NCI Director's Report

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Director, National Cancer Institute

July 10, 2023

13th Virtual Meeting of the Frederick National Laboratory Advisory Committee (FNLAC)

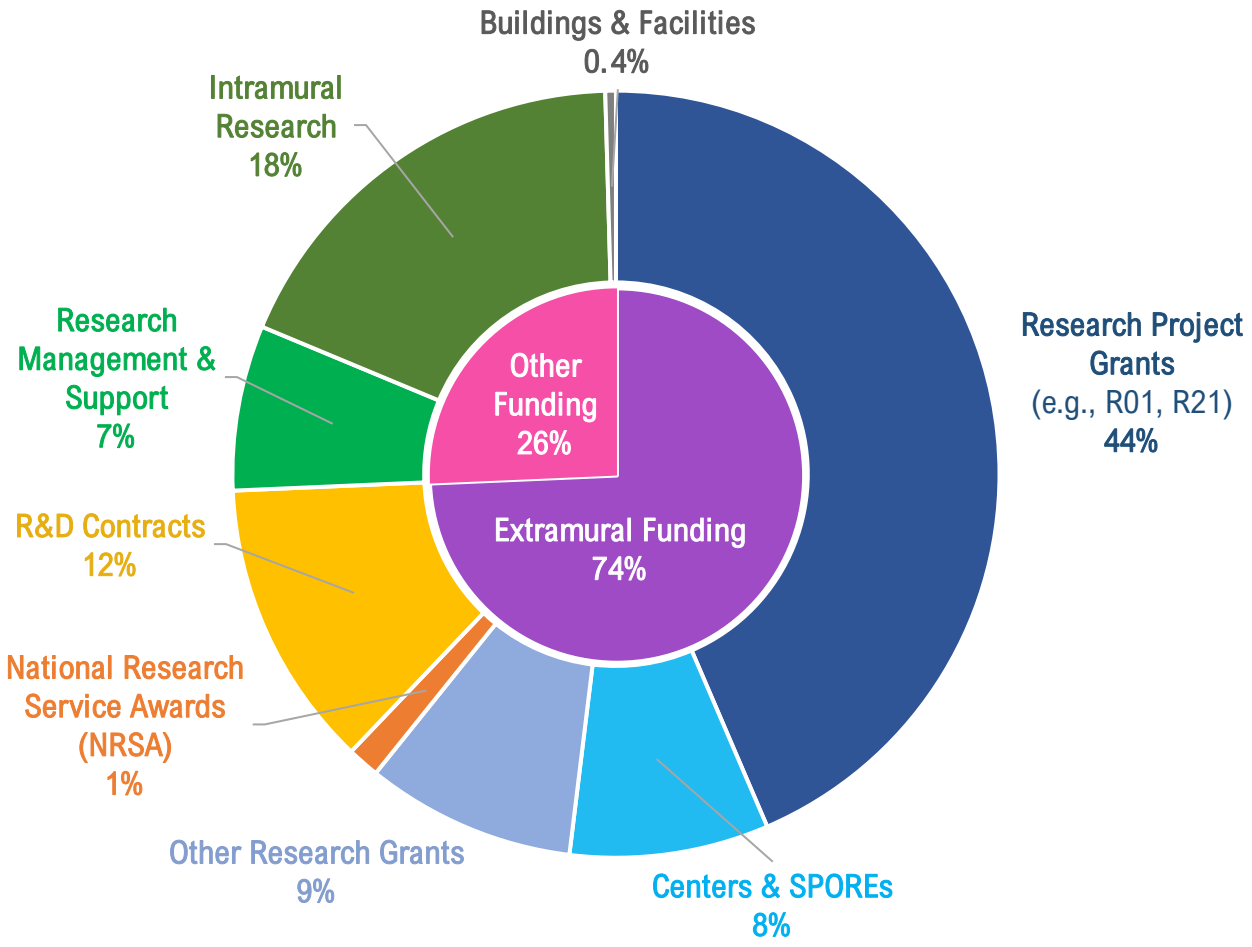
@NCIDirector
@TheNCI

NIH NATIONAL CANCER INSTITUTE

Today's Talk

- NCI News and Events
- Budget/Paylines
- Cancer Drug Shortages
- National Cancer Plan
- Program Updates
- Research Advances

How does NCI spend its money?



Examples of mechanisms:

Centers and SPOREs

- Cancer Center Grants (P20/P30), SPOREs, other P50s/P20s, other Specialized Centers

Other Research Grants

- Career Programs (K Awards), Cancer Education, Clinical Cooperative Groups, Pre-Doc Post-Doc Transition Awards, Education Projects - Cooperative Agreements, Minority Biomedical Research Support, Research Pathway in Residency, Pilot Research Project, Resource Grants, International Research Training grants, Cooperative Conference Agreements, Conference grants, and Other Transaction Authority

NRSA

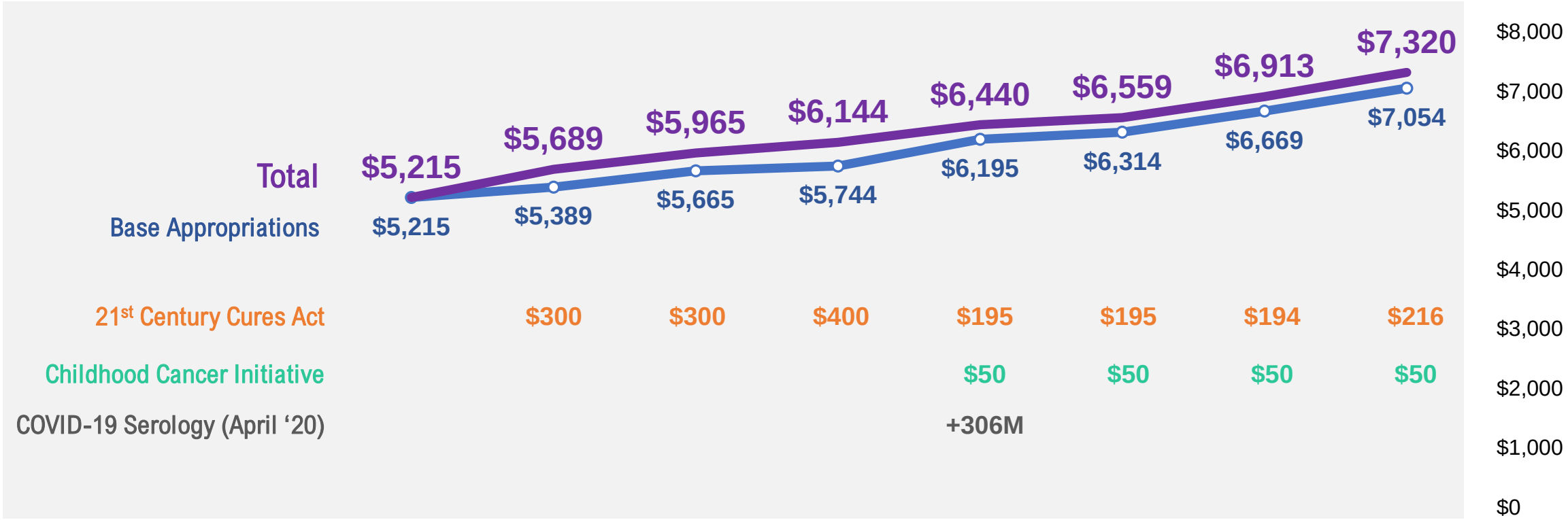
- Ruth L. Kirschstein NRSA Institutional Research Training Grant (T32)

R&D Contracts

- Frederick National Lab, SBIR contracts, Surveillance, Epidemiology, and End Results (SEER) Program

NCI Appropriations and Paylines (FY 2016 – 2023)

Dollars in millions

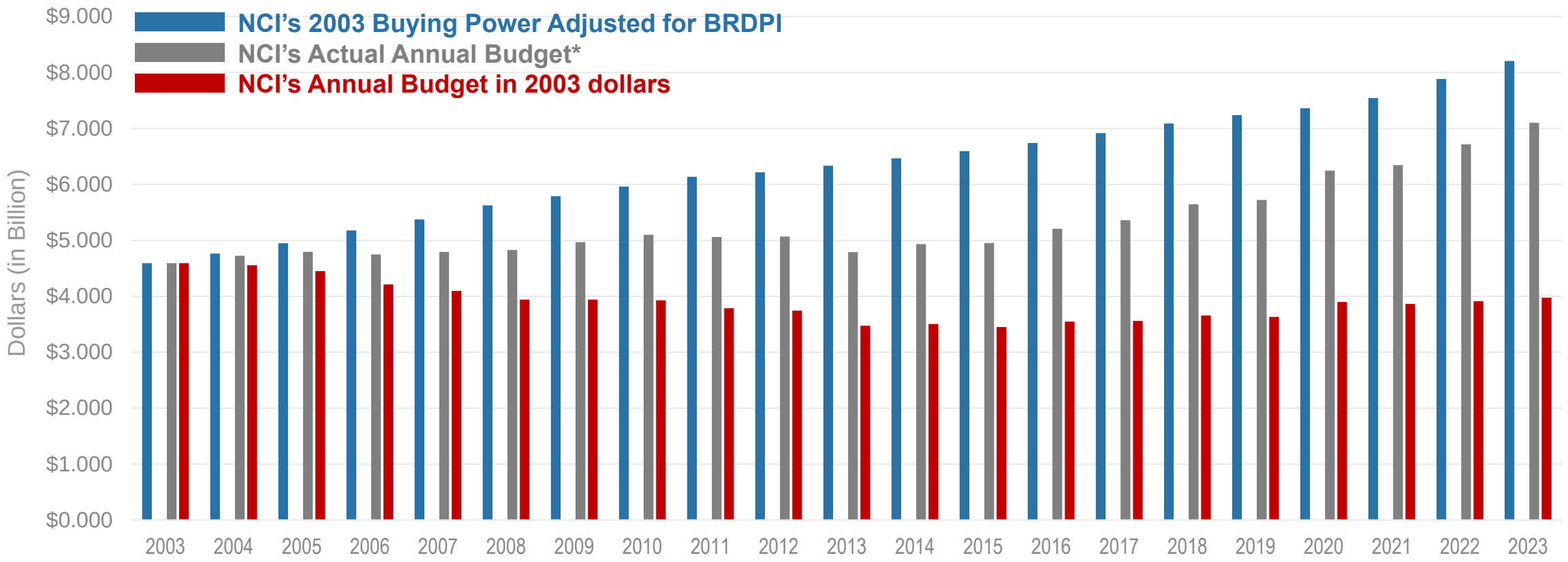


		FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
Paylines* (percentile)	Established	10	10	9	8	10	11	11	12
	Early-Stage	12	12	14	14	15	16	16	17

Established investigators: R01
Early-Stage Investigators: R01/R37

NCI's Budget, 2003 - 2023

2023 purchasing power is 13% ($1.1 billion) lower than 2003.



Content courtesy of Weston Ricks, Office of Budget and Finance, NCI
**Post transfers, excludes ARPA-H, 21st Century Cures Act funding, etc.*

NCI's Purchasing Power

Biomedical Research and Development Price Index (BRDPI)

BRDPI measures the changes in prices of all the inputs purchased with the NIH budget to support research.

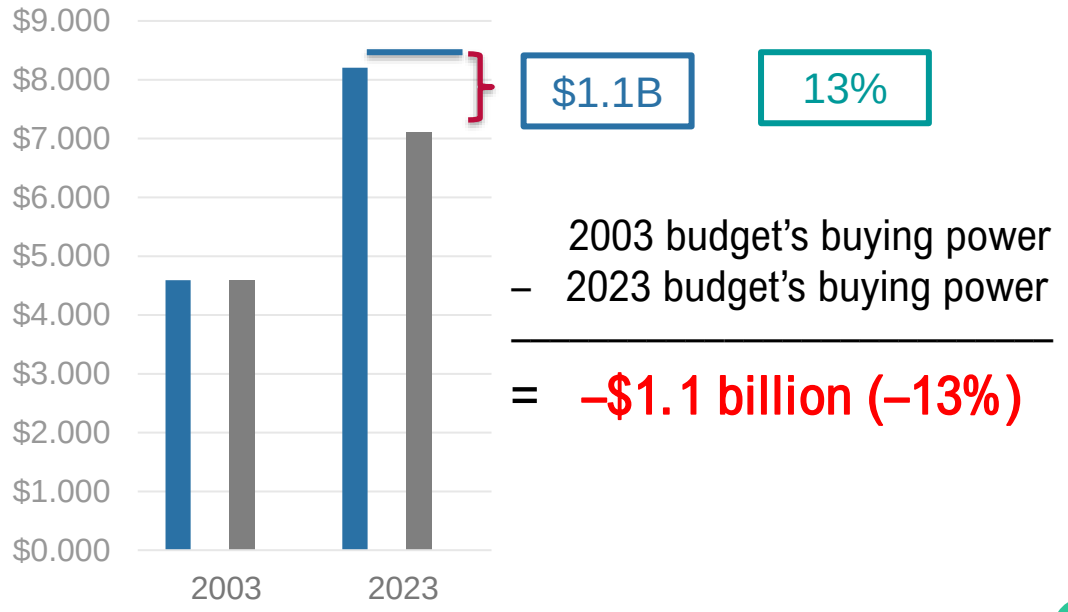
Cumulative annual change in the BRDPI
(e.g., 13%)

=

How much NIH budget must change to maintain purchasing power parity
(i.e., previous year's activities)

Implications:

- **NCI can afford 13% less than 20 years ago**
- **NCI is $1.1 billion below keeping up with inflation costs**



Content courtesy of Weston Ricks, Office of Budget and Finance, NCI

Cancer Drug Shortages

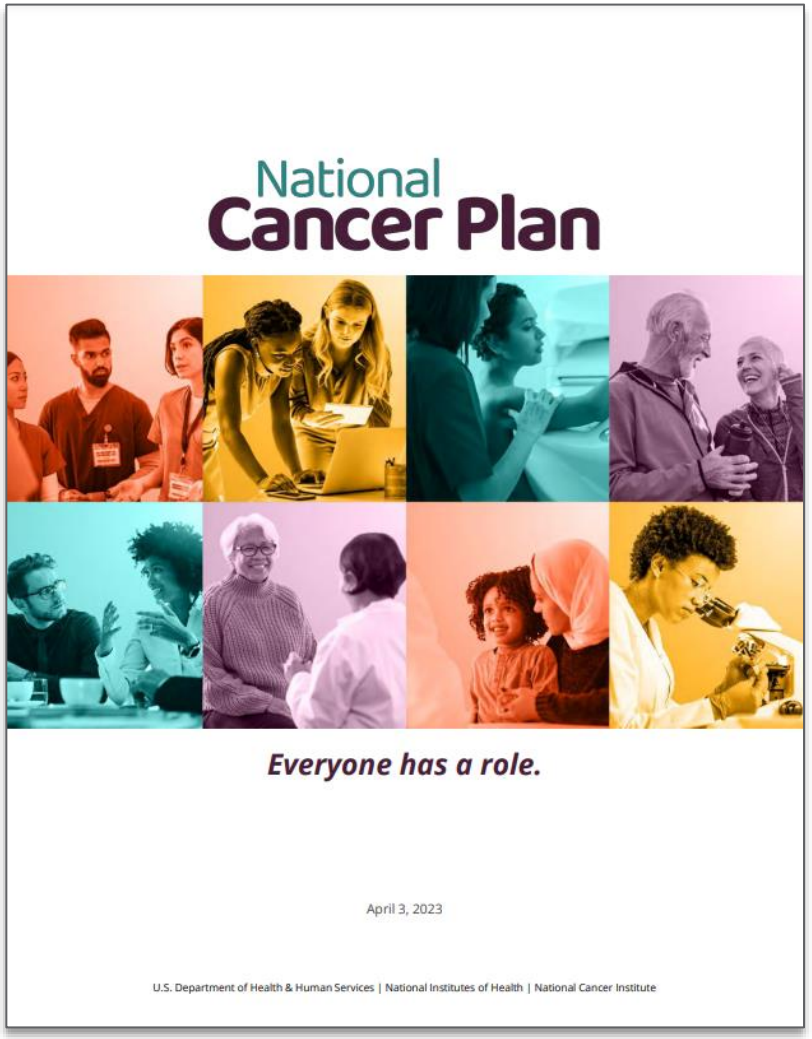
Estimated number of trials* with oncology agents in short supply (listed in FDA's Drug Shortages Database):

Current Trial Status	ETCTN	NCTN	Consortia (AMC, PBTC, CITN, PEP-CTN)	CCR	Formulary	Old N01 ETCTN	NHLBI	Grand Total
Active	12	69	2	1	0	0	1	85
Temporarily Closed to Accrual	2	11	3	0	0	0	0	16
Closed to Accrual	2	38	0	0	0	3	0	4
Approved	0	4	0	0	0	0	0	4
Approval on Hold	2	9	0	0	1	0	0	12
In Review	1	9	0	0	0	0	0	10
Grand Total	**19**	**140**	**5**	**1**	**1**	**3**	**1**	**170**

**Trials supported/sponsored by NCI's Cancer Therapy Evaluation Program (CTEP)*
Data courtesy of James H. Doroshow, MD (NCI Deputy Director for Clinical and Translational Research)
Data updated as of May 22, 2023

National Cancer Plan

NationalCancerPlan.cancer.gov



GOALS What success looks like

NationalCancerPlan.cancer.gov

Prevent Cancer

All people and society adopt proven strategies that reduce the risk of cancer

Deliver Optimal Care

The health care system delivers to all people evidence-based, patient-centered care that prioritizes prevention, reduces cancer morbidity and mortality, and improves the lives of cancer survivors, including people living with cancer

Detect Cancers Early

Cancers are detected and treated at early stages, enabling more effective treatment and reducing morbidity and mortality

Engage Every Person

Every person with cancer or at risk for cancer has an opportunity to participate in research or otherwise contribute to the collective knowledge base, and barriers to their participation are eliminated.

Develop Effective Treatments

Effective treatment, with minimal side effects, is accessible to all people with all cancers, including those with rare cancers, metastatic cancers, and treatment-resistant disease

Maximize Data Utility

Secure sharing of privacy-protected health data is standard practice throughout research, and researchers share and use available data to achieve rapid progress against cancer

Eliminate Inequities

Disparities in cancer risk factors, incidence, treatment side effects, and mortality are eliminated through equitable access to prevention, screening, treatment, and survivorship care

Optimize The Workforce

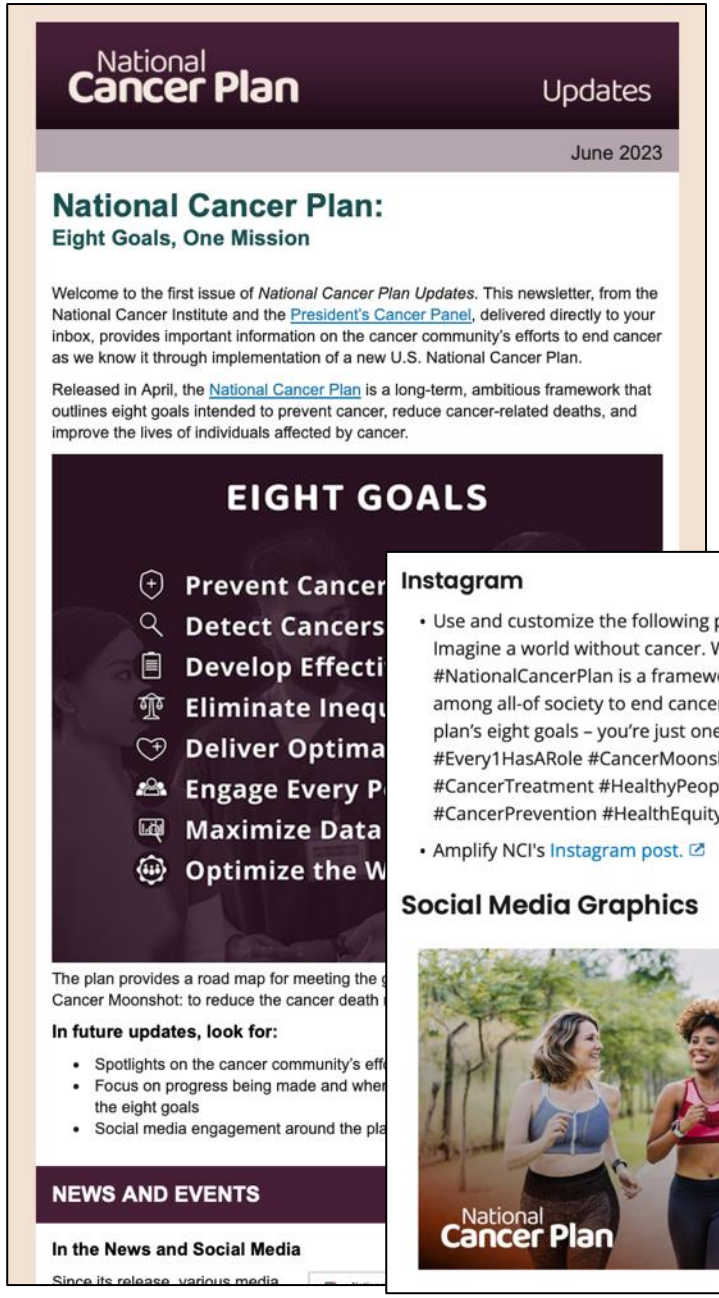
The cancer care and research workforce is diverse, reflects the communities served, and meets the needs of all people with cancer and those at risk for cancer, ensuring they live longer and healthier lives

National Cancer Plan

Implementation

Leadership from the President's Cancer Panel

- Engaging the community in public sessions
  - Showcase contributions
  - Demonstrate progress to public
- Tracking progress over time
  - Annual reporting
  - In-depth progress reviews for two goals per year
    - ✓ 4-year cycle for in-depth review of all goals
    - ✓ Review article published in a peer-reviewed journal



Newsletter, June 2023

Digital Toolkit sample assets

ComboMATCH: Combination Therapy Platform Trial with Molecular Analysis for Therapy Choice

Trials open for enrollment	
Combination therapy trial	*Patients matched to trial*
Fulvestrant (Faslodex) and binimetinib (Mektovi)	Patients with an NF1 mutation in hormone receptor-positive breast cancer that has spread
Selumetinib (Koselugo) and olaparib (Lynparza) or selumetinib alone	Women with a RAS mutation who have endometrial or ovarian cancer that has come back or persists despite treatment
Chemotherapy plus ipatasertib	Patients with AKT mutations who have solid tumors that have spread

Plans:

- *6 trials to be available in coming months (more over time)*
- *Include ~2,000 patients*

Pragmatica-Lung Study (S2302)

A streamlined model for future cancer clinical trials

Designed to:

- **Elimina**
- **Increas**
- **Stream** executi
- **Use foc collecti**
- Comple

Concept presentation to first patient accrual:
August 2022 – March 2023

Led by SWOG Cancer Research Network, in collaboration with the Alliance for Clinical Trials in Oncology

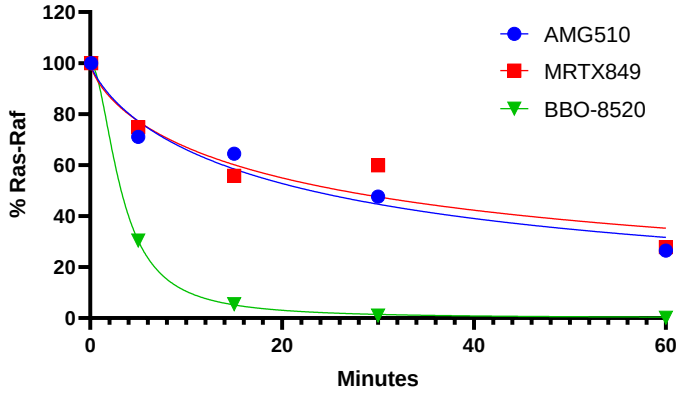
uate whether + pembrolizumab combination therapy improves overall survival over standard treatment in people with advanced NSCLC.

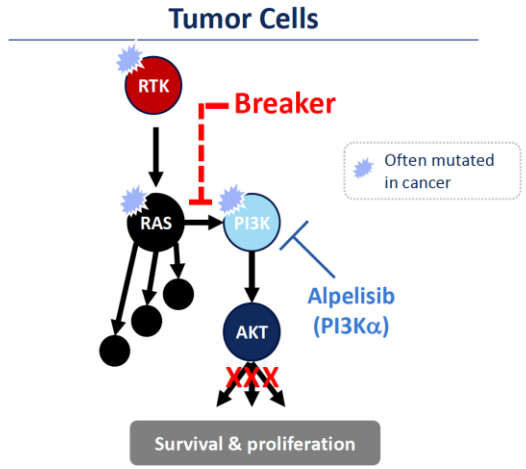
Image: iStock

Major NCI RAS Initiative Renewal Goals

Therapeutic and clinical goals:

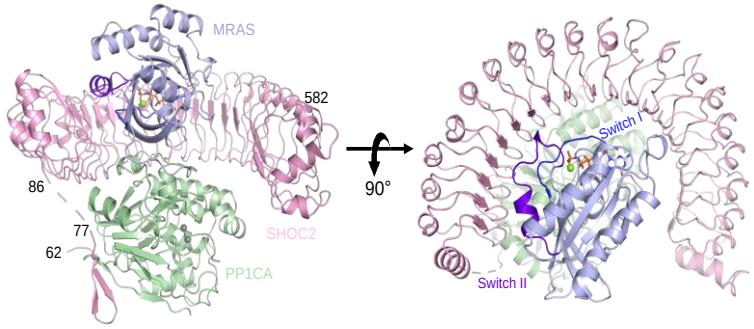
- First-in-class KRAS G12C (on)
- First-in-class KRAS/PI3Ka blocker
- Mechanisms of drug resistance

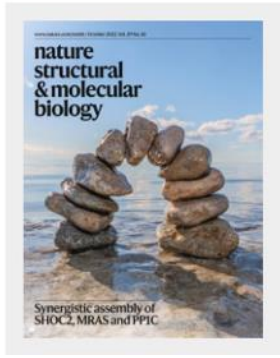


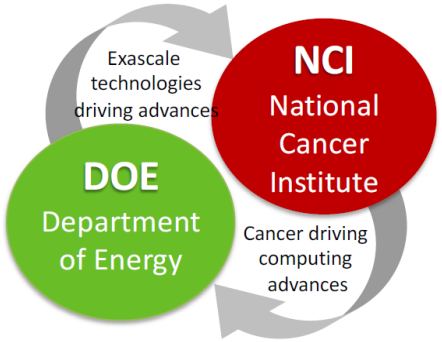


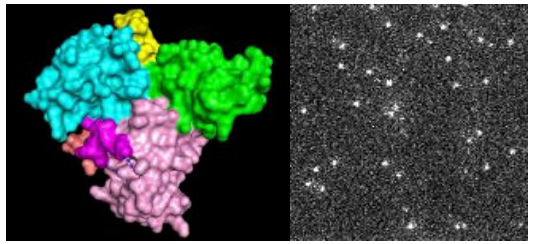
Translational and basic science goals:

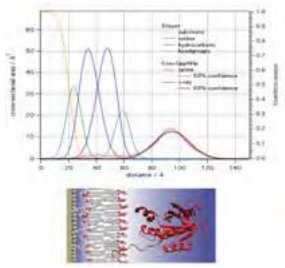
- Molecular description of RAS activation of Raf-1
- Structural analysis of RAS/effector protein complexes
- Inhibitors of RAS family proteins: NRAS and other GTPases

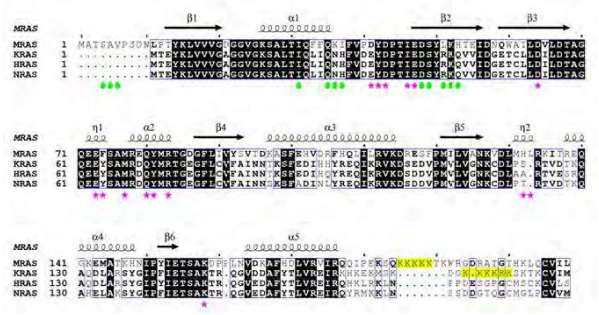




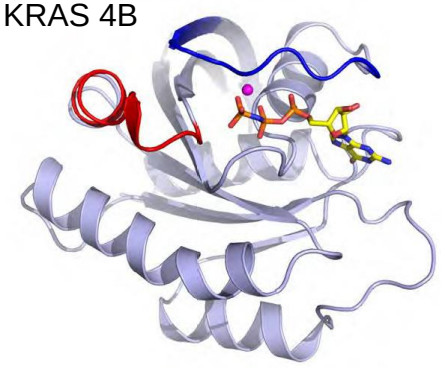




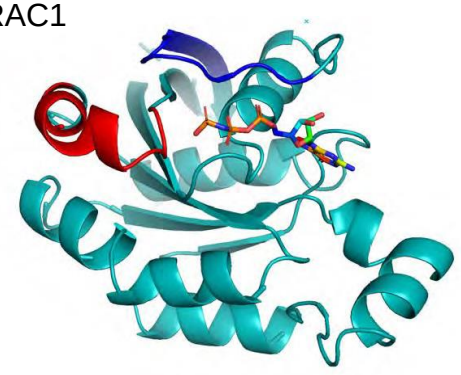




KRAS 4B



RAC1

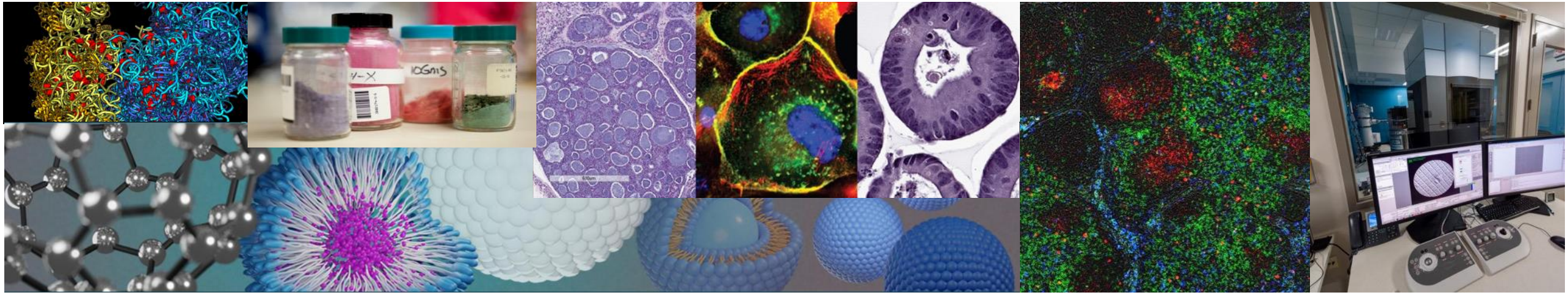


Content courtesy of RAS Initiative, FNLCR

Core FNL Resources and Programs Available to the Extramural Research Community

- National Cryo-Electron Microscopy Facility
- Nanotechnology Characterization Laboratory
- Laboratory Animal Sciences Program
- Mouse Models
- Cancer Imaging Archive
- Natural Products
- Preclinical Biologics Repository (Reagents)
- Genomic Data Commons
- Cancer Research Data Commons
- Patient-Derived Models Repository
- Human SARS-CoV-2 Serology Standard
- Antibody Characterization Laboratory
- Imaging Mass Cytometry Laboratory
- Cell Therapy Manufacturing
- HIV/AIDS – SIV (Simian immunodeficiency virus)
- Preclinical Development
- …and more

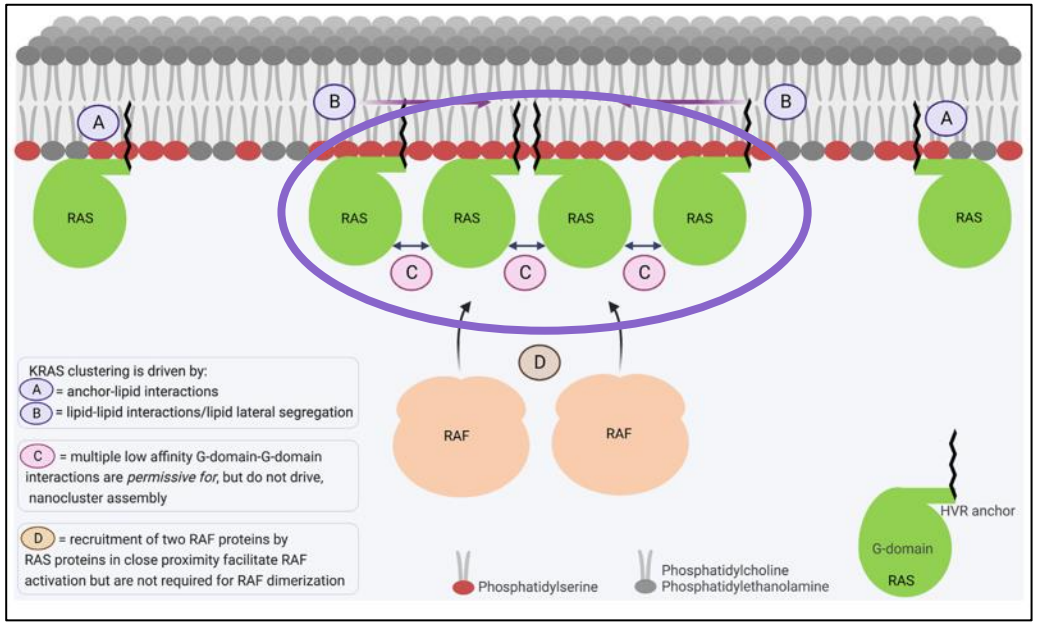
Learn more: *frederick.cancer.gov/resources*



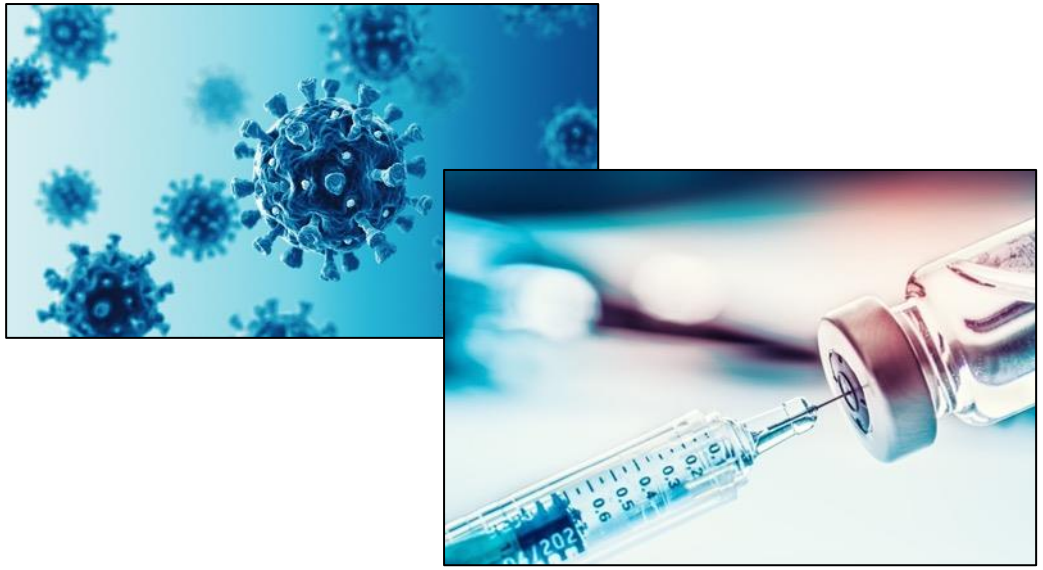
Some Updates from Frederick National Lab

Consensus on RAS dimerization (one of the open questions in RAS biology):

- **Strong evidence that clustering of RAS proteins is mediated by membrane lipids** – not G-domain interactions.
- Simanshu et al. *Molecular Cell*. April 2023.



The **Clinical Monitoring Research Program team** at Frederick National Lab was awarded a new project from the National Institute of Allergy and Infectious Diseases (NIAID) to facilitate **global Phase 1 and Phase 2 trials of the next-generation COVID-19 vaccine.**



FFRDC Recompetition Update

- **Request For Proposals** (RFP) was released on June 23, 2022.
- **Pre-Proposal Conference** was successfully held on November 15, 2022.
- **Proposal due date** was February 20, 2023.
- **Peer review** of proposals was completed on May 4, 2023.
- **Proposal evaluation** (business) is still underway.
- **Negotiations** to begin early fall 2023.
- **Current tentative award date** is planned for some time in 2024.

SOURCE SELECTION INFOMRATION See FAR 2.101 & 3.104

NCI Personnel Update

James L. Gulley, M.D., Ph.D.

NCI Clinical Director

NCI Center for Cancer Research (CCR)

Unique Features

Stable PI Resources

- **Freedom:** To pursue most important problems in cancer research
- **Risk-taking:** We do what others may not do
- **Dare:** To ask provocative questions
- **Long time frame:** Difficult problems need time

Access to and development of cutting edge technologies at FNL

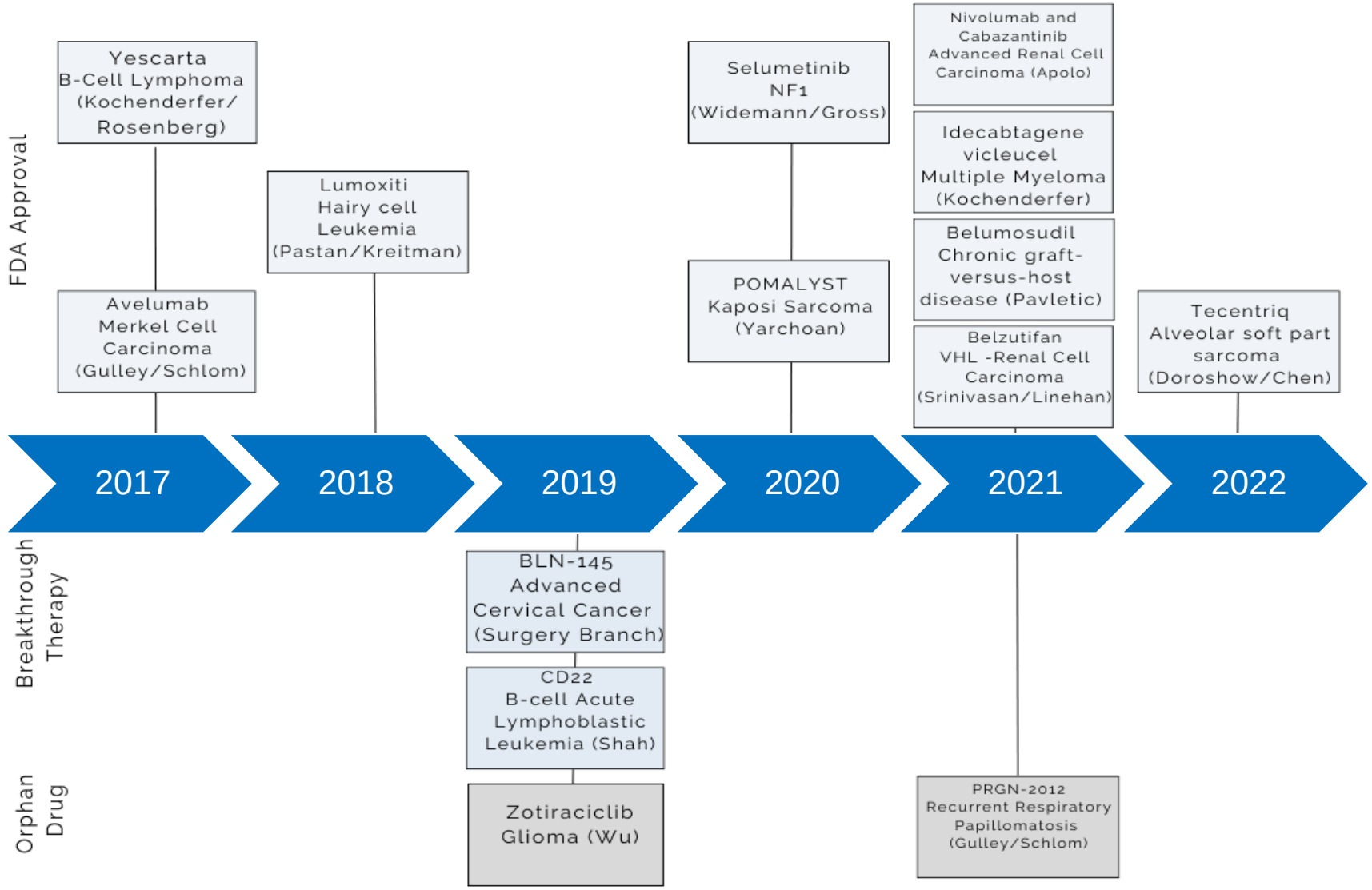
Access to the NIH Clinical Center

- Fully dedicated research hospital
- All clinical PIs have active research laboratories
- Seamless translation of fundamental discoveries to first-in-human use

CCR Breakthroughs

- First combination chemotherapy
- First anti-retroviral therapies
- Basic Immunology and discovery of TGFβ, IL-15
- Pioneering of immunotherapy
- Development of immunotoxins
- HPV vaccine development
- Pioneering of gene therapy
- Molecular classification of lymphoma and renal cancer leading to precision medicine
- Imaging technology (SKY, UroNav)
- Laser capture microdissection

CCR – Recent FDA Approvals



Content courtesy of NCI Center for Cancer Research (CCR)

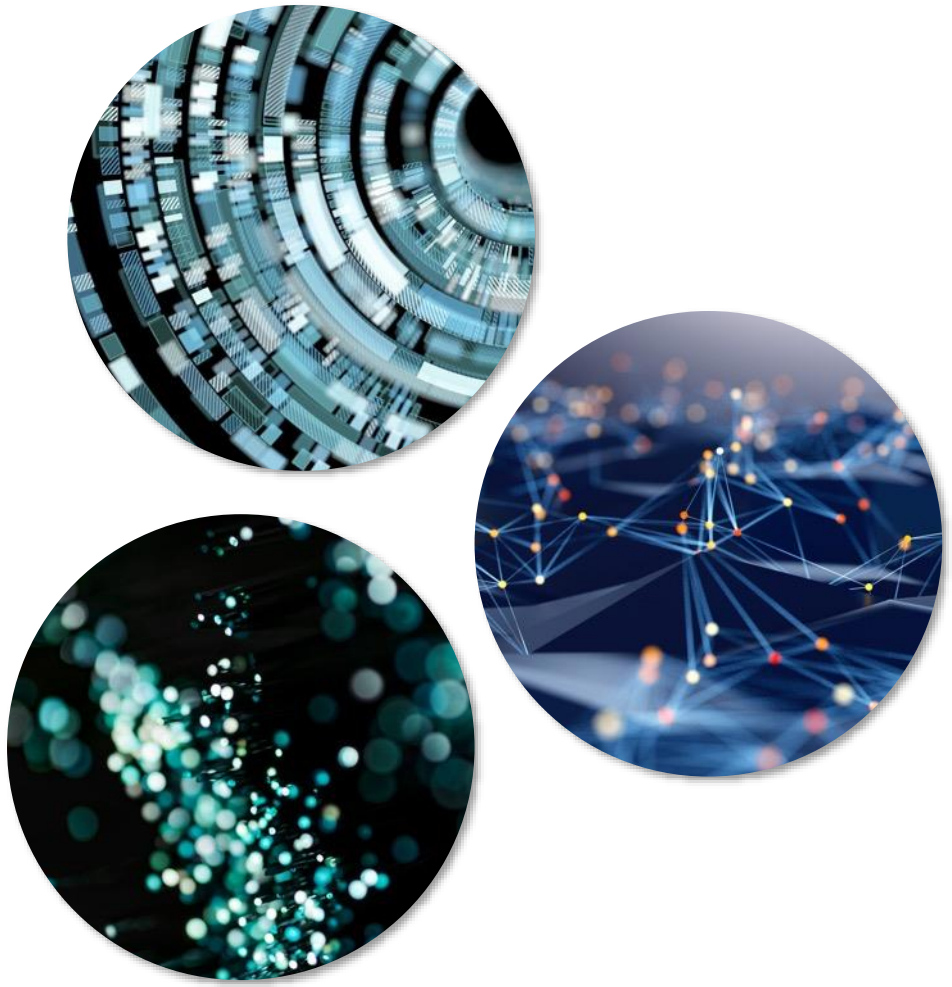
First NCI Deputy Director for Data Science

Seeking a highly qualified, visionary leader working in the field of data science, who will:

- Guide key data science initiatives (including implementing the NIH Strategic Plan for Data Science)
- Lead NCI in efforts to collect, store, analyze, and share basic, translational, and clinical research data
- Build strategic partnerships to develop and disseminate advanced technologies and methods

For full details and to apply, visit: **hr.nih.gov/jobs**

Application deadline: August 25, 2023



Thank you!

www.cancer.gov

www.cancer.gov/espanol

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