

NCI Director's Report

Norman E. Sharpless, M.D.

*8th Virtual Meeting of the Frederick National
Laboratory Advisory Committee*

October 18, 2021

@NCIDirector
@TheNCI

FNLAC membership updates

New FNLAC Chair

Candace S. Johnson
President and CEO, Director,
Wallace Family Chair in
Translational Research at the
Roswell Park Comprehensive
Cancer Center

Retiring member (BSC Representative)

Raymond N. DuBois
Dean, College of Medicine
Professor, Departments of
Biochemistry and Medicine,
Medical University of South
Carolina

New Members

Andrea H. Bild
Professor, Division of Molecular
Pharmacology Dept of Medical
Oncology and Therapeutics, City of
Hope Comprehensive Cancer
Center

John H. Bushweller
Professor, Dept of Molecular
Physiology and Biological Physics,
School of Medicine, University of
Virginia

Allison Hubbell
Professor, Dept of Mechanical
Engineering, University of Minnesota

Dineo Khabele

Professor and Chair, Dept of
Obstetrics and Gynecology, School
of Medicine, Washington Univ. in St.
Louis

Linda F. van Dyk

Professor and Vice-Chair, Dept of
Immunology and Microbiology, Univ.
of Colorado Anschutz Medical
Campus

Channing J. Der

Sarah Graham Kenan Distinguished
Professor, Dept of Pharmacology,
Lineberger Comprehensive Cancer
Center, Univ. of North Carolina at
Chapel Hill, Chapel Hill, North
Carolina

Commemoration across the Community

Cancer Centers

City of Hope
@cityofhope

The year 2021 marks the 50th anniversary of the National Cancer Act of 1971, which led to the creation of a nationwide network of Comprehensive Cancer Centers — the National Cancer Institute.
[cityofhope.org/breakthroughs/...](https://cityofhope.org/breakthroughs/) @theNCI #NothingWillStopUs



Memorial Sloan Kettering Cancer Center
@mskcc

Did you know MSK opened the world's 1st #Pediatric Day Hospital to care for kids with cancer? This step allowed for our youngest patients to be seen on an outpatient basis, allowing them to return home on the day of treatment. #CancerResearchMonth #NothingWillStopUs #1B1 #MSKKids



Winship Cancer Institute of Emory University
@WinshipEmory

ICYMI: As part of the National Cancer Act's 50th Anniversary, @TheNCI is honoring Winship research leader Dr. Deborah Watkins Bruner as a changemaker for her work in patient-reported outcomes and symptom management. #NothingWillStopUs fal.cn/3fDXt



Deborah Watkins Bruner, RN, PhD, FAAN

Roanoke Park
@RoanokePark

Replying to @RoanokePark

To mark the 50th anniversary of the National Cancer Act, we'll be highlighting 50 important moments, people and innovations from our 120-plus-year history that have impacted the world of cancer and beyond. #WeSetTheModel #NothingWillStopUs



WE SET THE MODEL
Roanoke Park's Pioneering Role in Cancer Care

FACT #1
1975 — T. Ming Chu, PhD, DSc, discovers the prostate-specific antigen (PSA) and develops the first PSA test for early detection of prostate cancer. In 1986 the FDA approves the test for clinical use; it is now used worldwide.

Cancer Organizations

Lasker Foundation
@LaskerFdn

2021 is the 50th Anniversary of the National Cancer Act, which created a nationally coordinated #cancer research program led by @theNCI. Mary #Lasker played a critical role in passing this legislation. #NothingWillStopUs #SupportMedicalResearch ow.ly/9YFy50EDEQc



LASKER FOUNDATION
COMMEMORATES
50 NATIONAL CANCER ACT 1971-2021

Stand Up To Cancer
@SU2C

50 years ago, the National Cancer Act of 1971 gave new hope to cancer research. Learn how the Act helped to change the course of cancer research and why we are commemorating its 50th anniversary throughout 2021. #NothingWillStopUs #StandUpToCancer



National Cancer Act 50th Anniversary Commemoration
Help commemorate 50 years of the National Cancer Act, the landmark legislation that changed the landscape of ...
cancer.gov

Govt. Organizations

Minority Health
@MinorityHealth

Progress has been made but there's still more to do to address cancer #HealthDisparities. Learn more over the next several weeks as we share stories and resources focused on NCI's commitment to reduce the burden of cancer for all. go.usa.gov/x6K6p #NothingWillStopUs



President's Cancer Panel
@PresCancerPanel

Reflections on the 50th Anniversary of the National Cancer Act. Read about the history of the panel and plans for the future
prescancerpanel.cancer.gov/node/136
#NCA50 #NothingWillStopUs



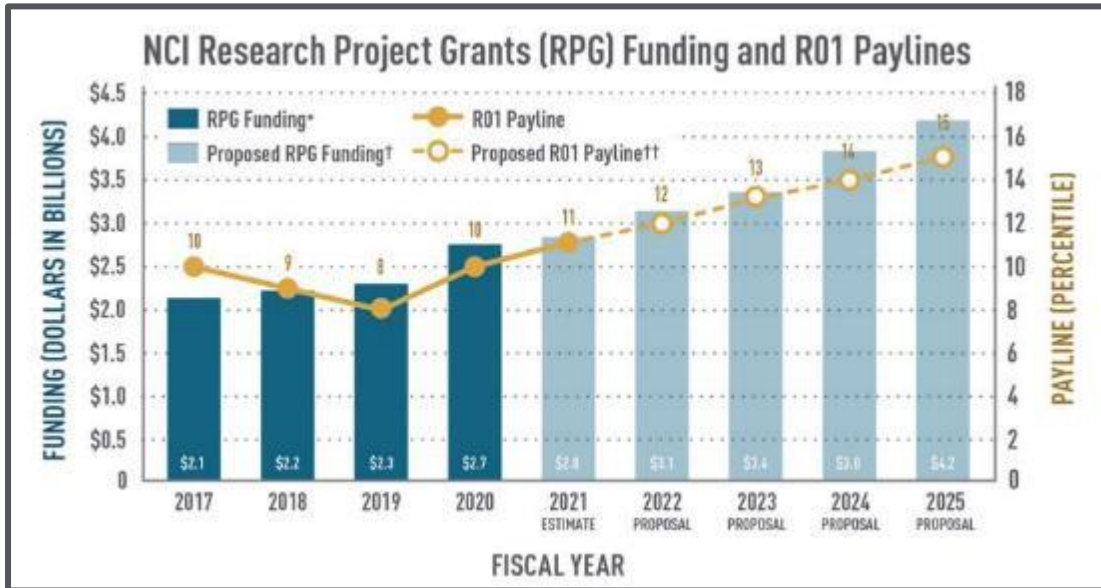
"We are not in search of a magic bullet, but rather are attempting to mobilize the best brain available in this nation and the world to ensure that they have an opportunity to make their maximum contribution to the cause of solving the cancer problem and of minimizing the time required for the solutions to benefit the cancer patient."

Dr. Benno C. Schmidt Sr.
First chair of the President's Cancer Panel



NCI PROFESSIONAL JUDGMENT BUDGET PROPOSAL FOR FISCAL YEAR 2023

(DOLLARS IN MILLIONS)



FISCAL YEAR 2021 NCI BASE APPROPRIATION	\$6,365*	
TOTAL BUDGET INCREASE (Proposed Allocation)	\$1,185†	<ul style="list-style-type: none"> \$277 Inflation Adjustment†† \$165 Cancer Biology Research \$185 Cancer Prevention Research \$150 Cancer Detection & Diagnosis Research \$205 Cancer Treatment Research \$125 Public Health & Cancer Control Research \$78 Training & Infrastructure
FY 2023 BUDGET RECOMMENDATION	\$7,550	
FY 2023 CANCER MOONSHOT SM FUNDING	\$216	
FY 2023 TOTAL	\$7,766	

National costs for cancer care were estimated to be

\$190.2 billion in 2015

\$208.9 billion in 2020

Modeled annual productivity cost from
cancer mortality

\$147.6 billion for 2020

Cathy J. Bradley, K. Robin Yabroff, Bassam Dahman, Eric J. Feuer, Angela Mariotto,
Martin L. Brown, Productivity Costs of Cancer Mortality in the United States: 2000–
2020, JNCI: Journal of the National Cancer Institute, Volume 100, Issue 24, 17
December 2008, Pages 1763–1770.

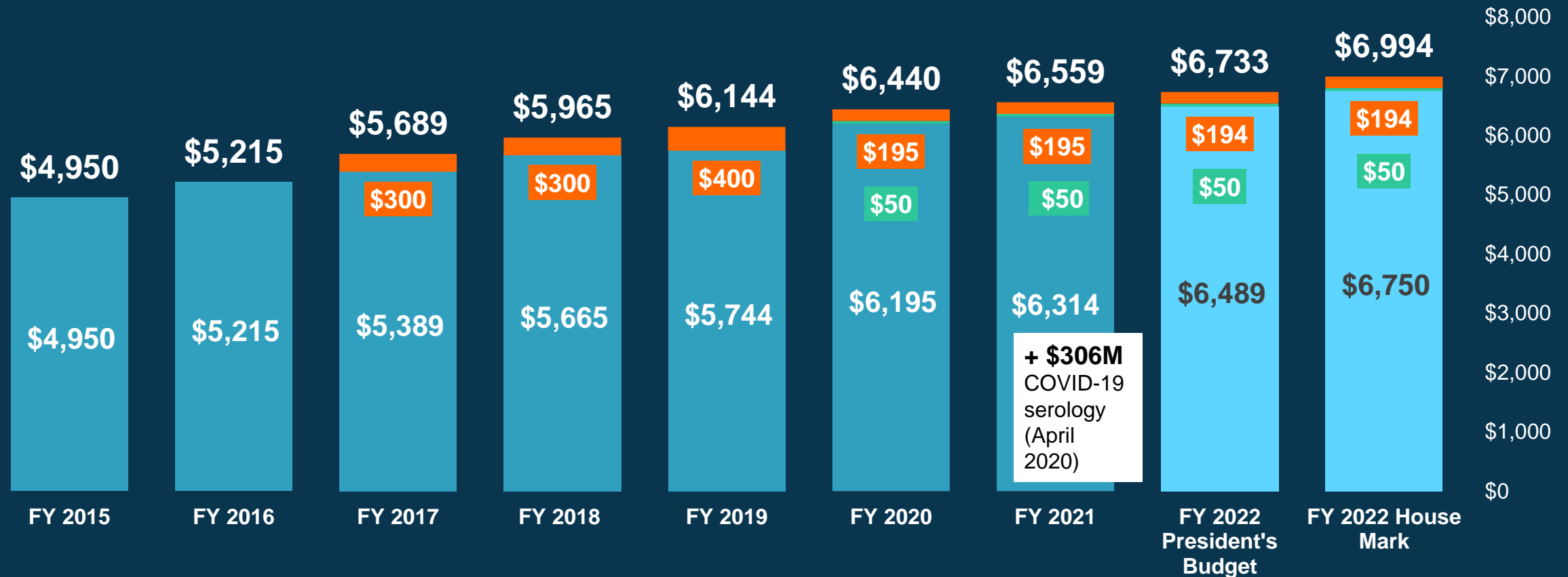


*If you think research is
expensive, try disease!*

Mary Lasker

NCI Appropriations FY 2015 – 2022 (in millions)

21st Century Cures Act - orange
Childhood Cancer Initiative - green



FNLCR Awareness Campaign

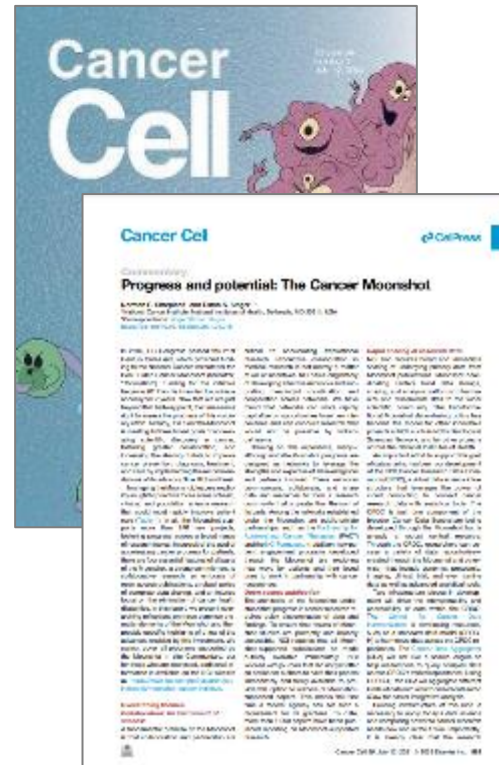
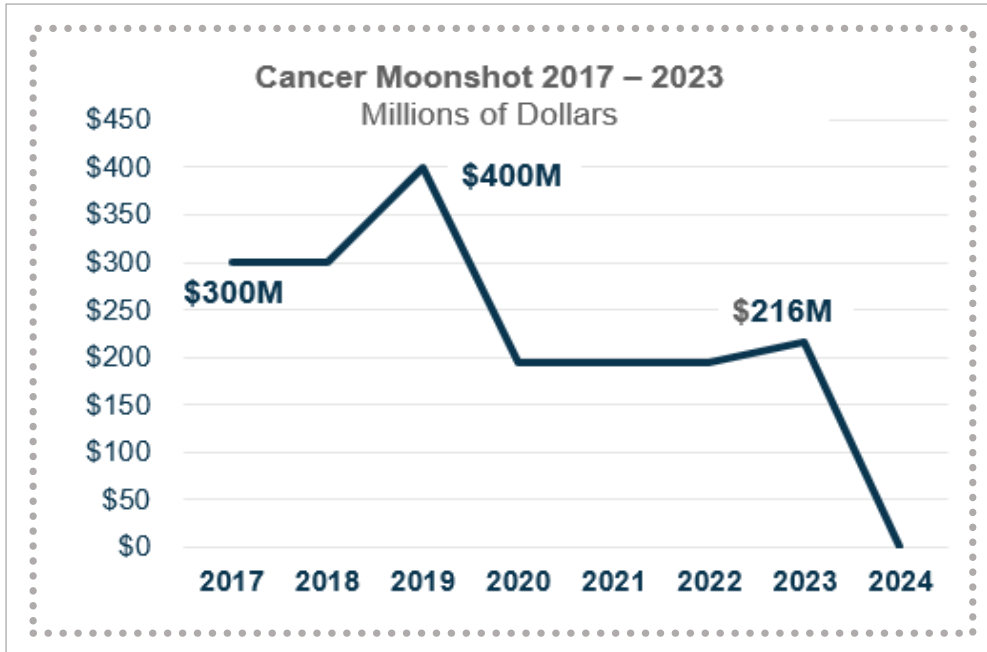
Initial audience research completed

- Interviews with 9 FNLCR stakeholders including extramural research program directors and FNLCR staff knowledgeable of programs and resources
- Interviews with 17 FNLCR and NCI leaders

Results currently being analyzed

Survey of extramural researchers upcoming

Cancer MoonshotSM



Cancer Cell July 12, 2021
Progress and Potential: The Cancer Moonshot
 Norman E. Sharpless
 Dinah S. Singer



Blue Ribbon Panel Report Anniversary Seminar: *Reflections, Progress, and Potential of the Cancer Moonshot* September 9, 2021

Childhood Cancers



Childhood Cancer Data Initiative Overview & Progress Webinar September 13, 2021



Cancer Currents: An NCI Cancer Research Blog Seeing a Promising Future for Progress against Childhood Cancer

September 16, 2021, by Norman E. Sharpless, M.D.

NCI Director Dr. Ned Sharpless discusses progress against childhood cancers, like CAR T-cell therapy and collecting more comprehensive data on children and adolescents with cancer, and the need to better address disparities in childhood cancer.

Cancer Diagnostic Devices (CD2) Interagency Task Force



The CD2 Task Force will

- Coordinate scientific and programmatic collaborations
- Discuss areas of regulatory and technical challenges to translation and implementation of cancer screening and diagnostic devices for near patient use
- Efforts will emphasize challenges of rural and medically underserved communities

NCI Serological Sciences Network for COVID-19 (SeroNet)



Recent notable publications

Impact of SARS-CoV-2 variants on the total CD4+ and CD8+ T cell reactivity in infected or vaccinated individuals

Tarke, et al. Cell Reports Medicine, Volume 2, Issue 7, July 20, 2021.

Infection and Vaccine-Induced Neutralizing-Antibody Responses to the SARS-CoV-2 B.1.617 Variants

Edara, et al. NEJM, August 12, 2021.

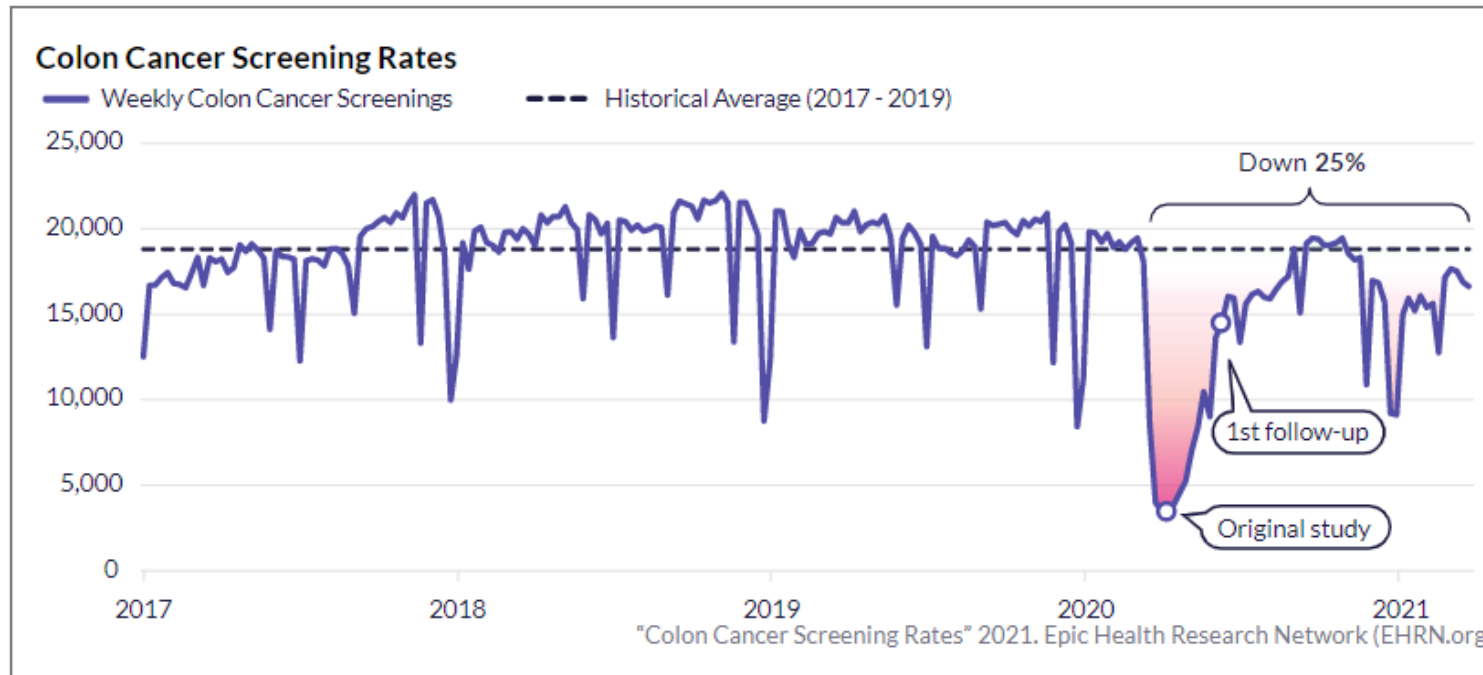
Longitudinal analysis shows durable and broad immune memory after SARS-CoV-2 infection with persisting antibody responses and memory B and T cells

Cohen et al. Cell Reports Medicine, Volume 2, Issue 7, July 20, 2021.

Covid-19 Breakthrough Infections in Vaccinated Health Care Workers

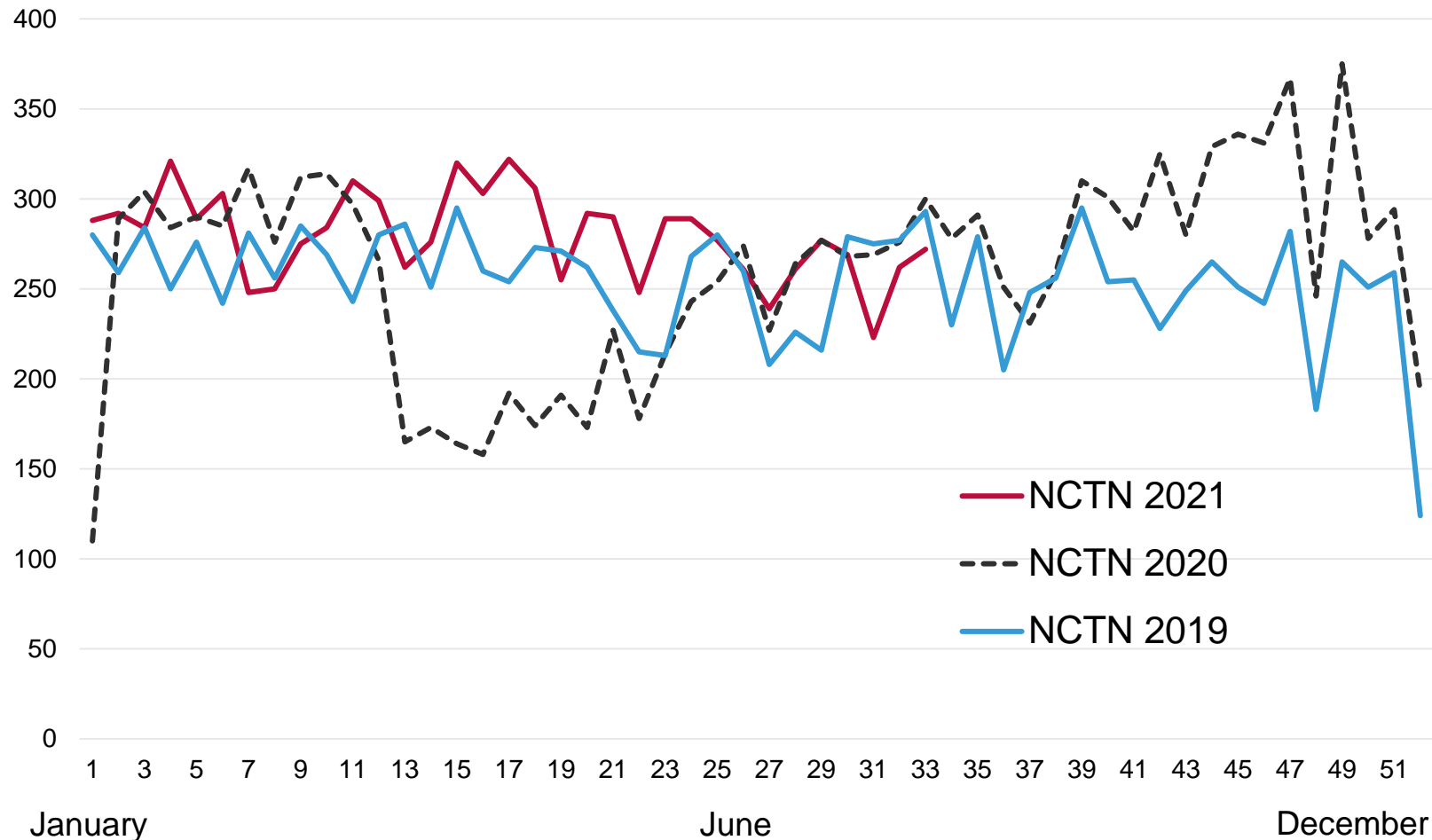
Bergwerk, et al. NEJM, July 28, 2021.

Cancer screening rates during the COVID-19 pandemic



“These missed screenings continue to raise concern of an increase in later stage cancer diagnoses with potential poorer prognosis. *While our findings suggest the gap is decreasing, continued diligence is needed to make up for the missed screenings.*”

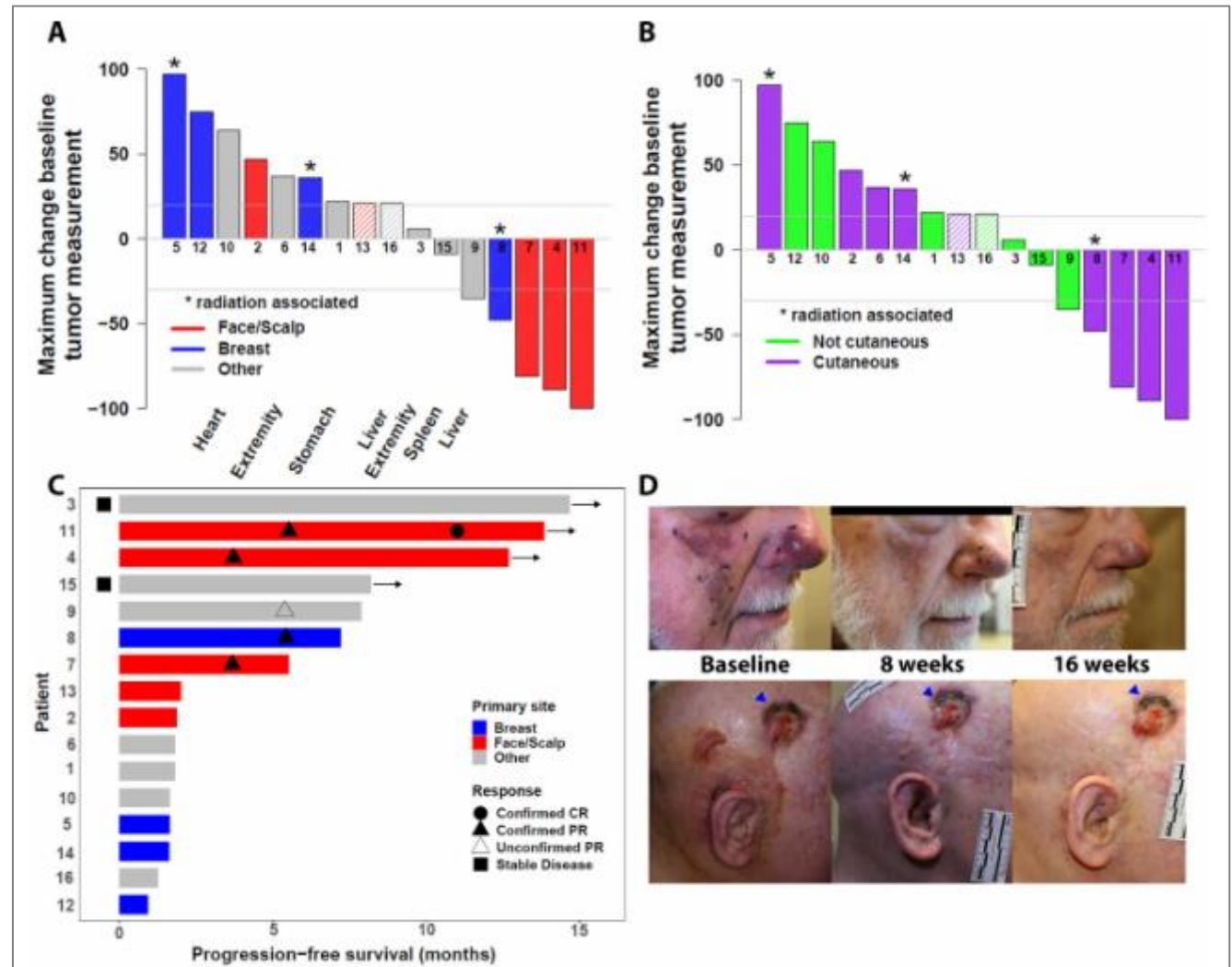
NCTN trial enrollment during the COVID-19 pandemic, by week



DART: Dual Anti-CTLA-4 & Anti-PD-1 blockade in Rare Tumors

Prospective, open-label, multicenter phase II clinical trial of ipilimumab plus nivolumab for angiosarcoma

- Sub-study N=16
- Tumors in 4 patients partially or completely responded to treatment
- Two patients maintained stable disease on the drug combination >6 months
- Some responses sustained for over one year
- One patient had tumors disappear entirely



Liquid biopsy in NF1 to distinguish between benign and malignant tumors

PLOS MEDICINE

OPEN ACCESS PEER-REVIEWED

RESEARCH ARTICLE

Cell-free DNA ultra-low-pass whole genome sequencing to distinguish malignant peripheral nerve sheath tumor (MPNST) from its benign precursor lesion: A cross-sectional study



NIH NATIONAL CANCER INSTITUTE

NCI Press Release

In a common genetic disorder, blood test reveals when benign tumors turn cancerous

Posted: August 31, 2021

Contact: NCI Press Office
240-760-6600

SHERLOCK LUNG

Tracking Lung Cancer Mutational Processes in Never Smokers

232 Patients

General Population
Never Smokers
European Descent



Whole Genome Sequencing

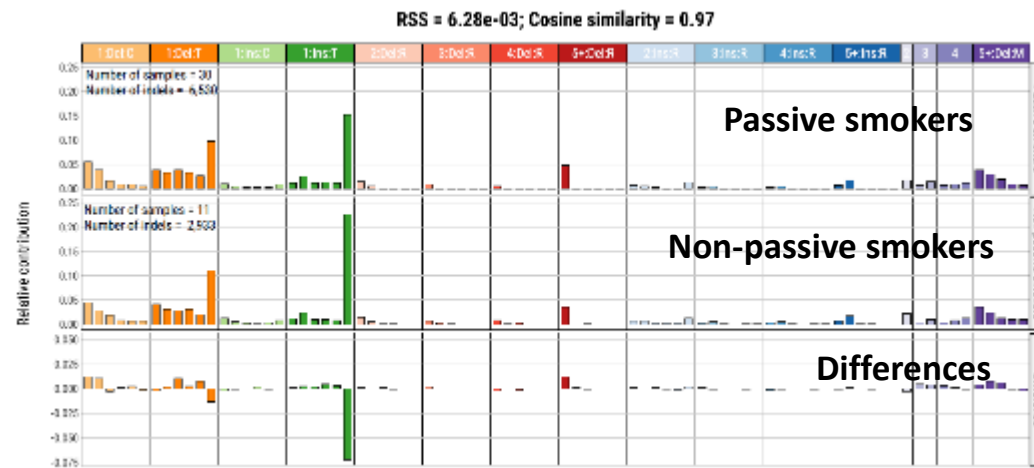
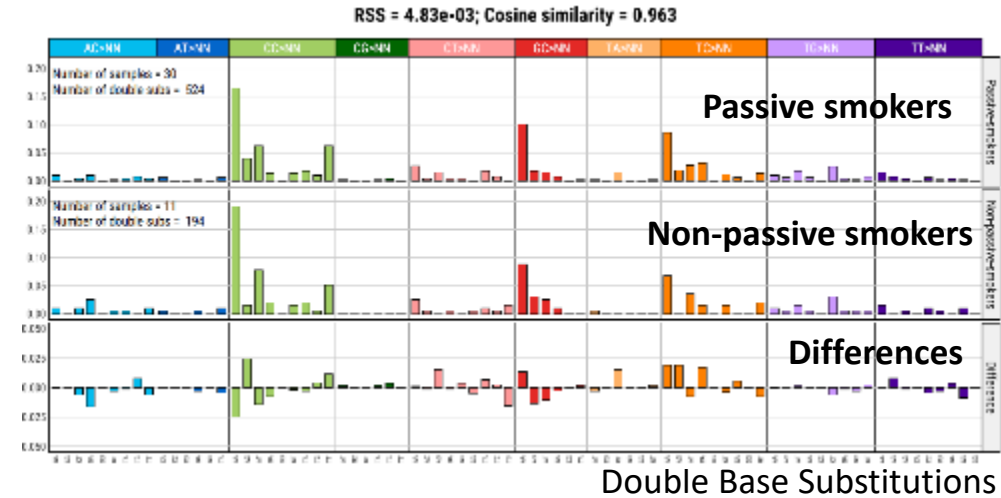
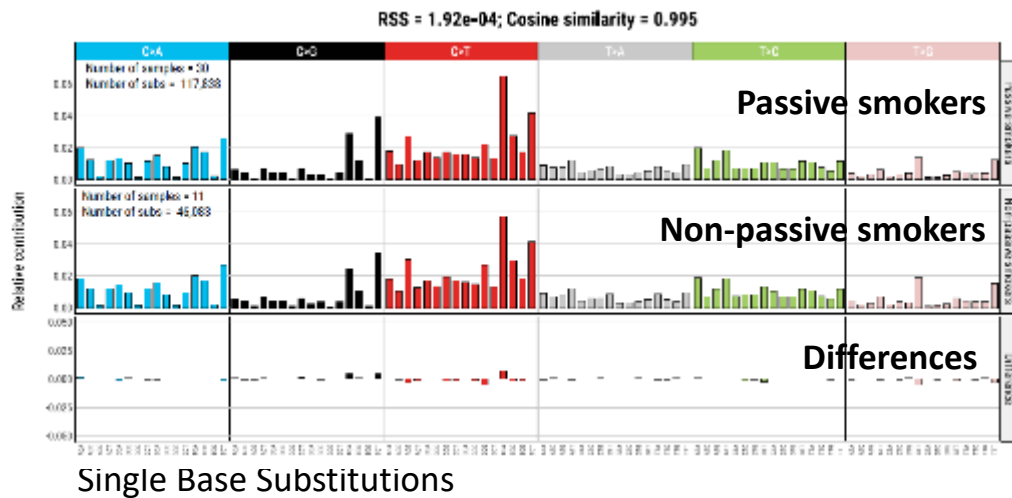
Tumor Tissue 85x
Blood/Normal Tissue 32x

How Tumors Were Evaluated

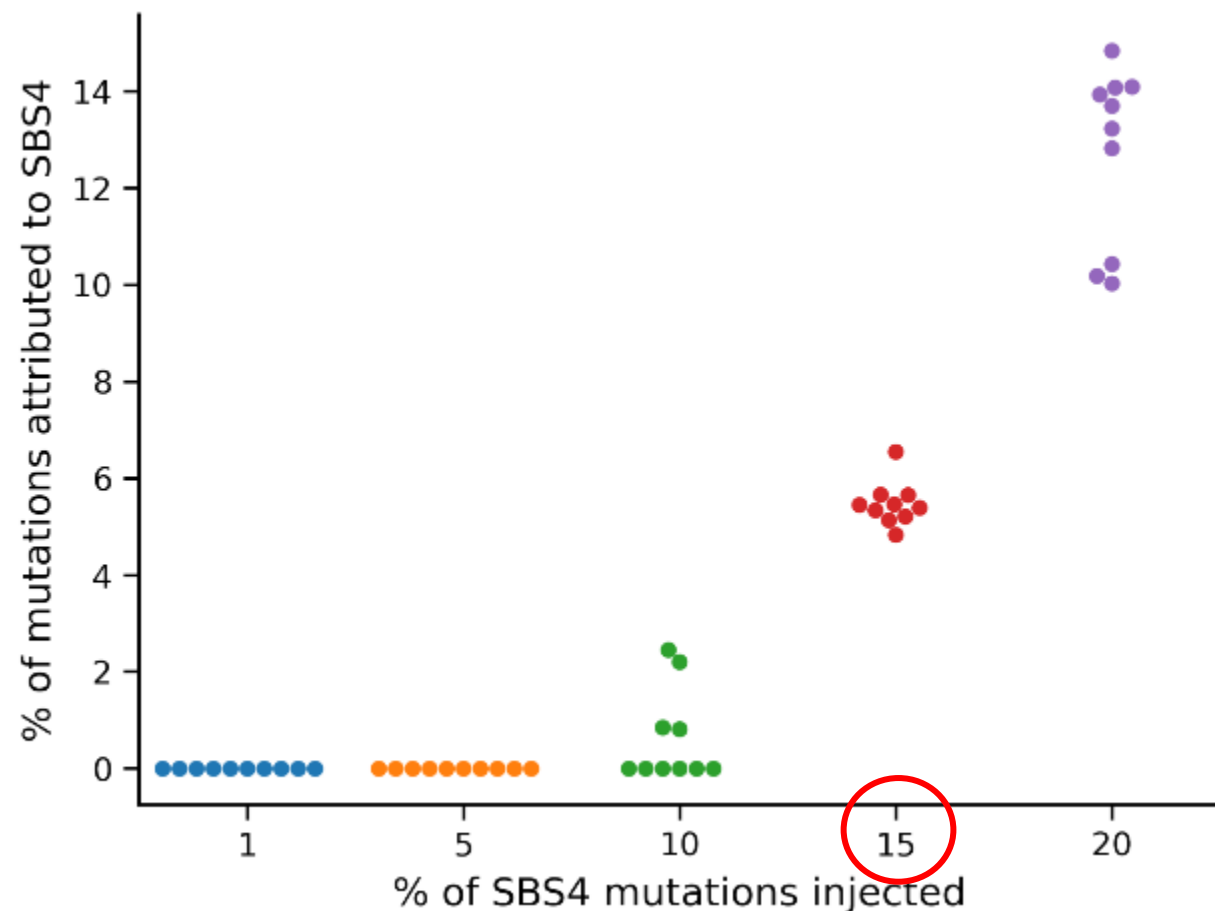
- Genomic Landscape
- Mutational Signatures
- Evolutionary History
- Molecular Subtypes
- Clinical Outcome



No SBS4 signature in tumors from subjects exposed to second-hand tobacco smoking



Detection limit of signature algorithm



In accord with observational data:
Second-hand smoke,
RR=**~10-20%**

Active smoking, RR=**~15-25-fold**
in comparison with never smokers

CUSP2CT Connecting Underrepresented Populations to Clinical Trials

PURPOSE

To implement and evaluate multi-level and culturally tailored outreach and education interventions with the primary goal to increase referral of racial/ethnic minority populations to NCI-supported clinical trials.

CUSP2CT Network FY 22- 26

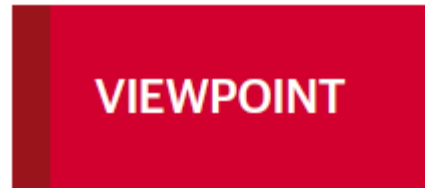
- Data, Evaluation, and Coordinating Center 1 U24: [RFA-CA-21-057](#)
- Resource-Related Research Projects Up to 4 U01s: [RFA-CA-21-058](#)

Due November 19, 2021

NIH Faculty Institutional Recruitment for Sustainable Transformation (FIRST)

Morehouse School of Medicine	FIRST Coordination and Evaluation Center to promote inclusive excellence (U24)
Cornell University	Cornell FIRST
Icahn School of Medicine at Mount Sinai	NIH FIRST Cohort Cluster Hiring Initiative at Icahn School of Medicine at Mount Sinai
Drexel University	Catalyzing Systemic Change at Drexel University to Support Diverse Faculty in Health Disparities Research
University of Alabama at Birmingham	UAB/Tuskegee Faculty Institutional Recruitment for Sustainable Transformation (UAB/TU FIRST) Partnership
Florida State University	Fostering Institutional Resources for Science Transformation: The FLORIDA-FIRST Health-Science Brigade
San Diego State University	SDSU FUERTE: Faculty United towards Excellence in Research and Transformational Engagement

Cancer as a Global Health Priority



Satish Gopal, MD
National Cancer Institute, Rockville, Maryland.

Norman E. Sharpless, MD
National Cancer Institute, Rockville, Maryland.

<p>Percentage of NCI extramural awards that included international components</p>		<p>IN 2020</p> <p>Among 1079 extramural awards involving non-US countries</p> <p>342 (32%)</p> <p>involved LMICs</p>
2010	9%	
2020	13%	
<p>Strategic priorities for the Center for Global Health include</p>	<ul style="list-style-type: none"> • increasing the portfolio of NCI extramural funding involving LMIC collaborators • targeting areas for extramural funding based on key scientific gaps in global cancer control • promoting equity in global cancer research by supporting the independent scientific capacity of LMIC investigators and institutions 	

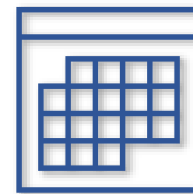
U.S.-U.K. Bilateral Cancer Summit



Doug Mills/The New York Times

“We will bring together researchers, patients, and other stakeholders to share ideas and identify opportunities for collaboration to accelerate advances in lifesaving approaches to cancer, which remains a leading cause of death worldwide.”

Joint statement, June 10, 2021



- Planning event scheduled for November 2021
- Bilateral Summit – Spring 2022

Division of Cancer Control and Population Sciences Leadership



Robert T. Croyle, Ph.D.
Director
NCI Division of Cancer Control and
Population Sciences
Retiring December 2021



Katrina Goddard, Ph.D.
Kaiser Permanente Center
for Health Research
Incoming DCCPS Director

Discussion