THE CANCER LETTER

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How NCI Will Spend New Money (If it Comes)

By Paul Goldberg

Is new money on the way to NCI? It's certainly been promised in President Obama's budget proposal and in the appropriations bills gestating in the House and Senate.

Those who seek logic in history will read much into timing:

After a decade of flat funding, decreases and inflationary erosion, the purchasing power of the NIH budget is where it was the year the doubling began in 1999.

Yet, a cycle this is not. The institute's 1999 message was "Give us the money and we will use it wisely, because we are the best."

In 2015, a leaner, more focused NCI is delivering the more compelling message: "Give us the money and we will give you the cutting edge of precision medicine."

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Lowy's First Director's Report to Advisory Panel

The following is a transcript of NCI Acting Director Douglas Lowy's remarks to the joint meeting of the National Cancer Advisory Board and the NCI Board of Scientific Advisors, June 24:

I'm coming to the close of my third month as acting director, and I'd like to give you a status report. It has been really interesting and exciting for me and I can't thank all of you enough for your incredible support—both my colleagues in NCI, and so many of you extramural colleagues.

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In Brief

Pollock Named Surgeon-in-Chief at OSU; Licht Named Director of UF Cancer Center

RAPHAEL POLLOCK was named surgeon-in-chief for **The Ohio State University Health System**.

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How NCI Will Spend New Money (If it Comes)

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At the joint meeting of the National Cancer Advisory Board and the Board of Scientific Advisor—the first for the institute's acting director, Douglas Lowy, in his new role—focused on the hopeful scenarios that new money could buy:

• Expansion of the new generation of clinical trials that may make NCI the focal point of clinical investigations in precision medicine (The Cancer Letter, June 5).

• Expansion of ongoing clinical trials—adding early detection and prevention trials based on precision medicine.

• More money going to core grants of the cancer centers, raising total spending from the current level of about $255 million to about $300 million over the next few years.

• More money going to investigator-initiated research. The budgetary emergency measure of reducing the size of grants will be eased from its current level of 15 percent to 8.5 percent.

• Institute the Outstanding Investigator Awards.

• The $400 million a year contract for the Frederick National Laboratory for Cancer Research is being re-competed with the idea of making this massive part of NCI function as part of academic medicine (The Cancer Letter, June 12).

A video recording of Lowy's remarks is posted here. His slides are posted here. A transcript appears on page 1.

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The tone of Lowy's remarks sharply differed from that of his predecessor, Harold Varmus, who first faced the need for subjecting NCI's programs to fiscal "haircuts," and later moved on to "amputations," in his words. Lowy had the luxury to speak of a glimmer of hope.

That aside, Lowy and Varmus, in addition to being pals from Amherst, have similar scientific vision (The Cancer Letter, April 17). If the gods of appropriations continue to smile, the nice-guy Lowy will get to plant flowers on the proverbial landfill in which Varmus dumped the proverbial limbs. [This admittedly gruesome image is borrowed in part from one of Varmus's more colorful statements to an advisory board: "We can't take haircuts forever. We can't trim our toenails and fingernails and chew up our toes and fingers and expect to operate effectively. We've got to start taking out individual organs, or chopping off gangrenous legs." (The Cancer Letter, Sept. 16, 2011).]

The thaw can be felt on both sides of the Capitol dome. The House Appropriations Committee is crafting a bill that may give NIH an extra $1.1 billion. The Senate subcommittee is proposing $2 billion. (The Cancer Letter, June 26) The president is including $70 million for his Precision Medicine Initiative in oncology, which for now is the focal point of NCI's efforts (The Cancer Letter, Jan. 23; Feb. 13).

At the NCAB-BSA meeting, the institute—presumably in order to create a record—presented an overview of a tightly focused program that the initiative will make possible.

You can watch it here, and here are the highlights:

• The clinical trials infrastructure has been redesigned and can now accommodate precision medicine. Trials can now include genetic analysis of initial biopsy samples and for follow-up biopsies and analysis for patients that experience relapse.

A.) Pediatric Clinical Trials--Accelerate Pediatric MATCH, a genomically-driven trial for children with refractory cancer of all types that assigns therapy based on molecular abnormalities, not the tumor site.

*B.) Broaden NCI-MATCH***.** Expand and add new phase II trials, explore novel clinical signals, add new trial agents and agent combinations, expand gene panels, broaden sequencing and specimen analysis, and expand studies of exceptional responders.

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• Studies focused on overcoming drug resistance

A.) Methods to Monitor Response to Therapy: Use non-invasive tumor profiling to detect circulating tumor cells and fragments of tumor DNA **in blood** to understand the mechanisms of resistance to therapy.

B.) Biorepository to Address Therapy Resistance: Establish a repository of patient-derived, therapy-resistant cancer cell lines and patient-derived tumor models that can be used to understand the molecular basis of treatment failure and to develop targeted therapies to overcome resistance mechanisms.

• Pre-clinical models

A.) New Therapies for Cancer Subtypes: Expand by ten-fold the number of genomically characterized and clinically annotated cancer cell lines and patient-derived tumor models. Distribute these broadly to the research community to elucidate the molecular pathogenesis of cancer and to develop single and multi-agent therapies for molecular subtypes of cancer.

B.) Immunotherapy Studies: Conduct studies to molecularly characterize malignancies that respond to immunotherapy and identify mutations that may permit broader use of this approach to treatment.

• Knowledge system to advance precision medicine

Establish a national cancer database that integrates genomic information with clinical response and outcomes as a resource to accelerate the understanding of cancer and improve cancer treatment through precision oncology.

Lowy's First Remarks to NCAB-BSA as Acting Director

(Continued from page 1)

So let me first talk about how we are planning to continue the majority of the programs that have been ongoing—and one program that I would like to highlight and come back to, actually, a little later in the discussion, is the Outstanding Investigator Award, and we are going to be announcing the first recipients in the next few weeks. But just to remind everyone, the purpose of the Outstanding Investigator Award is to provide long-term support to experienced investigators with outstanding records in cancer research, and who propose to conduct exceptional research.

It's to allow them the opportunity to take greater risks, be more adventurous in their lines of inquiry, or take the time to develop new techniques.

And I want to divide the next few discussions into different aspects of precision medicine. You will hear later this morning from Jim Doroshow, Lou Staudt and Warren Kibbe about the Precision Medicine Initiative in oncology, and it certainly has been a very important focus for us, both while Harold Varmus was here, as well as in the last few months.

President Obama has proposed $70 million in his FY16 budget for the initiative in oncology.

One of the areas that I am particularly in trying at least to explore is the area of whether there might be translational potential for the specific reactivation or replacement of tumor suppressor gene activities.

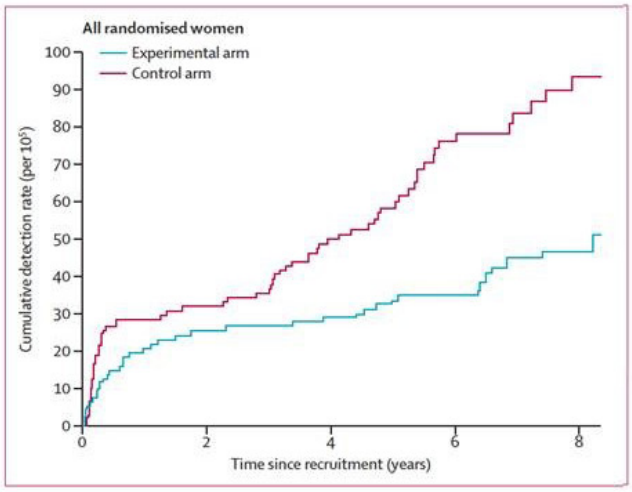
Virtually all of our efforts translationally oriented are really oriented to trying to inhibit those factors that are making a positive contribution to the tumor phenotype, and I'm really asking whether there might be time now to think more seriously about the other very important area, which is the inactivation of genes which normally restrict the development of cancer, and whether it might be reasonable to think about the translational application.

I also want to emphasize that when I think about precision medicine, I'm not just thinking about it as in cancer treatment, but also in cancer screening and in cancer prevention.

For screening, what I think about is moving from screening based mainly on what I call pattern recognition, to screening based mainly on molecular understanding of disease and its application to molecular diagnostics. In this and the next slide, I'd just like to give an example of cervical cancer screening.

Cytological or Pap smear screening is more

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



	Pooled rate ratio* (95% CI)
Morphology	
Squamous-cell carcinoma	0·78 (0·49–1·25)
Adenocarcinoma	0·31 (0·14–0·69)
Adenocarcinoma *vs* squamous-cell carcinoma	0·34 (0·12–0·90)

* 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)

Ronco et al, Lancet 383: 524-33, 2014

sensitive for detecting squamous cell cancer precursors than for detecting adenocarcinoma precursors. And as a consequence, while there has been a substantial decrease in squamous cell cancer incidence at the cervix, but there has not been a concomitant decrease in adenocarcinoma.

The data that I'll show you on the next slide are taken from a recent publication of The Lancet, combining four randomized controlled trials conducted in Europe, where they randomized to the cytology or control arm and HPV testing in the experimental arm. And if you look on the left side, you will see that in the ensuing eight years after the randomization, there were substantially more cases of invasive cervical cancer in the cytology control arm than in the HPV testing arm.

But on the right, even more remarkable is that the vast majority of this decreased risk of developing invasive cervical cancer is attributable to the decreased risk of developing adenocarcinoma in the women who had HPV testing, compared to the women who had cytological testing. There were three cases of adenocarcinoma with cytological testing for every case of adenocarcinoma with HPV testing.

The same thing I think can be applied to cancer prevention, and I'd like to use the example of aspirin—because I think that is perhaps counterintuitive to think about aspirin and precision medicine together.

As we heard last year, those of you who were here at the joint board meeting a year ago, [Andrew] Chan [of Massachusetts General Hospital] talked about aspirin being able to reduce the risk of several cancers, especially colorectal cancer, but there is concern about side effects from aspirin, especially of bleeding, and that thus far has prevented aspirin from reducing cancer risk.

To increase the benefit-to-harm ratio, however, it looks as though it might be possible to use molecular understanding of who is most likely to benefit and who is least likely to benefit to stratify those patients who will derive the most benefit. And this is taken from a paper that Andy had a collaboration with [Sandford] Markowitz [of Case Western Reserve School of Medicine] where they looked at the prostaglandin molecule, 15-hydroxyprostaglanden in the normal colon, and it was associated with reduced risk of colorectal cancer in regular aspirin users. And you can see here that the patients whose normal colon had high PGDH had one-half the risk of developing colorectal cancer compared to those who had low 15-PGDH. Andy and Sandy have extended this research to examining urinary metabolites—and, in addition, looking at germline

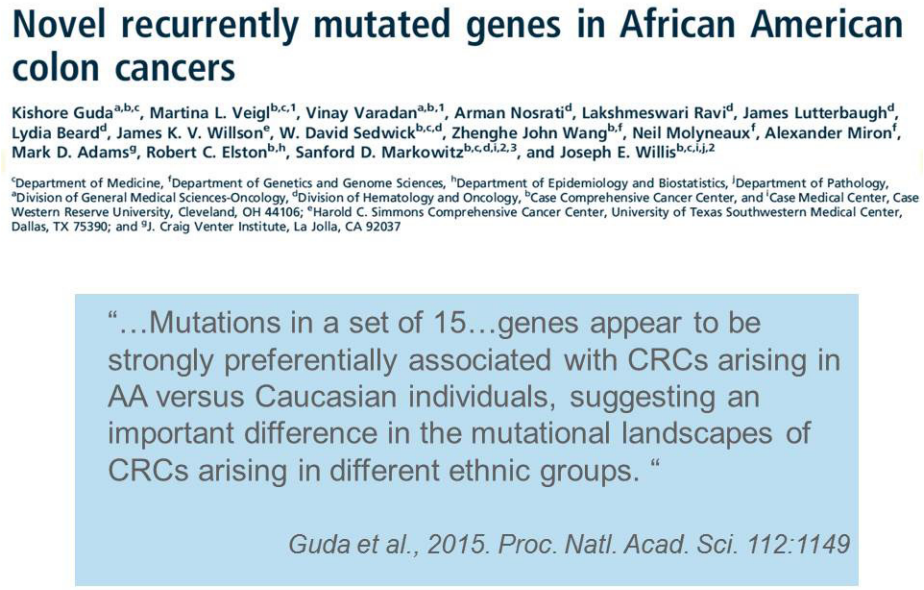
polymorphisms—and it looks very likely that this might be a way to find those patients who are most likely to benefit and those less likely to benefit, thus increasing the benefit-to-harm ratio.

Another area that I think is going to be important going forward is to focus on specific cancers with health disparities because these also represent high-risk populations.

We're going to be trying to identify some specific cancers that we will work on, some possible examples are colorectal, liver, breast and prostate cancer, and to think about this in three different ways is in terms of the risk factors and their relative contributions to disparities, the biological factors, the lifestyle factors, and health care access and utilization—and to explore efforts to mitigate those risk factors.

This is taken from a recent paper by Sandy Markowitz and Joe Willis [of University Hospitals Case Medical Center], and their colleagues who did really the first systematic large-scale genomic analysis of colon cancers rising in African Americans. Interestingly they identified mutations in a set of 15 genes that appeared to be strongly preferentially associated with colorectal cancer arising in African Americans versus Caucasians, suggesting an important difference in the mutational landscapes arising in different ethnic groups.

These differences are not necessarily an important cause of biological differences between African Americans and Caucasians, but they certainly give you an interesting place to start. Of course if you're going to be trying to study this, it's important to be able to have access to minority populations, and you've heard presentations previously from Worta McCaskill-Stevens [chief of the NCI Community Oncology and Prevention Trials Research Group], Barry Kramer [director of the NCI Division of Cancer Prevention], and others about the NCI Community Oncology Research Program, or NCORP, and over the last five years, approximately one-in-five patients that have been accumulated to the NCI cooperative group clinical trials have been minority individuals, and that this seems to be fairly consistent is really thanks to major efforts on the part of NCI and the extramural community to try to include underrepresented minorities in the trials.



Novel recurrently mutated genes in African American colon cancers

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

[c]Department of Medicine, [f]Department of Genetics and Genome Sciences, [h]Department of Epidemiology and Biostatistics, [j]Department of Pathology, [a]Division of General Medical Sciences-Oncology, [d]Division of Hematology and Oncology, [b]Case Comprehensive Cancer Center, and [i]Case Medical Center, Case Western Reserve University, Cleveland, OH 44106; [e]Harold C. Simmons Comprehensive Cancer Center, University of Texas Southwestern Medical Center, Dallas, TX 75390; and [g]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

I also want to emphasize that we are going to be continuing to strongly support basic research. This is the engine of discovery and where the knowledge base is developed, and although there are enormous opportunities for translational application of basic research discoveries, we will also continue to be very interested in those basic discoveries that may not have immediate translational applications, but tell us more about how the important processes that lead to cancer.

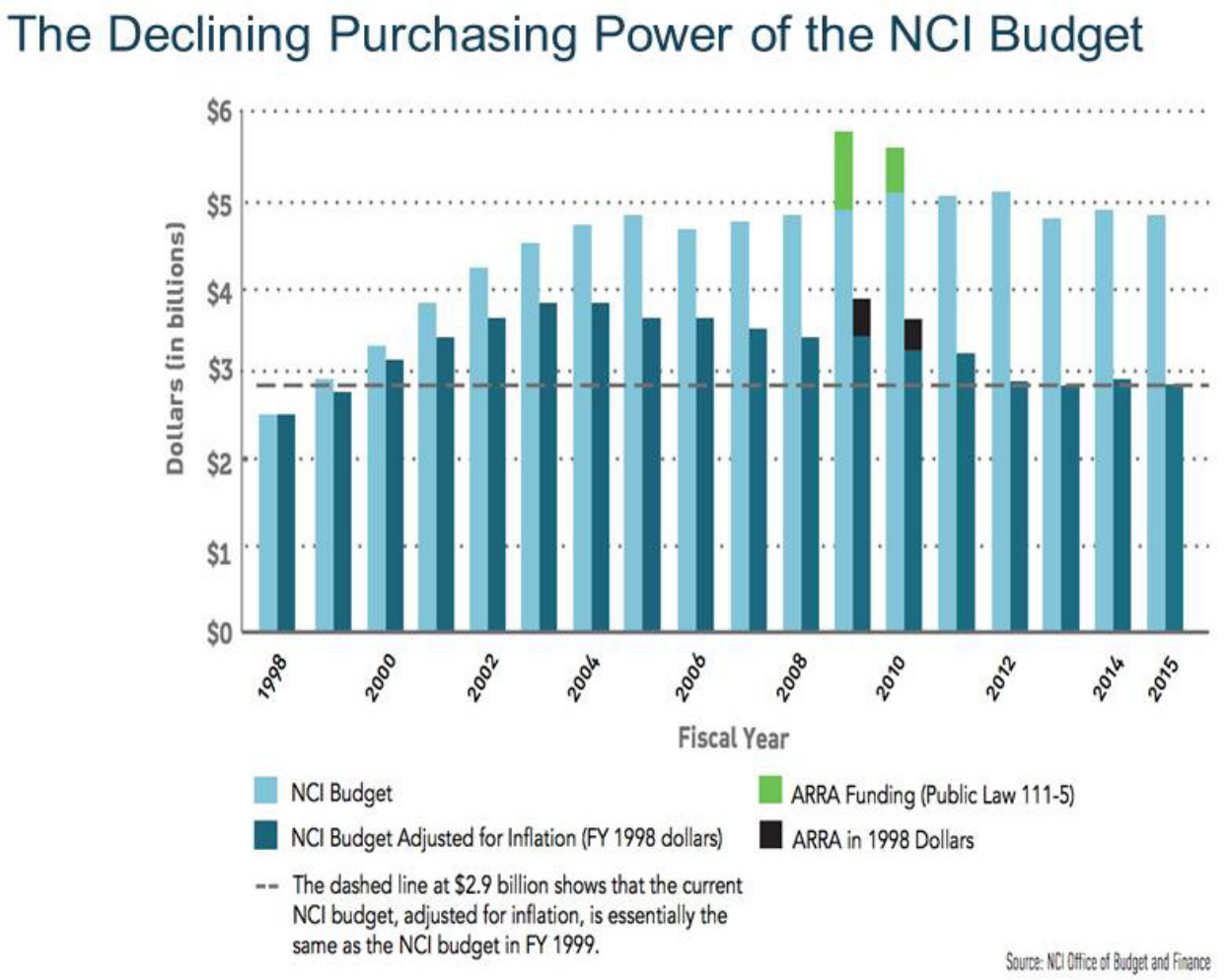
A few words about the budget:

This slide depicts for you what has happened to the budget over the last more than 15 years, starting from the doubling of the budget, which started in 1999, to the current budget. The light blue are absolute dollars; the dark blue are inflation-adjusted dollars, and the green represents the [American Recovery and Reinvestment Act] or stimulus budget, and you can appreciate the high increase that was obtained in 2009 and 2010.

I would point out that [The Cancer Genome Atlas] was supported by the NCI—that is the part was supported by NCI, rather than from [National Human Genome Research Institute], was largely supported by money from ARRA, so this clearly a very important resource.

The horizontal dotted line shows you that, in terms of purchasing power, our power today is very similar to what it was in 1999 after the first year of the doubling. I needn't tell you that the size of the cancer research community is larger, and even more importantly, that our opportunities for making progress are much greater.

There may be some glimmer for FY16 and beyond, as Pat McGarey has said to me, that the freeze that we have had in the appropriations landscape may



be undergoing a thaw. Both the Senate, as well as the House, have essentially gone along with relatively large proposals—for example, our NCI proposal was for close to a 15 percent increase for FY16, and the president's budget for a little over 3 percent.

But just because the committees are marking these up with positive results does not necessarily mean the budget is passed that it will be that way. But we can, perhaps, be cautiously optimistic, for perhaps the first time in a long time, that there might be some appropriations increases for the NIH, including NCI.

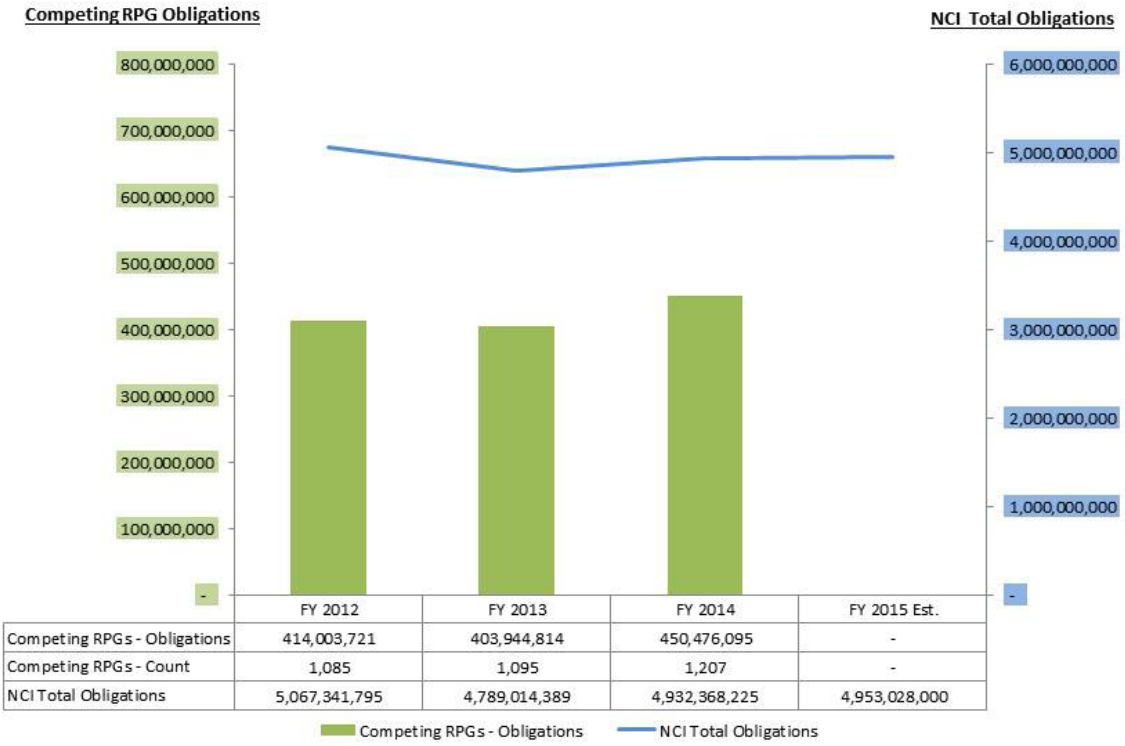
I want to spend a little bit of time with the next two slides, talking about the RPG pool. This depicts for you in green, these are the numbers on the left, the amount that we have invested in FY12, 13, and 14 for the new competing RPG awards; and in the blue on top is the appropriation. So the dip in the appropriation is the five percent decrease that we had because of sequestration in 2013, and there was a small increase in FY14 and 15.

We have increased the amount in 2014 that we devoted to the competing RPGs, and we also increased the total number of awards from about 1,100 in FY12 and 13 to about 1,200. We do not yet have the numbers for FY15, but I am quite optimistic, first that the amount of funding that we are going to be using for supporting the competing RPGs will be up. And this is despite the fact that in FY15, we only had a $25 million increase overall to the budget, and we're going to really try hard to maintain this 1,200 number.

However, going forward we need to be cognizant of at least two very important financial and demographic changes that we have instituted this year: the first is that, after your input at the joint board meeting in December, and as we mentioned in March, we've decreased the automatic cuts to the modular R01 grants from 17 percent to 8.5 percent, and the plan is if there an increase in our appropriation, and if the impact on the RPG pool is not too negative, that we would hope to eliminate these cuts completely.

In addition, the Outstanding Investigator Award will increase the average size of the award as well as the duration of the awards—you're making seven year

Competing RPG & NCI Total Obligations



	FY 2012	FY 2013	FY 2014	FY 2015 Est.
Competing RPGs - Obligations	414,003,721	403,944,814	450,476,095	-
Competing RPGs - Count	1,085	1,095	1,207	-
NCI Total Obligations	5,067,341,795	4,789,014,389	4,932,368,225	4,953,028,000

commitments instead of five year commitments. And so we also need to be looking and examining closely what the impact is going to be and we are going to be starting internal discussion next month here at NCI, and we are looking forward to having a discussion at the joint board meeting Nov. 30 that will be getting your input about where do we stand. We will have already the 2015 data, but we will also be thinking about projecting forward and getting your input about how we should try to handle these potentially other changes to the RPG pool.

As those of you who are cancer center directors know and most of you are also aware, Harold wanted to increase the size of the core grants and the amount of funding that we have been giving to the P30 core grants, but although we had a committee to make recommendations and continue to be committed to doing it, the decision of what to do really has been left to me and my colleagues to try to decide.

We have an excellent committee that is headed by Chi Dang [director of the University of Pennsylvania Abramson Cancer Center] and Stan Gerson [director of the Case Comprehensive Cancer Center], who will be looking at this, but I can tell you right now, we are committed first to increasing the total amount of the P30 core grants.

Second, we want to increase it starting with FY16, and what I am hoping that we will be able to do is to put in at least $10 million more in FY16 for the core grants, with a long term goal of getting up to—currently we've been at about $255 million for the total core grants—getting up to at least $300 million over the next few years, assuming that we get some increases in the budget.

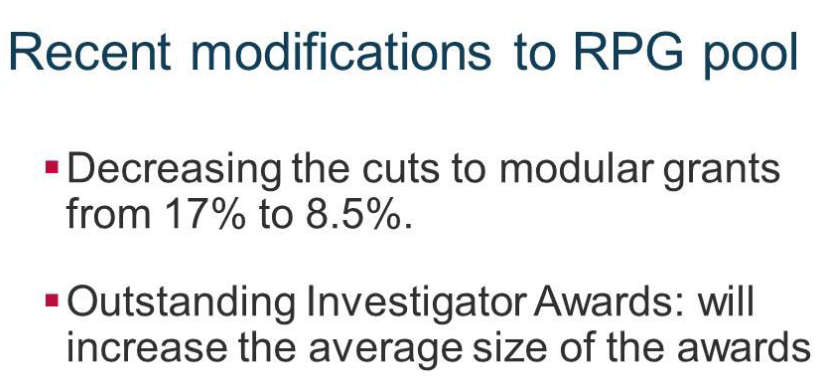
Our top priority right now is that because of inflation and because of the demands that we place on the centers, for the centers with the lowest-sized grants, we're really going to try to rectify that situation initially.

I want to talk a little bit now about the RAS project. But just to emphasize one aspect, you know we have been talking about the RAS project having a hub and spoke arrangement, and this one way of thinking about the RAS pathway.

The RAS project up at Leidos, [Dominic] Esposito [director of the FNLCR Protein Expression Laboratory] and his colleagues are making validated gateway entry clones for each of the 180 genes, for a total of 360 clones—17 were not available commercially, 32 were not available without non-siloed mutations.

In three weeks we expect to make those clones available to everyone in the community. At the moment if you're interested in that you can send emails to Dom for providing it. We also announced

very recently that we have begun the recompetition for the operations and technical support contract that runs the NCI and federally funded research development center that is the Frederick National Laboratory. Currently Leidos administers the contract, and information concerning the competitive process will be announced at these sites and there is a preproposal conference that is going to be held at the beginning of October, and we would like to have you help spread the word.



We would like there to be a fair, open and vital contract competition, and we are going to be welcoming proposals that go beyond just a corporate partner for the proposal.

I also want to mention that we have had some retirements. Bob Wiltrout is going to be retiring at the beginning of July. Bob has run the Center for Cancer Research for the last nine years, and he really has done a terrific job in helping to keep that program vital and to keep revitalizing it and with many outstanding young tenure track investigators. I met with four of them yesterday; each one is involved in interesting research from the most basic to the most applied therapeutically oriented.

Joe Tomaszewski retired back in May after many years as being very active most recently as the co-director of the Division of Cancer Treatment and Diagnosis, and he was responsible for bringing many new drugs to the clinic.

And Susan Erickson, who was head of the Office of Government and Congressional Relations, retired last month as well, after many years of leadership of that area, for which we thank her.

When some doors close, other doors open. We have been very fortunate to be able to appoint Toby Hecht as deputy director of DCTD, Lee Helman, the acting director of the Center for Cancer Research, Glenn Merlino as acting scientific director for the basic part of CCR, M.K. Holohan as acting director of the Office of Government and Congressional Relations and Peter Garrett as the director of the Office of Communications and Public Liaison.

I also want to highlight how last night there was a discussion of the subcommittee for the Center for Global Health and Marie Ricciardone was there. She has recently joined the staff, and she brings some really special dimension and expertise to the center for global health. She is a molecular biologist who I visited in Ankara and at Bilkent University last year, where she was a professor in the department. She has lived abroad for many years, because her husband, when I visited Ankara, was the U.S. ambassador to Turkey. So she has really a lot of different dimensions. And we look forward to her active participation in the Center for Global Health, not only being able to have greater ties with certain areas such as the Middle East, but in addition to bringing the notion of basic research into the center.

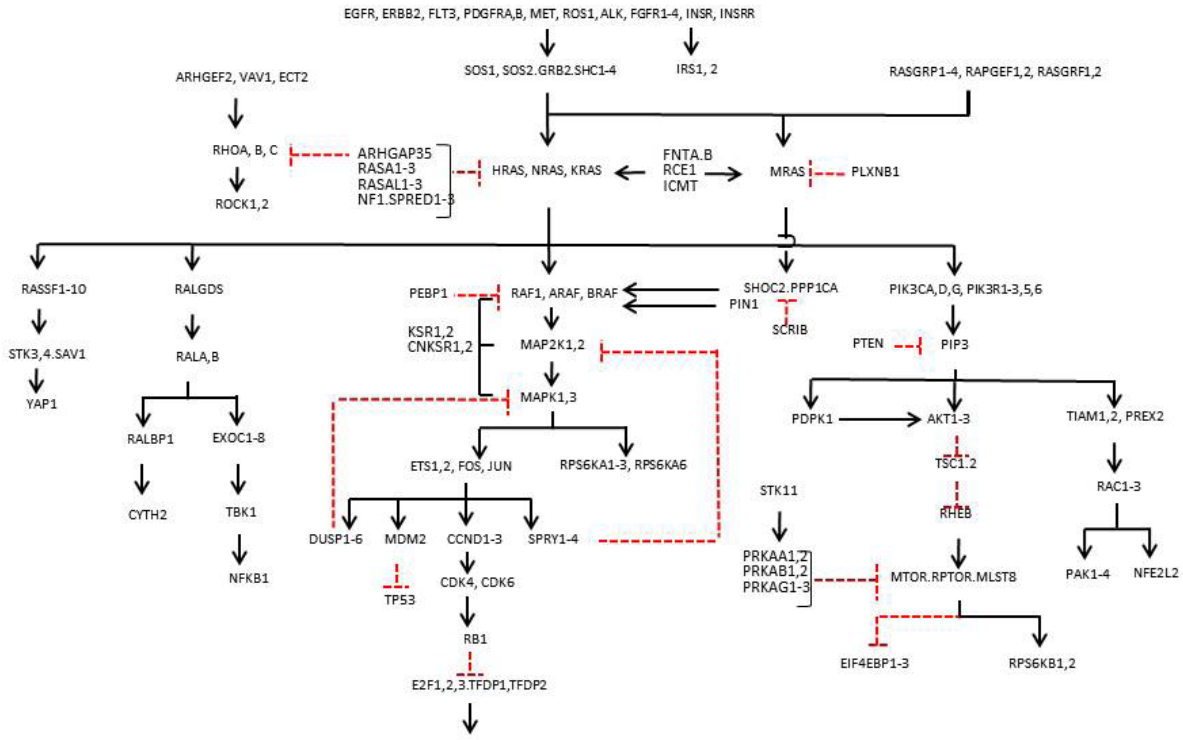
Last month, we also put out a new face to the Cancer.gov website. It is now compatible with smartphones and we want to especially thank Peter [Garrett, director of the Office of Communications & Public Liaison] and Lakshmi [Grama] and many other staff members for making this new arrangement. I hope you'll go here. We're trying to make it more interesting, more accessible, and to the change what's there so that it is timely. If there are things that you liked, let us know. But more important, if there are limitations and aspects that you don't like, please let us know.

For my last slide, I want to mention that, as many of you are aware, at the beginning of this month, our fearless second-in-command Jim Doroshow and others announced the opening of the NCI-MATCH trial, thanks to their efforts.

First, it's a terrific trial, and second, Peter and Jenny Haliski [chief of Media Relations Branch], and others from the Office of Communications and Public Liaison, really helped to make this a visible trial. And Jim spent 45 minutes on C-SPAN fielding questions on [Washington] Journal. And just to show you how much there are legs to this, the announcement was made on June 1, and they were still interested on June 7 to hear about it!

So my last slide is really just an ending, because I want to bring us back to, first, tell you how much I appreciate your input. We really depend to an extraordinary degree on it. It is the people here, both

Ras pathway v2.0



Dom Esposito, Frederick National Laboratory for Cancer Research

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 FedBizOpps as well as at the FNLCR Acquisition Portal
- 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

extramurally, as well as at the NCI, that make it so interesting for us to work here, to be excited about working here, and to be able to make progress.

But we also have to remember that the reason we're doing this is to help our patients. We want to people to be able to live longer, healthier lives. And in the cancer arena, this means decreasing the incidence of cancer and improving the lives of our patients who develop cancer. Thanks very much.

TYLER JACKS [Chair of NCAB]: Thank you Doug, that was very well said. It's great to have you in the chair to my right.

LOWY: I've always wanted to have the opportunity to sit next to Tyler. And let me tell you, it's terrific.

JACKS: Thank you for sharing.

I've had the opportunity to talk to Doug several times since his ascension to the role of acting director, and it's clear to me that he's very interested in our input and allowing us to help shape the future directions of the NCI, so thank you Doug and thank you for your willingness to take on this position.

We have a few minutes for questions for Doug at this time. Maybe I'll begin with one regarding Frederick. It seems to me that this recompetition of the contract is an important moment to think about the way Frederick will be operated and what it will do; what it will seek to do. It may be a little early for you to say anything definitive at this time about bigger thoughts about that, but if you could share a few ideas?

LOWY: Well we have had a lot of discussions, particularly at the Frederick Advisory Board, about the directions for Frederick. And I think we were very influenced by visiting the national laboratory at Lawrence Berkeley, run by the Department of Energy, and that really is a partnership between a corporate entity as well as a an academic entity, UC Berkeley.

That seemed like a very interesting arrangement. We are not prescribing what the arrangement needs to be, but we think that increasing the vitality and what is going on at Frederick would be very helpful.

We are enthusiastic about the RAS project, Jim's NCI experimental therapeutic project, the NExT program, and there are many other programs that we are enthusiastic about, but we think that there are potential opportunities to make Frederick even more relevant.

JACKS: Great. Further questions for Doug?

ELIZABETH JAFFEE [associate director for translational research at the Johns Hopkins University Sidney Kimmel Comprehensive Cancer Center]: Hi Doug. I'm really excited to work with you. In your list of scientific priorities I didn't really hear much about cancer immunology and inflammation. Do you see trying to coordinate more efforts at the NCI in this area? You had to know I was coming up with that question.

LOWY: Clearly, cancer immunology and inflammation are very important, both in terms of genesis of cancer and most recently—I hardly need to tell you—for the treatment of cancer.

And we certainly are looking to try to—this is an area where we have provided long-term strong support long before it was popular to support research in this area. And we recognize that there is a lot of activity by the pharmaceutical companies and we don't want to compete with them, nor do we wish to duplicate what they are doing.

But I am very hopeful that research that is focused on trying to understand the mechanisms by which these processes work will help us first understand their role better, and second, to be able to perhaps to use them in an even wider area. So I really look forward to our continuing involvement but in a way that complements what's going on in the private sector.

Senate Appropriators Approve $2 Billion Increase for NIH

By Nick Crispino

The Senate Committee on Appropriations June 25 approved the fiscal 2016 Labor, Health and Human Services, and Education Appropriations Bill, which would boost NIH's budget to $32 billion—an increase of $2 billion above fiscal 2015.

The $153.2 billion measure would provide the largest increase NIH has received since the doubling of its budget was completed in 2003.

However, if passed, the bill would eliminate the Agency for Healthcare Research Quality—a $465 million agency that plays a central role in the implementation of President Barack Obama's health care law.

The legislation would increase the budget of several departments in NIH:

•$200 million for precision medicine,

•$350 million increase for the National Institute on Aging, the lead institute researching Alzheimer's disease,

•$135 million, an increase of $70 million, for the BRAIN Initiative to map the human brain,

•$461 million, an increase of $100 million, to Combat Antibiotic Resistance, and

•$300 million, an increase of $26.7 million, for the Institutional Development Award.

S.1695—approved by a 16-14 vote—is $3.6 billion below the fiscal 2015 level and $14.5 billion below the president's budget request.

"The Labor-HHS bill takes a thoughtful, responsible approach to funding programs important to our country. In addition, the bill adds oversight measures to ensure that our taxpayer money is spent wisely and effectively," said Sen. Thad Cochran (R-Miss.), chairman of the Senate Committee on Appropriations and a senior member of its Labor, Health and Human Services, and Education and Related Agencies Subcommittee.

The bill includes several oversight provisions that would prevent the Obama administration from diverting funds away from the Centers for Medicare and Medicaid Services:

• Risk Corridor: The bill requires the administration to operate the Risk Corridor program in a budget neutral manner by prohibiting any funds from the Labor-HHS-Education appropriations bill from being used as payments for the Risk Corridor program.

• State-Based Exchanges: With the increasing number of State-Based Exchanges failing due to lack of revenue, the bill prevents the administration from using discretionary funds to pay for operational costs for these Exchanges.

• Health Exchange Transparency: The bill requires the administration to publish ACA-related spending by category since the Act's inception.

• ACA Personnel: The bill requires the administration to publish information on the number of employees, contractors, and activities involved in implementing, administering, or enforcing provisions of the ACA.

• Healthcare.gov Data Privacy: The bill directs CMS to encrypt and prevent future sharing of consumer information on Healthcare.gov, to review its current privacy guidelines, and to implement appropriate security measures.

The House Committee on Appropriations approved a similar spending bill June 24.

Both the House and Senate appropriations bills, if passed by Congress, would halt implementation of the ACA by rescinding previously allocated funds and prohibiting the use of any additional money to implement the law (The Cancer Letter, June 19).

The Republicans' efforts to cripple the ACA are making the appropriations bills unacceptable to the White House, which makes it impossible to predict whether proposed increases for NIH would remain in the final version of the spending bill.

Senate Appropriations Committee Publishes Report

The text of the Senate Appropriations Committee report language for NCI follows:

NATIONAL CANCER INSTITUTE

Appropriations, 2015 - $4,953,028,000
Budget estimate, 2016 - $5,098,479,000
Committee recommendation - $5,204,058,000

Mission—NCI conducts and supports basic and applied cancer research in early detection, diagnosis, prevention, treatment, and rehabilitation. NCI provides training support for research scientists, clinicians and educators, and maintains a national network of cancer centers, clinical cooperative groups, and community clinical oncology programs, along with cancer prevention and control initiatives and outreach programs to rapidly translate basic research findings into clinical practice. The Committee expects the Institute to systematically coordinate through other HHS agencies to share new scientific information to ensure it reaches the community and providers through various other HHS outreach programs. The Committee modifies the bill language, as requested by the Administration, to allow NCI to use up to $16,000,000 for repairs and improvements at the NCI Frederick Federally Funded Research and Development Center in Frederick, MD due to the increasing maintenance backlog of this site..

Breast Cancer Screening—The Committee is aware of studies regarding mammography screening for breast cancer that evaluate the benefits and harms of mammography screening. Research has demonstrated value of early detection of breast cancers through screening, and also has demonstrated that screening sometimes results in false positives and over treatment. This has created a less clear picture of the benefits of screening and may lead women to avoid periodic mammography, an experience some women already view as uncomfortable.

Therefore, the Committee encourages NCI to continue to support research on new imaging technologies, as well as studies to develop molecular and cellular markers in screen-detected lesions, to distinguish cancers that are truly life threatening and require aggressive treatment from those for which treatment is unnecessary. The NCI should continue to make research and validation data available to the

U.S. Preventive Services Task Force as they continue to systematically review the evidence of effectiveness of various breast cancer screening modalities.

Deadliest Cancers—While overall cancer incidence and death rates are declining, the Committee is concerned that some cancers, often referred to as recalcitrant cancers, continue to have a 5-year survival rate below 50 percent. The Committee is pleased that NCI has released Scientific Frameworks for pancreatic ductal adenocarcinoma [PDAC] and small cell lung cancer, as called for by the Recalcitrant Cancer Research Act.

The Committee recognizes that NCI supports critical research efforts exploring potential advances for other recalcitrant cancers and conducts scientific meetings and other horizon scanning efforts to stimulate research in these fields. The Committee looks forward to an update in the fiscal year 2017 CJ on research underway focusing on recalcitrant cancers in addition to PDAC and small cell lung cancer.

Gastric Cancer—The Committee continues to be concerned about the deadly outcomes of gastric cancer, particularly among young people, and is pleased that gastric cancer was included in The Cancer Genome Atlas [TCGA]. This research effort led to the discovery that gastric cancers fall into four distinct molecular subtypes. This finding, published in July 2014, is changing the way researchers think about treatments for gastric cancers, informing the development of targeted therapies for defined sets of patients whose tumors have specific genomic abnormalities. The Committee notes that research on gastric cancer is less advanced than that of many cancers. The Committee, therefore, encourages NCI to help investigators in this field to make the best possible use of genomic data from the TCGA, as well as to pursue other research opportunities.

Liver Cancer—The Committee continues to be concerned with the increasing incidence of liver cancer and its low 5-year survival rate. Therefore, the Committee encourages NCI to continue to support liver cancer research across its portfolio, including research focused on the development of biomarkers to serve as early detection markers of cancer to offer the prospect of improved outcomes.

Melanoma—Given the rising incidence of melanoma coupled with the immense untapped potential for prevention and screening, the Committee urges NCI to continue to work across divisions and in coordination with other Federal agencies and advocates, aligning resources to decrease the impact of this disease on our Nation's public health. The Committee commends NCI's MATCH Trial and Exceptional Responders Initiative—each stand to benefit melanoma subpopulations. The Committee continues to urge NCI's portfolio to encompass all molecular subtypes of melanoma.

While sequencing studies provide significant information about molecular heterogeneity and characteristics of BRAF wild-type tumors, this data has yet to result in effective therapies. Further, as melanoma has the highest incidence of central nervous system metastases among the common cancers, identifying patients at risk and developing prevention and treatment strategies are important. Research into mechanisms underlying clinical dormancy is a critical area of cancer biology and could provide effective means of preventing recurrence. The Committee requests an update on these requests in the fiscal year 2017 CJ.

Minority Cancer Rates—The Committee is concerned that preventable and detectable cancer rates are falling for the general population, but for some cancers, minority communities are still suffering at disproportionate rates. The Committee requests that NCI and NIMHD continue to coordinate and support research focused on treatment, prevention, communication, and outreach to minority communities for early intervention to reduce and eliminate these disparities.

National Clinical Trials Network—The Committee recognizes that the NCTN is critical to the development of improved, personalized treatments for cancer. The Committee also recognizes that the burden of cancer mortality is felt disproportionately among racial and ethnic minorities. Continued research is needed regarding the biological, socioeconomic, environmental, and behavioral factors that cause these disparities. The Committee urges NCI to continue research in these areas through the NCI Community Oncology Research Program, NCI's Center to Reduce Cancer Health Disparities, minority participation in NCTN clinical trials, and additional NCI-supported research focused on health disparities.

Pancreatic Cancer—The Committee understands that the Scientific Framework for Pancreatic Ductal Adenocarcinoma [PDAC] released last year will enable NCI to capitalize on the full range of its expertise and that of extramural scientists and academic institutions to assess progress against one of the Nation's deadliest cancers. The Committee also appreciates the establishment of the NCI's PDAC

Progress Working Group and the release of a funding opportunity announcement on the relationship between pancreatic cancer and diabetes and the establishment of the RAS program. The Committee is aware that pancreatic cancer has a 5 year survival rate of less than 5 percent due largely to a lack of early detection. Given that biomarkers are uniquely powerful tools to effectively screen and provide for early detection of pancreatic cancer, the Committee recommends that the NCI support research efforts to study non-invasive methods to screen for pancreatic cancers.

The Committee also encourages NCI to continue to support clinical research focusing on high-risk pancreatic cancer families. In particular, the Committee recommends that the NCI support clinical trials utilizing non-invasive methods to screen for pancreatic cancer based on protein production. The Committee looks forward to hearing about next steps for the RAS program, as well as progress made on the other initiatives outlined in the PDAC Framework in the NIH biennial report.

Pediatric Oncology Research—The Committee encourages NCI to continue its important investments in pediatric oncology research, including clinical studies for children with brain tumors, and development of the novel pediatric ''MATCH'' study, as well as the important pediatric preclinical testing program evaluating new agents for treating pediatric malignancies. The Committee supports NCI's longstanding investment in the Childhood Cancer Survivor Study and encourages continued childhood cancer survivorship research efforts.

Precision Medicine—Cancer presents an exceptionally promising opportunity to refine the principles and practices that will serve as the foundation for Precision Medicine. The Committee strongly supports the new Initiative and provides $70,000,000 for NCI's portion of the program. The Committee understands that NCI's priorities for the fiscal year 2016 Precision Medicine Initiative include accelerating precision oncology studies, undertaking new studies in particular cancers based on the genomic information learned from other clinical trials, and expanding efforts to address the persistent problem of drug resistance to cancer treatments. Consistent with these objectives, the Committee asks NCI to consider exploration of cancer models such as In Vitro clinical trials to improve Precision Medicine, especially as it relates to complicated cancers and in populations with a significant number of patients who fail to respond to traditional treatments.

In addition, the Committee notes the NCI's Community Oncology Research Program is an important element of NCI's ongoing efforts in precision medicine, and will allow NCI to incorporate underserved populations into cancer clinical trials under the fiscal year 2016 Precision Medicine Initiative.

Proton Therapy—The Committee recognizes the value of proton therapy in treating many forms of cancer as well as the benefits possible from continued research in this space. The Committee encourages NCI to continue its support of proton therapy research, comparing protons versus other kinds of modern radiation therapy, including initiatives for pediatric populations.

BSA Approves Three Concepts At Joint Meeting with NCAB

The NCI Board of Scientific Advisors approved the following concepts at a meeting June 24:

• **The Non-Communicable Disease Regional Infrastructure Core Planning Grants** program seeks to support activities for the planning and designing of sustainable, regional research infrastructure core, established to build, strengthen, and coordinate research and training of non-communicable diseases in low and middle-income countries or regions.

The long-term goals of NCD RICs include: strengthening commitment of LMIC countries to public health research and implementation, building evidence base for NCD prevention and control in LMICs, building global health career track for investigators focused on NCDs, facilitating individual research projects through the use of Regional Research Cores, and strengthening multidisciplinary research across NCDs.

Challenges facing NCDs in LMICs include: limited in-country financial support for research and training, inadequate research infrastructures, poor healthcare delivery services, which limit the ability to conduct clinical research, lack of surveillance regarding the management of NCDs, and lack of coordination across activities for addressing NCDs at country and regional-levels.

NCI expects to make six, two-year, $200,000 direct cost awards and $1.2 million in direct costs per year, in fiscal 2016 and 2017. The new program will be run through the Center for Global Health.

• **The Clinical Proteomic Tumor Analysis Consortium** aimed to elucidate the proteogenomic complexity of tumors by identifying proteins that derive from alterations in cancer genomes—TCGA tumors such as colorectal cancer, ovarian cancer and breast cancer.

Launched in 2012, CPTAC operates through the Proteome Characterization Centers—consortium of five labs that coordinate standardized research activities. BSA unanimously approved the RFA re-issue.

The External Scientific Committee, comprised of members from academia, FDA, NIH, and industry, which has reviewed CPTAC for over three years, said they observed that:

• CPTAC structure is successful and innovative at addressing proteomics cancer research (consortium of checks and balances),

• Accelerated adoption of standardized proteomic approaches by research community is a critical step in marrying two crucial disciplines,

• Some PCCs are better than others with innovative data analysis and,

• Retrospective samples should be avoided, if possible.

CPTAC plans to leverage investments in cancer genomics, by building on current achievements in cancer proteomics. The recommended budget for fiscal 2016 is $13 million per year. CPTAC's key contributors are members from the NCI Division of Cancer Treatment and Diagnosis and the Office of the Director of the Center for Cancer Genomics.

The budget for reducing and optimizing PCCs by focusing on data generation is $4 million per year. Proteogenomic translation would be performed by Proteogenomic Translational Research Centers with a budget $4.5 million per year, and data integration and analysis would be performed by specialized Proteogenomic Data Analysis Centers for $4.5 million per year.

• **The Genomic Data Analysis Network** designed to gather statistics through the use of novel technologies, because of the need to integrate different data types and the immense quantity of data generated by The Cancer Genome Atlas Research Network.

The GDAN is comprised of the Genome Data Analysis Centers, which works with the Genome Characterization Centers to develop state-of-the-art tools that assist researchers with processing and integrating data analyses across the entire genome. BSA unanimously approved the RFA re-issue.

GDACs have been indispensable for progress in TCGA, Louis Staudt, director of the Center for Cancer Genomics said to the BSA. Successful analysis and utilization of TCGA data required experiments utilizing strict standardized protocols, data in structured formats and available in public databases, and the formation of Analysis Working Groups—expertise in computational genomics, tumor biology and clinical oncology.

Projects involving GDAN include the Cancer Driver Discovery Program, the Adjuvant Lung Cancer Enrichment Marker Identification and Sequencing Trials, Exceptional Responders, the Clinical Trials Sequencing Program, and the Environment and Genetics in Lung Cancer Etiology.

The GDAN budget—derived from U24 Cooperative Agreements—will be at $8,500 per fiscal year, adding up to $42,000 from 2016 to 2020.

The Cancer Letter's Coverage of Power Morcellation Wins Three Journalism Awards

The Cancer Letter won a first place 2015 National Press Club Award in the NPC's annual journalism competition June 26.

The award recognizes Matthew Ong's series "Power Morcellation: A Hazardous Practice" as the winner in the Newsletter Journalism category.

"This newsletter had very thorough coverage over multiple stories," the judges noted. "Sidebar interviews were well done. One of the stories helped shine light on a very controversial procedure that has since been highly restricted. The Cancer Letter is well-designed with good use of multimedia."

Ong's series, which includes an interview documentary, can be found here.

The series previously won the 2014 Sigma Delta Chi Award for Public Service in Journalism in the newsletter category April 23.

"The series puts a human face on the topic, giving the audience someone with whom to connect," the judges said at the awards ceremony June 26. "It does an incredible job of following the topic from a serious concern in the medical community to an FDA action."

Ong's series also received a first place 2015 Dateline Award for Excellence in Local Journalism in the newsletter category from the Society of Professional Journalists, Washington, D.C. Professional Chapter June 9.

"An excellent job of dealing clearly and comprehensively with a complex issue," the judges said.

In Brief

Pollock Named Surgeon-in-Chief For OSU Health System

(Continued from page 1)

Pollock will continue to function as the Surgeon in Chief for the James Cancer Hospital and Solove Research Institute. Further, he will co-chair the Health System Operating Room Coordinating Committee and will be an ex-officio member on all operating room committees in the Health System.

A professor of surgery, Pollock will be responsible for surgical medical care within the OSU Health System operating rooms, including those at University Hospital, Ross Heart Hospital, University Hospital East, the Outpatient Surgery Center at the Eye and Ear Institute and the Same Day Surgery Center within University Hospital. He will collaborate with surgical and anesthesiology department leaders, nursing leaders and hospital administrative leaders in the operational and financial management of the surgical product line.

Pollock will specifically focus on efforts to improve OR turnaround time, "on time" first case starts, and OR utilization.

Pollock joined OSU Wexner Medical Center in September 2013 from MD Anderson Cancer Center, as the director of the Surgical Oncology Division/ Department of Surgery and the chief of Surgical Services in The James.

At MD Anderson, he served in various capacities, including head of the Division of Surgery and chair of the Department of Surgical Oncology. He also held the Senator A. M. Aiken, Jr. Distinguished Chair, and was a professor in both the Department of Surgical Oncology and the Department of Molecular and Cellular Oncology.

JONATHAN LICHT was appointed director of the **University of Florida Health Cancer Center**, effective Oct. 1.

Licht comes to UF Health from Northwestern University and brings a $2 million research portfolio that includes funding from NIH, NCI, and national foundations such as the Leukemia and Lymphoma Society.

Licht currently serves as the associate director for clinical sciences at the Robert H. Lurie Comprehensive Cancer Center of Northwestern University, and holds appointments in the Northwestern University Feinberg School of Medicine as the Johanna Dobe Professor of Hematology/Oncology, chief of the division of hematology/oncology and professor of biochemistry and molecular genetics.

Prior to his position at Northwestern, Licht was a professor and chief of hematology/oncology and associate dean for cancer programs at the Mount Sinai School of Medicine. A graduate of Columbia University College of Physicians and Surgeons, Licht completed his internal medicine residency and medical oncology fellowship at Harvard Medical School. His research has focused on aberrant gene regulation as a cause of blood cancers.

He also serves as the chief scientific officer of the Samuel Waxman Cancer Research Foundation. He is a member of the executive committee of the American Society of Hematology and is on the faculty of the ASH/European Hematology Association Translational Research Training in Hematology joint program. Licht sits on the Medical/Scientific Board of the Leukemia and Lymphoma Society and is a member of the Basic Mechanisms of Cancer Therapeutics Study Section of the NIH.

"Being director of the UF Health Cancer Center is an extraordinary opportunity," said Licht. "The center has an outstanding reputation and already possesses the foundational strengths necessary to support the two benchmarks of excellence I believe are crucial to the center's role as a cancer leader in the state and nation."

Licht outlined these as expanding the NCI-funded research portfolio of both basic and translational cancer research, which state support through the Florida Consortium of National Cancer Institute Centers Program will help facilitate, and extending investigator-initiated clinical trials to as many people as possible to improve treatment outcomes for patients.

"Meeting these targets will be a challenge, but it's a challenge I'm excited to have," Licht said.

As director, Licht succeeds Paul Okunieff,

who, after five years, announced in January that he is stepping down to focus his energy on the UF department of radiation oncology, which he chairs, and on his robust and demanding research program.

"As center director, I've been honored and proud to work with the extraordinary cancer physicians and researchers whose hard work and dedication have been instrumental in expanding the reach of the UF Health cancer brand," said Okunieff. "I feel a tremendous sense of loyalty and responsibility to these men and women, so it gives me great confidence that Dr. Licht, a world leader who could be cancer director anywhere in the country, wants to come here to lead us into the future."

GEORGE WILDING was named vice provost for clinical and interdisciplinary research at **MD Anderson Cancer Center**. His appointment will begin Sept. 1.

Wilding currently serves as the Donald and Marilyn Anderson Professor of Clinical Oncology at the University of Wisconsin School of Medicine and Public Health and director emeritus of the University of Wisconsin Carbone Cancer Center. Previously, Wilding served as chair of the scientific advisory board for MD Anderson's Moon Shots Program.

He was named interim director of UWCCC in 2002, and served as director from 2004 to 2013. Other key appointments included co-director of the Genitourinary Cancer Working Group, director of the Experimental Therapeutics Program, head of the Medical Oncology Section, head of the Hematology-Oncology Division, associate director for clinical programs and assistant dean for oncology.

In his new role, Wilding will oversee strategic planning, conduct, approval and regulation of all clinical research conducted at MD Anderson and its global operations. He will also provide oversight and academic leadership of the institution's multidisciplinary research institutes. He will also serve as a professor of genitourinary medical oncology.

Wilding's research interests focus on genitourinary cancers, particularly prostate cancer, concerning the role of androgen-induced oxidative stress in prostate carcinogenesis and cancer progression. Two agents targeting this pathway for prostate cancer were developed in his laboratory. One of the agents has entered clinical testing and the other is approaching this critical phase.

He has also served on the NCI Board of Scientific Counselors, the NCI Task Force to review the SPORE Program, NCI ACRIN cooperative group advisory board, board of directors of the American Association of Cancer Institutes, and member of the external advisory boards of eight NCI designated cancer centers, including MD Anderson.

The LIVESTRONG Foundation announced two appointments to its senior leadership: **Donna Palmer** as chief development officer, and **Katie Merrell** as vice president of people.

Palmer, who comes to LIVESTRONG from the American Diabetes Association, will lead the foundation's overall revenue-generation efforts. Merrell has more than 25 years of experience in organizational management, including more than ten years at Susan G. Komen for the Cure, most recently as vice president for human resources, and will be in charge of people management at LIVESTRONG.

Both will report directly to President and CEO Chandini Portteus.

Palmer's duties at the Foundation will include business development, corporate sponsorship and partnerships, events, major gifts, annual giving and donor relations. She spent the past three years leading the giving efforts for the ADA as its vice president of donor development.

Prior to her role at ADA, Palmer headed fundraising efforts at Compassion International and created the major gifts program during her tenure with St. Jude Children's Research Hospital.

Merrell will be in charge of human resources, the LIVESTRONG Leaders program, volunteer and intern relations, as well as other outreach programs to help build out the LIVESTRONG community.

Prior to her time at Susan G. Komen, Merrell worked in the for-profit sector at Peranet, an internet marketing business, and Micrografx, a global pioneer in process management.

CYRUS GHAJAR received a $4.1 million **Department of Defense Breast Cancer Research Program** "Era of Hope" Scholar Award.

Ghajar is a metastatic breast cancer researcher at Fred Hutchinson Cancer Research Center. He has teamed with other Fred Hutch researchers as well as investigators at Harvard Medical School and at the University of Colorado. The Era of Hope award encourages high-impact, collaborative research, particularly among young researchers.

Ghajar is the director of the Laboratory for the Study of Metastatic Microenvironments, which is housed within the Translational Research Program.

The laboratory studies how microenvironments within distant tissues influence dormancy, drug resistance and the re-emergence of disseminated tumor cells. He will use the funds to research ways to prevent breast cancer metastasis by treating dormant disseminated tumor cells.

Drugs and Targets

EMA Grants Approval to Opdivo in Melanoma

The European Medicines Agency granted accelerated approval to Opdivo (nivolumab) for the treatment of metastatic melanoma.

Opdivo is a monoclonal antibody that targets the programmed cell death 1 receptor expressed on T cells. PD-1 functions to suppress T cell activity and Opdivo blocks this suppression releasing the T cells to mediate tumor regression. Two PD-1 targeted agents, Opdivo and pembrolizumab, were approved by FDA for the treatment of advanced melanoma in 2014.

The accelerated EMA approval is based on the results of CheckMate-066 and CheckMate-037 trials, which involved treatment-naïve and pre-treated melanoma patients, respectively. Opdivo is sponsored by Bristol-Myers Squibb.

CheckMate-066 revealed 73 percent one-year survival rate in patients treated with Opdivo, compared to 42 percent in those treated with comparator drug, dacarbazine.

In CheckMate-037, the combination of Opdivo and Yervoy (ipilimumab)—plus a BRAF inhibitor in patients who were BRAF-positive—achieved an objective response rate of 32 percent, compared to 11 percent among patients treated with conventional chemotherapy alone.

The Leukemia & Lymphoma Society accelerated a portion of the final payment linked to the phase III study of CPX-351 (cytarabine:daunorubicin) liposome injection, Celator Pharmaceuticals' lead product candidate, for the treatment of patients with high-risk acute myeloid leukemia.

LLS has moved forward payment of $400,000 originally attached to the final overall survival analysis milestone and added it to the milestone payment for induction response rate analysis, thereby increasing the payment from the original amount of $500,000 to $900,000. This brings the total LLS funding paid to date associated with the study to $4.9 million.

The financial support provided by the LLS Therapy Acceleration Program has been important in expediting the completion of the multicenter trial of CPX-351 versus conventional cytarabine plus daunorubicin in older patients with untreated high risk AML.

Enrollment in the study was completed ahead of schedule, and positive induction response results were announced earlier this month. The overall survival results, the primary endpoint of the study, are expected in the first quarter of 2016. This study is planned to support a New Drug Application with the FDA expected in the second half of 2016.

As part of a 2009 partnership, LLS provided $4.1 million to help fund Celator's phase II clinical development program, which included two randomized, controlled studies.

Mevion Medical Systems delivered a superconducting synchrocyclotron accelerator for its Mevion S250 proton therapy system under installation at **University Hospitals Seidman Cancer Center** and UH Rainbow Babies & Children's Hospital in Cleveland.

The unit will be the first proton therapy system in Ohio treating adult and pediatric cancer patients when it begins clinical operation in the spring of next year. This is the sixth accelerator delivery for Mevion.

Following the installation of the accelerator, the system will undergo proton beam tuning and acceptance testing to verify that it meets precise technical and clinical requirements before being commissioned for clinical use. It is expected to begin treating cancer patients in the spring of 2016.

Proton Partners International Ltd. acquired the site for the first high energy proton beam therapy cancer treatment center will be built in the U.K.

The center will be situated at Celtic Springs Business Park in Newport, Wales. Following renovations, the center is due to be operational next year. Ion Beam Applications has been selected to install its single-room proton therapy system, Proteus ONE.

The Newport center is the first of three Proton Beam Therapy centers which will be built by Proton Partners in the UK. The other sites will be in Northumberland and London with additional sites identified in Liverpool and Birmingham.

Philips has been appointed to deliver software and technology tools. Philips will also provide big bore CT scanners at each center and a PET CT in the Newport center.