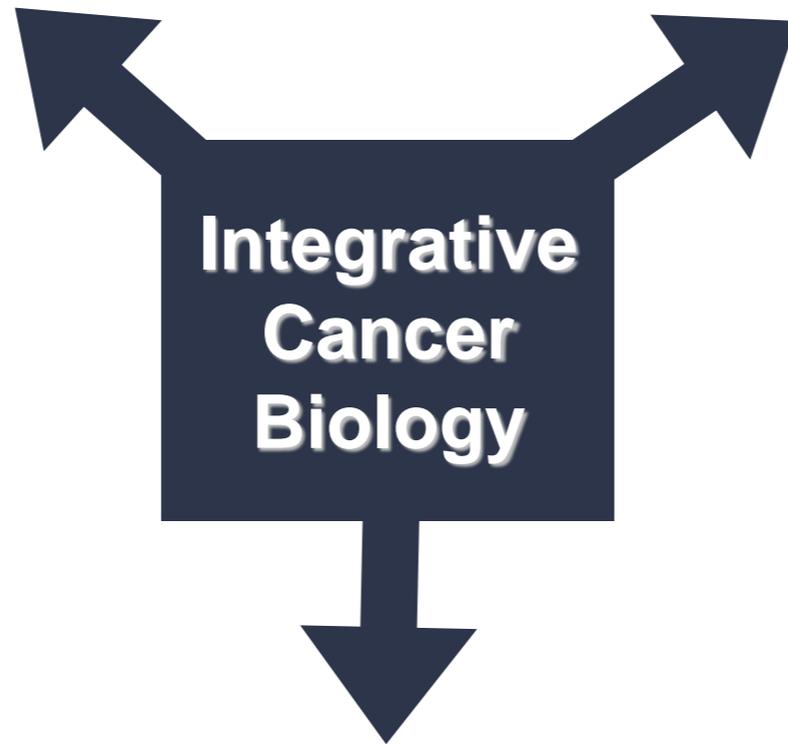
ICBP Collaborations

- *ICBP Glioma Collaboration* - Deisboeck (UMass), Lauffenburger (MIT), TGEN
- *Computational Modeling of Cancer Biology* - Plevritis (Stanford), I. Lossos (U of Miami)
- *Developing a Systems Biology Model of Genetic/Epigenetic Signaling Networks to Predict Tumor Response to Fluoro-pyrimidine Based Radiosensitization in Rectal Cancer Patients* - Kinsella (Case), (MIT), P. Johnston (Ireland)
- *Integration of Gene Expression Signatures Tumor Phenotypes & Mathematical Modeling* - Quaranta (Vanderbilt), Nevins (Duke), Gray (LBNL)
- *Systems Pharmacology of ErbB Targeted Therapeutics* - Lauffenburger (MIT), Gray (LBNL), Sorger (Harvard), Danuser (Scripps)
- *Integrating Transcriptomics, Genomics, and Epigenomics Data to Model Drug-Resistance Mechanisms to MEK Inhibitor in ICBP 12 Breast Cancer Cell Lines* - Huang (OSU), Broad, LBNL
- *Regulatory Networks in Cancer Initiation and Progression* - Lauffenburger (MIT), Quaranta (Vanderbilt); Tyson (Virginia Tech)
- *RTK signaling in single cells* - Gray (LBNL), S. Chu (LBNL), A. P. Alivisatos (LBNL)

Workshops and Symposia

Systems Biology

- 6th International Conference on Systems Biology, Boston, MA (2005)
- Symposium: “Systems Biology of Cancer: From Math Models to Biology,” AACR (2006)
- Educational Workshop, “Systems Biology as an Integrative Approach to Cancer”, AACR (2007)
- Sigma Xi Distinguished Lectureship by Dr. Quaranta (11 lectures) (2006-2008)
- European Commission Conference, Brussels, Belgium (2008)



Mathematical/ Computational Modeling

- Mathematical Sciences Research Institute 3-day workshop
- Annual CViT international workshops hosted by the MGH ICBP
- DIMACS Meeting, New Brunswick, NJ (2006)
- Multi-Scale Modeling Workshop, Seattle, Washington (July 2008)

Bioinformatics

- “Biocomputational tools in cancer biology” Stanford and the Bay Area Bioinformatics Symposium (BABS)
- Workshop: Introduction to Analysis Methods for Microarray Data, Boston, MA (2006)

Center-centric Selected Activities

Huang (OSU/IU)

Visiting Scientists

Junior Investigator Travel Awards

2nd Annual OSU-ICBP Data

Integration Workshop

Bioinformatics training

Kinsella (CWRU/UHC)

Working group - integration of systems biology into basic and clinical/translational programs

Cancer Center

Graduate Core Curriculum

Golub (DFCI)

Training workshops - software and analysis methods
Programs for HS-students and teachers
Diversity Research Program

Quaranta (Vanderbilt)

Annual Hands-on Workshops in Mathematical

Modeling of Cancer, 2005-2008

PubClub Webconferences

Graduate Curriculum Module

Plevritis (Stanford)

Graduate Courses in systems biology of cancer

Workshop on computational cancer biology

Nevins (Duke)

Duke Integrated Genomics (DIG)- Bioinformatics System

Training - Graduate and MD Fellows

Gray (LBNL)

Math Systems Biology of Cancer

Workshops

ICBP Seminars and research meetings

Lauffenburger (MIT)

Short Courses (Graduate)

Training Courses

2006 SACNAS Symposia

Deisboeck (MGH)

Annual International Tumor Modeling Workshops (3)
CViT.org

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