## FY 2019 President’s Budget

<table>
<thead>
<tr>
<th>Source of Funding (dollars in millions)</th>
<th>FY17 Enacted</th>
<th>FY18 Annualized CR</th>
<th>FY19 President’s Budget</th>
<th>FY19 President’s Budget Addendum¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appropriation</td>
<td>$5,389</td>
<td>$5,389</td>
<td>$3,756</td>
<td>$5,226</td>
</tr>
<tr>
<td>Rescission</td>
<td>-</td>
<td>-$37</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Secretary’s Transfer for Unaccompanied Minors</td>
<td>-$12</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>OAR HIV/AIDS Transfers</td>
<td>-$17</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Subtotal, adjusted budget authority</strong></td>
<td><strong>$5,360</strong></td>
<td><strong>$5,352</strong></td>
<td><strong>$3,756</strong></td>
<td><strong>$5,226</strong></td>
</tr>
<tr>
<td><strong>21st Century Cures Act</strong></td>
<td><strong>$300</strong></td>
<td><strong>$300</strong></td>
<td><strong>$400</strong></td>
<td><strong>$400</strong></td>
</tr>
<tr>
<td><strong>Grand Total (Base &amp; Cures)</strong></td>
<td><strong>$5,660</strong></td>
<td><strong>$5,652</strong></td>
<td><strong>$4,156</strong></td>
<td><strong>$5,626</strong></td>
</tr>
</tbody>
</table>

¹Reflects NCI’s portion of NIH’s increase due to the Bipartisan Budget Act of 2018
Intergovernmental Affairs
Collaborating with FDA and CMS

Scott Gottlieb  
Commissioner of FDA

• Oncology Center of Excellence
• Joint Training
• Data Sharing
• Compliance advice on cell manufacture

Seema Verma  
Director, CMS

• Help with NGS coverage decision
• Data Sharing
• Discussions over enhanced coverage of clinical trials
Interactions with HHS

Alex M. Azar II  
Secretary, HHS

Eric D. Hargan  
Deputy Secretary, HHS
Congressional Outreach
Promoting Value, Affordability, and Innovation in Cancer Drug Treatment

A Report to the President of the United States from the President’s Cancer Panel
Updates
Early Stage Investigators

MERIT
Method to Extend Research in Time
R37 Award

- NCI recognizes that Early Stage Investigators (ESI) face challenges.
- In addition to increased ESI payline, NCI is announcing its new use of the MERIT Award in 2018.
- The award gives eligible investigators applying for first R01 the opportunity to obtain up to seven years of grant funding (5+2)
- This will provide critical time for ESIs to launch their careers and become more established before attempting renewal.
Applied Proteogenomics Organizational Learning and Outcomes (APOLLO)

Veterans

Active Duty & DoD Beneficiaries

Consents to APOLLO

Civilians

VA Hospitals

Murtha CC

American Genome Center

CPTAC

CTEP

VA ORD & NCI-sponsored Clinical Trials

Adaptive Learning Healthcare System

Clinical Data

Research Data
Global Health Working Group

Sample questions

1. Balance of functions for CGH (representational vs. research)?
2. Portfolio analysis?
3. How to set priorities for NCI given the tremendous international burden of cancer?
Sample questions

1. Are award sizes for the different phases of funding for SBIR/STTR appropriate?
2. How to improve review?
3. What resources in addition to funding should SBIR provide?
4. How to speed delivery of funds to small companies?
Informatics Working Group

- Provide input into the role of the CBIIT director, focusing particularly on whether the duties of a chief information officer should be separate.
- Advise on expanding funding opportunities for data science and bioinformatics research across the NCI research portfolio and building a cancer-focused data science and bioinformatics workforce.
- Provide guidance for improving data sharing to maximize the impact of cancer research on patients.

Informatics

- Mia Levy, MD
  Vanderbilt University
- Charles Sawyers, MD
  Memorial Sloan Kettering Cancer Center
Cancer Moonshot Update

• Trans-NCI decision making process for FY18 & beyond
• Robust interest from community for all 10 recommendations
• New FY19 & reissued FY18 RFAs for NCAB approval at June & August meetings
Projects enter the pipeline on a competitive basis at any stage of the pipeline.

Since inception in 2009, NExT has received over 650 applications.
NExT Pipeline

Discovery
- Target Validation
- Exploratory Screen Development
- Screening/Hit-to-Lead
- Lead Development

Preclinical Development
- MCL1 Inhibitor
  Mutant IDH1 inhibitor

Development
- DNMT1 Inhibitors (TdCyd)
- 11-1F4 mAb
- Amyloidosis
- Endoxifen
- Mer Kinase Inhibitors
- NIR Fluorophore
- EGFR Panitumumab
- LUM015

Candidate Selection
- Clinical Trials
  - Phase 0
  - Phase 1
  - Phase 2
  - Phase 3
Mcl-1 Inhibitor Discovery by Fragment-Based Methods & Structure-Based Design

Hit to Lead

- Fragment hits
- Structure-guided fragment merging
- Binding interface Expansion

Lead Optimization

- Mcl-1 $K_i = 23 \text{ nM}$
- Mcl-1 $K_i = 0.39 \text{ nM}$
- Mcl-1 $K_i < 0.3 \text{ nM}$

- H929 GI50 = 1.2 μM
- H929 GI50 = <0.3 μM

- >200,000x improvement in affinity for target

In vivo Optimization

- Likely candidate profile
  - $K_i < 0.3 \text{ nM}$ to Mcl-1
  - Cellular IC50 < 100 nM
  - Oral bioavailability
  - Robust pharmacodynamic response

- Current work focused on identification of clinical candidate by profiling compounds for in vivo efficacy and therapeutic window.

Leads feature

- $K_i < 0.3 \text{ nM}$ to Mcl-1
- IC50 < 300 nM in multiple cancer cell-lines
- Target-based on-mechanism activity (Caspase activation, JC-1/BH3 profiling, co-IP, multiplex PD apoptosis assays)
- Good PK properties
Cigarette use in the United States

- **Percent**
  - never
  - former
  - daily
  - non-daily

- **25% <10 cpd

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**TOBACCO USE SUPPLEMENT**
**CURRENT POPULATION SURVEY**

**NIH NATIONAL CANCER INSTITUTE**
Lifelong consistent low-intensity smokers had increased risk of mortality vs. never-smokers

Inoue Choi et al, *JAMA Internal Medicine, 2017*
Rural Cancer Control Update

BACKGROUND
• 14-19% of the US population lives in non-metropolitan (rural) counties
• Notable challenges, compared to urban areas:
  • Higher poverty
  • Lower educational attainment
  • Higher proportion of elderly individuals
  • Lower access to health services
  • Higher rates of behavioral risk factors (tobacco use, obesity)
Rural Cancer Control Update
Planning & Engagement Efforts

• Rural Cancer Control Workshop, Memphis, May 4-5, 2017
• HRSA/NCI/CDC Webinar, Aug 30, 2017
• Understanding Definitions of Rural/Rurality, Oct 27, 2017
• National Academy Workshop on Small Populations, Jan 18-19, 2018
• Rural Health Policy Institute, Feb 6-8, 2018
• National Rural Health Assoc. Annual Meeting, May 8-11, 2018
Save the Date

Accelerating Research in Rural Cancer Control Conference

Natcher Conference Center
National Institutes of Health
Bethesda, Maryland
May 30-31, 2018

Program Committee Chair: Robin Vanderpool, University of Kentucky
Vision – *In progress*

- ‘Listening Tour’ to conclude in March

- Clearly, there are 3 Bins:
  - Things We Have to Do
  - Things We Want to Do
  - Things We Are Already Doing (but need ongoing investment)
RPG Pool
## NCI Unsolicited R01 Awards

<table>
<thead>
<tr>
<th></th>
<th>FY2013</th>
<th>FY2014</th>
<th>FY2015</th>
<th>FY2016</th>
<th>FY2017</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of Applications</strong></td>
<td>4003</td>
<td>3847</td>
<td>4550</td>
<td>4758</td>
<td>5263</td>
</tr>
<tr>
<td><strong>Number of Awards</strong></td>
<td>582</td>
<td>578</td>
<td>623</td>
<td>650</td>
<td>650</td>
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<tr>
<td><strong>Success rate (%)</strong></td>
<td>15%</td>
<td>15%</td>
<td>14%</td>
<td>14%</td>
<td>12%</td>
</tr>
<tr>
<td><strong>Average cost ($M)</strong></td>
<td>0.392</td>
<td>0.413</td>
<td>0.443</td>
<td>0.451</td>
<td>0.460</td>
</tr>
<tr>
<td><strong>Total amount ($M)</strong></td>
<td>228</td>
<td>239</td>
<td>276</td>
<td>293</td>
<td>299</td>
</tr>
</tbody>
</table>
## NCI RPG Pool (without SBIR/STTR)

<table>
<thead>
<tr>
<th></th>
<th>FY2013</th>
<th>FY2014</th>
<th>FY2015</th>
<th>FY2016</th>
<th>FY2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Competing (billion)</td>
<td>0.404</td>
<td>0.450</td>
<td>0.508</td>
<td>0.513</td>
<td>0.514</td>
</tr>
<tr>
<td>Non-competing ($Bn)</td>
<td>1.450</td>
<td>1.407</td>
<td>1.419</td>
<td>1.454</td>
<td>1.534</td>
</tr>
<tr>
<td>Non-competing support (%)</td>
<td>94%</td>
<td>97%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Total RPG ($Bn)</td>
<td>1.854</td>
<td>1.858</td>
<td>1.927</td>
<td>1.967</td>
<td>2.070</td>
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