Cancer Biology Research is Advancing Progress Towards the National Cancer Plan

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NIH NATIONAL CANCER INSTITUTE

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National Cancer Plan

Everyone has a role.

We can go farther together than we can alone.

nationalcancerplan.cancer.gov

National Cancer Plan

"The National Cancer Plan represents a commitment to achieving a society where most cancers are prevented and where every person diagnosed with cancer lives a full and active life."

— NIH Director Monica M. Bertagnolli, M.D.

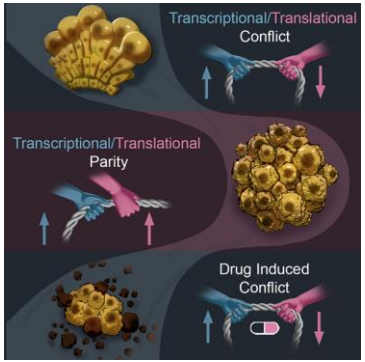
The National Cancer Plan focuses on eight goals aimed at changing how we know cancer today.

How is fundamental research supported by the NCI Division of Cancer Biology (DCB) helping us achieve the goals of the National Cancer Plan?


Prevent Cancer

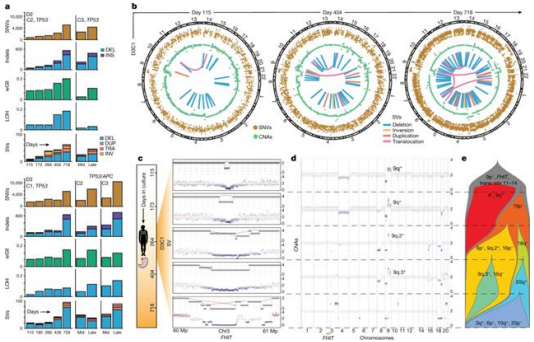
Cancer Biology Research is Advancing Cancer Prevention

Determining Mechanisms that Suppress Cancer Development



Dr. Andrew Hsieh et al. identified a tumor-suppressive process in bladder cells (i.e., transcriptional-translational conflict), which blocks cancer-causing genetic programs.

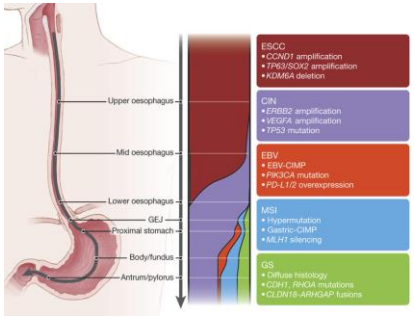
Revealing the evolution of precancers and cancers



Dr. Christina Curtis et al. found that cancer cells-to-be accumulate a series of specific genetic changes in a predictable way before they are identifiable as pre-malignancies. This could inform early diagnosis and cancer prevention approaches.

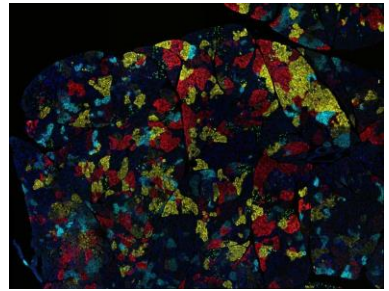
DCB Research Programs Contributing to Cancer Prevention

Program on the Origins of Gastroesophageal Cancers



Examining and defining the earliest biological changes in the malignant transformation to gastroesophageal cancers.

Translational and Basic Science Research in Early Lesions (TBEL)

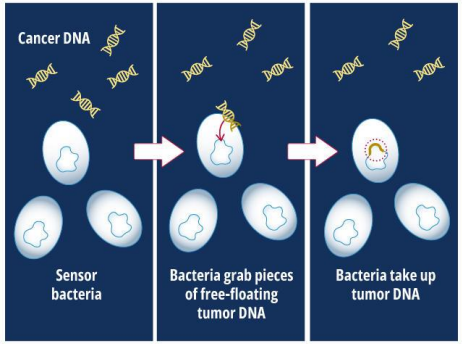


Investigating the mechanisms driving or restraining pre-cancers and early cancers, as well as facilitating biology-backed precision prevention approaches.


Detect Cancers Early

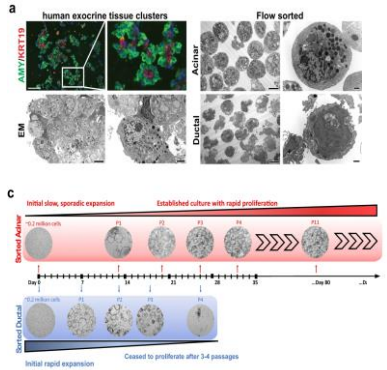
Fundamental Research Informs the Early Detection of Cancers

Developing preclinical early detection strategies



Dr. Jeff Hasty et al. engineered bacteria that can detect DNA that has been released from tumors. These biosensors detected mutated DNA shed by colorectal cancer in mouse models.

Identifying and validating biomarkers of cancer development

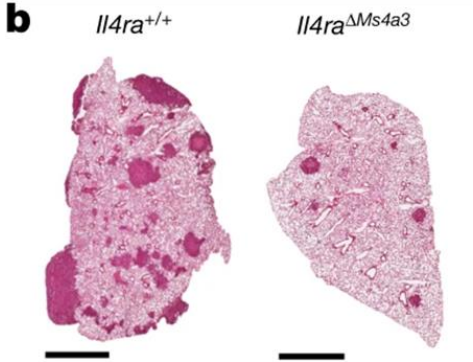


Dr. Jun Liu, Dr. Pei Wang, et al. revealed a set of genes with elevated expression (which acts as biomarkers) during early pancreatic cancer development using genetically engineered pancreatic acinar cells.


Develop Effective Treatments

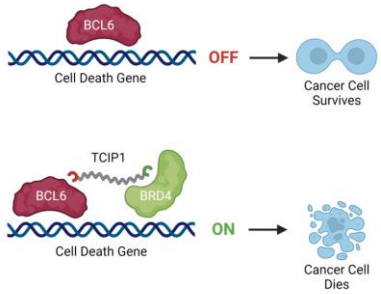
Biological Studies Contribute to the Development of Cancer Therapies

Identifying potential new therapeutic targets in cancers



Dr. Miriam Merad et al. found that IL-4 signaling in the bone marrow drives the production of immunosuppressive and tumor-promoting myeloid cells in NSCLC. These findings led to a clinical trial testing an IL-4 receptor blocking antibody.

Preclinically testing new strategies to treat cancers

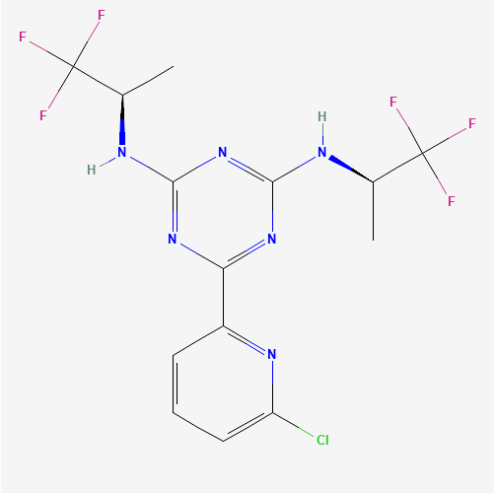


Dr. Gerald Crabtree, Dr. Nathanael Gray, et al. revealed a new approach for rewiring cancer drivers to activate cell death (i.e., make tumor cells self-destruct) using transcriptional chemical inducers of proximity (TCIPs).

Fundamental Research Paved the Way for the Development of Vorasidenib, a New Promising Clinical Treatment for IDH-Mutant Low-Grade Gliomas

- This important clinical discovery represents the first new drug treatment for patients with glioma in over 20 years.

- This recent breakthrough in the treatment of brain tumors is built upon a foundation of cancer biology research, from the genetic analyses of gliomas to biological studies.




Eliminate Inequities

An NCI Session shared collaborative DCB and CRCHD opportunities in cancer health disparities

Moderator

Natalia Mercer, PhD
Program Director
Tumor Biology and Microenvironment Branch
Division of Cancer Biology (DCB)

Basic Research in Cancer Health Disparities

Tiffany Wallace, PhD
Program Director
Disparities and Equity Program
Center to Reduce Cancer Health Disparities (CRCHD)

Integrating Health Disparities into Immuno-Oncology

Lillian Kuo, PhD
Program Director
Cancer Immunology, Hematology, and Etiology Branch
Division of Cancer Biology (DCB)

Administrative Supplements to Support Cancer Disparity Collaborative Research

LeeAnn Bailey, MBBS, PhD
Chief- Integrated Networks Branch
Center to Reduce Cancer Health Disparities (CRCHD)

Upcoming NCI Meet-the-Expert Talk on Tuesday, April 9:

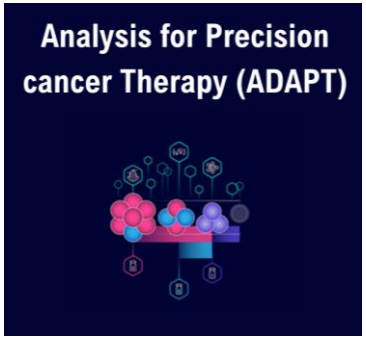

Deliver Optimal Care

Fundamental Studies Help Improve Cancer Care

Informing the design of new technologies and clinical trials for personalized therapy

This meeting focused on utilizing patient clinical and -omic data with systems biology models in clinical settings. It explored building innovative and streamlined clinical trials for incorporating biomarkers and new drug treatment strategies into clinical practice.

Builds a foundation for and complements translational and precision medicine initiatives for cancer care

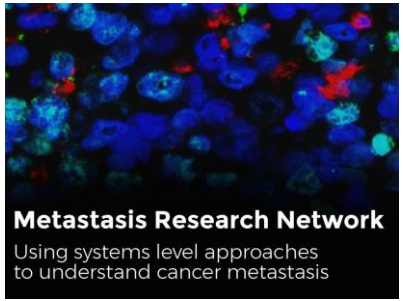


This is an ARPA-H visionary collaboration to usher in a new era of cancer care by harnessing advanced technologies to provide a deeper understanding of and treatment response to tumor biology.
It builds on the impact of cancer systems biology research.


Engage Every Person

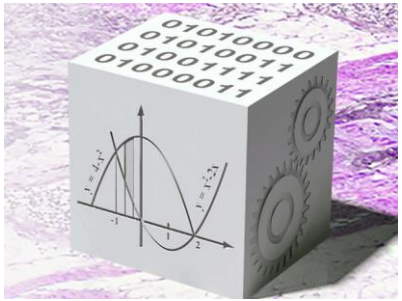
Engaging Advocates in the Basic Cancer Research Continuum

Metastasis Research Network (MetNet)



Patient advocates bring a unique perspective to each MetNet center, working as valued partners with the researchers.

Physical Sciences – Oncology Network (PS-ON)



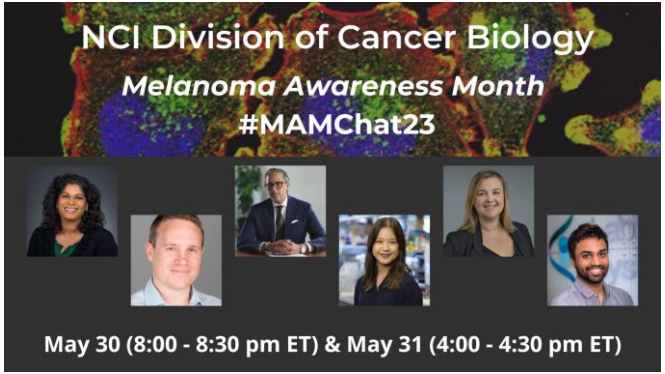
Research advocates play an important role in the network and have been important members of the program since it started.

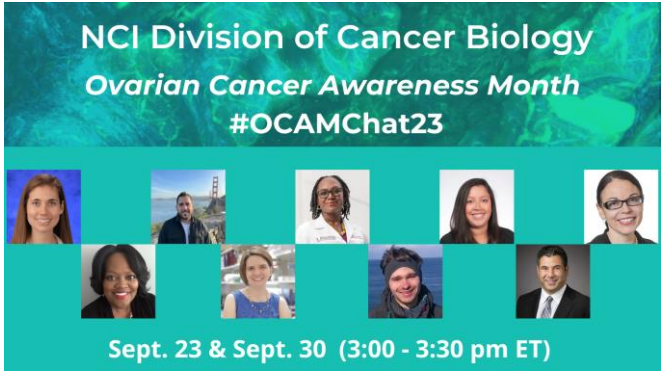
NCI Division of Cancer Biology (DCB)
Twitter Chats

- Held open and public discussions on social media about advances, opportunities, and future directions for melanoma and ovarian cancer research.

- Panelists with diverse perspectives about the field helped lead the discussions.

- Posts from these chats were seen 4M+ times!






Maximize Data Utility

NCI Division of Cancer Biology (DCB) Programs Share Data and Analysis Tools with the Community

Cancer Complexity Knowledge Portal

Shares data and software tools from CSBC, PS-ON, Cancer TEC, CCBIR, MetNet, and the PDMC

HTAN Data Portal

Shares data, data standards, protocols, analysis tools, and human tumor atlases from HTAN

ARTNet Website

Shares a data catalog, a software catalog, and a clinical trials catalog from ARTNet


Optimize the Workforce

NCI Division of Cancer Biology (DCB)
New Grantee Workshop

DCB offers an annual workshop for new and early-stage investigators to familiarize them with the processes of DCB, NCI, and NIH.

Presentation slides, FAQs, and a summary of the keynote talk by the NCI Director from the 2024 meeting can be found at cancer.gov/dcb.

NCI Junior Investigator Meeting

- This meeting brings together junior investigators who build and apply novel tools to better understand cancer.

- Provides opportunities for junior scientists to meet fellow researchers, showcase their work, foster collaborations, and generate synergy between individuals with diverse skills and shared research interests.

Conclusion

Basic scientific discovery is essential to everything we do…

…and it takes **multi-level collaboration** for that discovery to achieve benefit for patients.

www.cancer.gov

www.cancer.gov/espanol