### Report from the Acting Director

Douglas R. Lowy Acting Director, National Cancer Institute, National Institutes of Health



## Outstanding Investigator Award

- To provide long-term support to experienced investigators with outstanding records of cancer research productivity who propose to conduct exceptional research.
- To allow investigators the opportunity to take greater risks, be more adventurous in their lines of inquiry, or take the time to develop new techniques

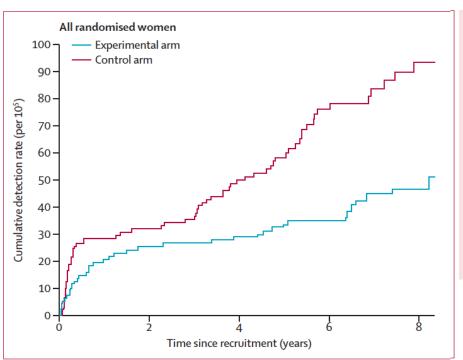
## Precision Medicine in Cancer Treatment

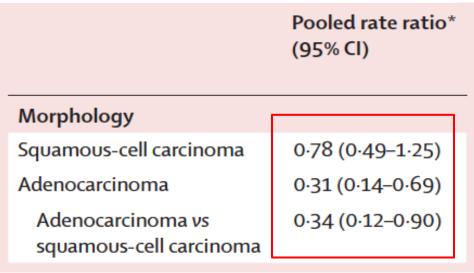
- President Obama has proposed \$70 million in his FY16 budget for the Precision Medicine Initiative in Oncology (PMI-Oncology)
- Future workshop to explore the translational potential for the specific re-activation and/or replacement of tumor suppressor gene activities

### Precision Medicine in Cancer Screening

- Moving from screening based mainly on "pattern recognition" towards screening based mainly on molecular understanding of disease and its application to molecular diagnostics
- The example of cervical cancer screening
- Cytologic (Pap) screening is more sensitive for detecting squamous cell cancer precursors than adenocarcinoma precursors; squamous cell cancer incidence has decreased, but not adenocarcinoma

## HPV testing can prevent more cervical cancers, especially adenocarcinomas, than cytology





<sup>\*</sup> Ratio of incidence with HPV testing vs. incidence with cytology

Pooled cervical cancer incidence from 4 randomized controlled trials of cytology (control arm) vs. HPV testing (experimental arm)

#### Precision Medicine in Cancer Prevention

- The example of aspirin
- Aspirin can reduce the risk of several cancers, especially colorectal cancer
- Concern about side effects from aspirin (especially an increased risk of bleeding) has prevented aspirin from being recommended for reducing cancer risk
- To increase the benefit/harm ratio, use molecular understanding to risk-stratify those patients who will derive the most benefit

### High 15-Hydroxyprostaglandin (15-HPGD) in normal colon is associated with reduced risk of CRC in regular aspirin users

	Non-Users	Regular aspirin users
All CRC	1.0	0.73 (0.62-0.86)
High 15-PGDH CRC	1.0	0.49 (0.34-0.71)
Low 15-PGDH CRC	1.0	0.90 (0.63-1.27)

**Background information:** 15-HPGD is down-regulated in CRC; 15-HPGD knock-out mice have increased colon tumors that are resistant to COX-2 inhibitors

## Focus on specific cancers with health disparities (high-risk populations)

- Identify the specific cancers
- Some possible examples: colorectal cancer, liver cancer, breast cancer, prostate cancer
- Identify the risk factors and their relative contribution to the disparities: biologic factors, life-style factors, health care access/utilization
- Explore efforts to mitigate the risk factors

## Novel recurrently mutated genes in African American colon cancers

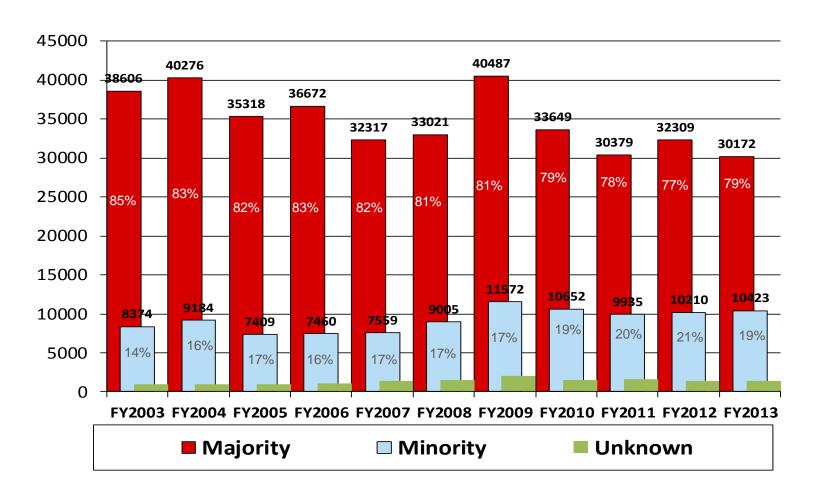
Kishore Guda<sup>a,b,c</sup>, Martina L. Veigl<sup>b,c,1</sup>, Vinay Varadan<sup>a,b,1</sup>, Arman Nosrati<sup>d</sup>, Lakshmeswari Ravi<sup>d</sup>, James Lutterbaugh<sup>d</sup>, Lydia Beard<sup>d</sup>, James K. V. Willson<sup>e</sup>, W. David Sedwick<sup>b,c,d</sup>, Zhenghe John Wang<sup>b,f</sup>, Neil Molyneaux<sup>f</sup>, Alexander Miron<sup>f</sup>, Mark D. Adams<sup>g</sup>, Robert C. Elston<sup>b,h</sup>, Sanford D. Markowitz<sup>b,c,d,i,2,3</sup>, and Joseph E. Willis<sup>b,c,i,j,2</sup>

<sup>c</sup>Department of Medicine, <sup>f</sup>Department of Genetics and Genome Sciences, <sup>h</sup>Department of Epidemiology and Biostatistics, <sup>j</sup>Department of Pathology, <sup>a</sup>Division of General Medical Sciences-Oncology, <sup>d</sup>Division of Hematology and Oncology, <sup>b</sup>Case Comprehensive Cancer Center, and <sup>i</sup>Case Medical Center, Case Western Reserve University, Cleveland, OH 44106; <sup>e</sup>Harold C. Simmons Comprehensive Cancer Center, University of Texas Southwestern Medical Center, Dallas, TX 75390; and <sup>g</sup>J. Craig Venter Institute, La Jolla, CA 92037

"...Mutations in a set of 15...genes appear to be strongly preferentially associated with CRCs arising in AA versus Caucasian individuals, suggesting an important difference in the mutational landscapes of CRCs arising in different ethnic groups. "

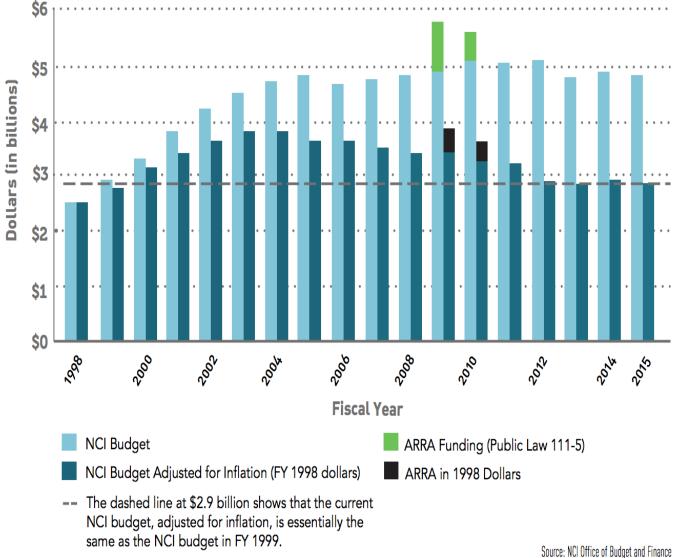
Guda et al., 2015. Proc. Natl. Acad. Sci. 112:1149

## Minority Enrollment to NCI Cooperative Group Clinical Trials

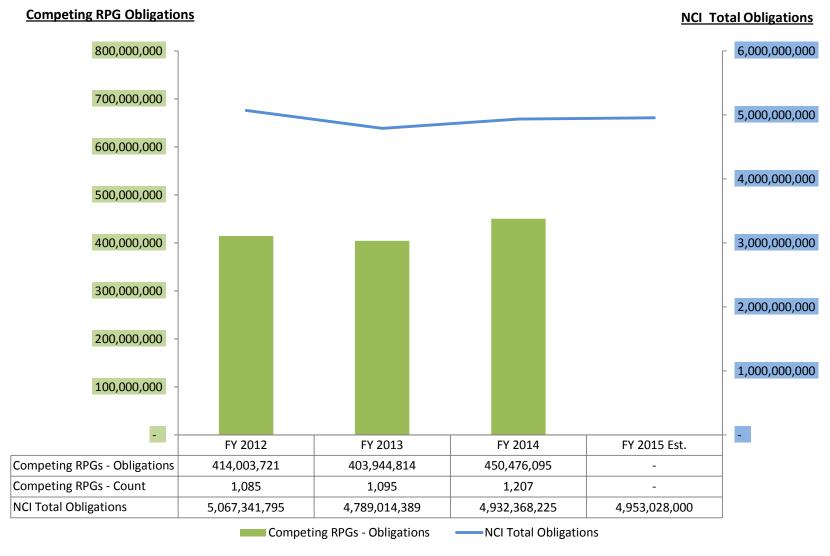


## Strong Support for Basic Research

#### The Declining Purchasing Power of the NCI Budget



### Competing RPG & NCI Total Obligations





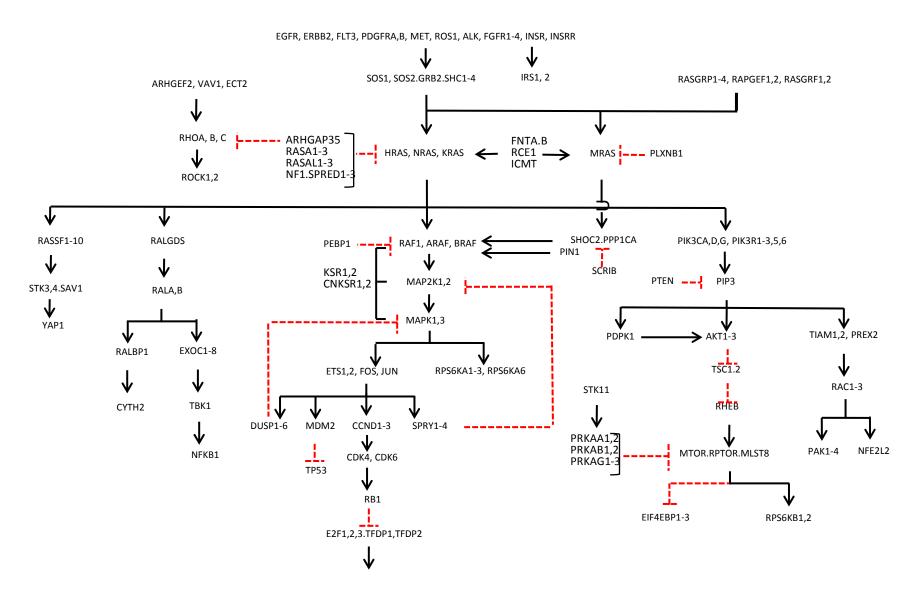
## Recent modifications to RPG pool

- Decreasing the cuts to modular grants from 17% to 8.5%.
- Outstanding Investigator Awards: will increase the average size of the awards

## NCI Cancer Centers

■P30 core grants

### Ras pathway v2.0



### Ras pathway clones

- 2 sequence-validated Gateway Entry clones for each gene (for generating N or C terminal fusions)
- 180 total genes
  - 17 not available commercially in the most biologically relevant isoform
  - 32 additionally not available without non-silent mutations
- 350 of 360 clones completed by July 17<sup>th</sup>
- Clones available through Dom Esposito: espositod@mail.nih.gov

## FNLCR Recompete

- NCI has begun the recompetition of the Operations and Technical Support (OTS) contract that runs NCI's Federally Funded Research and Development Center (FFRDC)
- Leidos Biomedical Research, Inc. currently administers the contract
- Information concerning the competitive process will be announced on <u>FedBizOpps</u> as well as at the <u>FNLCR</u> <u>Acquisition Portal</u>
- Pre-Proposal Conference Oct. 1 2, 2015
- Please help spread the word we are doing our utmost to ensure a fair and open contract competition

## Recent Personnel Changes

#### Retirements

- Bob Wiltrout, Center for Cancer Research (CCR)
- Joe Tomaszewski, Division of Cancer Treatment and Diagnosis (DCTD)
- Susan Erickson, Office of Government and Congressional Relations (OGCR)

#### **New Leadership**

- Toby Hecht, Deputy Director, DCTD
- Lee Helman, Acting Director, CCR
- Glenn Merlino, Acting Scientific Director (Basic), CCR
- •MK Holohan, Acting Director, OGCR
- Peter Garrett, Director, Office of Communications and Public Liaison (OCPL)



## Center for Global Health

Marie Ricciardone, Ph.D.

#### New Version of Cancer.gov and Cancer.gov/espanol



NCI Office of Communications and Public Liaison, especially Peter Garrett and Lakshmi Grama





NCI-MATCH Targeted Treatment Clinical Trial Launches at ASCO

#### The Washington Post

Cancer trials are changing. That could mean faster access to better drugs.

#### LaRed21

Instituto Nacional del Cáncer en EE.UU. en el mayor ensayo genético hasta ahora trata mutaciones específicas en tumores

#### **OncLive**

Largest-Ever Precision Medicine Oncology Trial Ready for Launch

#### THE WALL STREET JOURNAL.

U.S. Cancer Study to Match Existing Drugs to Genetic Mutations

Study marks ambitious effort to advance emerging field of precision medicine

#### THE CANCER LETTER

NCI-MATCH to Bring in Public, Private Funds, Giving NCI New Urgent Scientific Agenda

By Paul Goldberg

The Washington Post

A new way to study cancer and its treatments

#### Pittsburgh Post-Gazette

Genetic tailoring? Pittsburgh-area hospitals set to join nationwide cancer trial

June 3, 2015 2:22 PM

#### Shanghai Daily

U.S. announces schedule of trial for linking targeted cancer drugs to gene mutations
Jun 02,2015





Novel government cancer study will test precision medicine

By MARILYNN MARCHIONE Jun. 1, 2015 11:56 AM EDT

Chicago Tribune

# Los Angeles Times Cancer trials aim to shore up 'precision medicine's' base of evidence



Large U.S. cancer trial to match genetic glitches to targeted drugs

CHICAGO | BY JULIE STEENHUYSEN





