

# NIGMS Feedback Loop

*A catalyst for interaction with the scientific community*



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The National Institute of General Medical Sciences (NIGMS) is one of the National Institutes of Health in the U.S. Department of Health and Human Services. By supporting basic biomedical research and training nationwide, NIGMS lays the foundation for advances in disease diagnosis, treatment, and prevention.

The *NIGMS Feedback Loop* is an e-mail newsletter alerting researchers to NIGMS [funding opportunities](#), trends, and plans. We encourage your [input and feedback](#) on Institute activities.

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## Director's Message

Most of my message will focus on the budget situation for the year just ended and for the future, but I want to start with news of prestigious awards won by NIGMS grantees. On September 16, 2006, Elizabeth Blackburn, Carol Greider, and Jack Szostak were announced as winners of the 2006 Albert Lasker Award for Basic Medical Research "for the prediction and discovery of telomerase, a remarkable RNA-containing enzyme that synthesizes the ends of chromosomes, protecting them and maintaining the integrity of the genome." Long-time grantee Joseph Gall received the 2006 Albert Lasker Special Achievement in Medical Science Award "for a distinguished 57-year career—as a founder of modern cell biology and the field of chromosome structure and function; bold experimentalist; inventor of *in situ* hybridization; and early champion of women in science." Less than 3 weeks later, Andrew Fire and Craig Mello were named the 2006 winners of the Nobel Prize in physiology or medicine "for their discovery of RNA interference—gene silencing by double-stranded RNA." Two days after that, Roger Kornberg was announced as the 2006 winner of the Nobel Prize in chemistry "for his studies of the molecular basis of eukaryotic transcription." Over its 44-year existence, NIGMS has supported the work of 62 Nobel Prize winners. Please join me in congratulating these outstanding scientists for their discoveries and these significant honors.

This recognition of NIGMS grantees presented opportunities to communicate with the public about NIH support of the scientific research enterprise. We took advantage of the opportunities and were able to do many interviews. For example, the following appeared in the *New York Times*:

"Dr. Jeremy M. Berg, director of the National Institute of General Medical Sciences at the National Institutes of Health, said the honor showed the importance of taxpayer-supported basic research that is not aimed at a certain goal. His institute has provided financial support for Dr. Kornberg's work since 1979, even when it was unclear if the research would be successful, he said."

The announcement of major awards represents one, but not the only, opportunity to communicate to broad audiences about how tax dollars allocated to NIH fund research by scientists across the country. We all have roles to play in conveying this message.

### ***Budget Results for Fiscal Year 2006***

Once the Fiscal Year 2006 budget was enacted, we anticipated that the year would be similar to Fiscal Year 2005 in terms of overall success rate and the portfolio of grants that could be supported. Following up on data that we presented a year ago, Figures 1 and 2 below show the distribution of R01 grant applications received and funded as a function of priority score and a comparison of the Fiscal Year 2006 funding curve with curves for Fiscal Years 2000-2005.

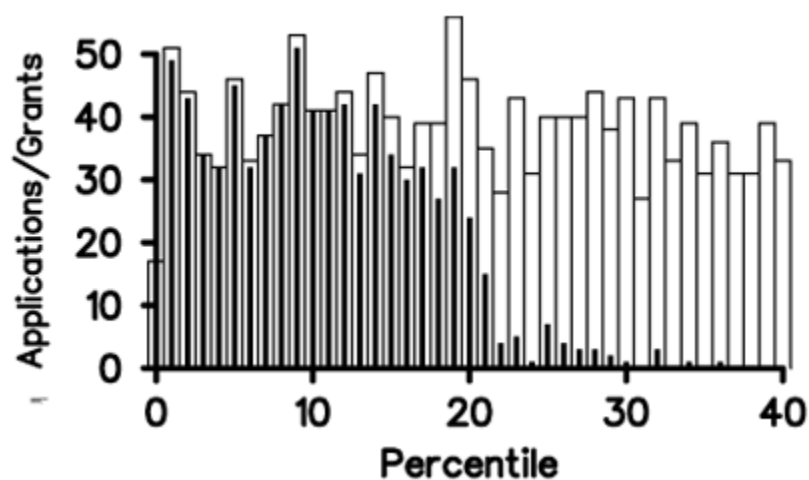


Figure 1. NIGMS R01 applications reviewed (white rectangles) and funded (black bars) for Fiscal Year 2006. All competing applications are included.

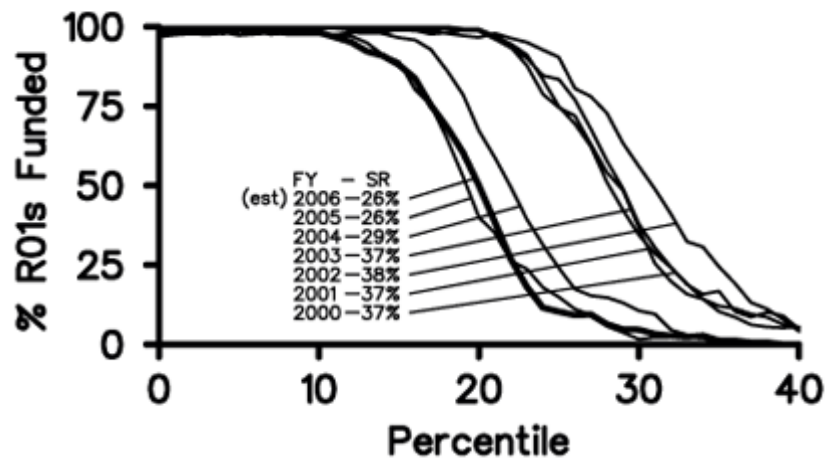


Figure 2. NIGMS funding curves for Fiscal Years 2000-2006 including all competing R01 grant applications.

As you can see, the distribution for Fiscal Year 2006 is quite similar to that for Fiscal Year 2005. The Fiscal Year 2006 curve corresponds to an overall [success rate](#) of 26%.

Despite these similarities, there are some significant differences. Most striking is the distribution of unamended and amended (A1, A2) grant applications, which follows trends that have been in place since the end of the NIH budget doubling. Figure 3 shows the distribution of competing applications across a total of nine categories covering both new (often referred to as Type 1) applications and competing renewal (Type 2) applications and distinguishing between new and established principal investigators (PIs).

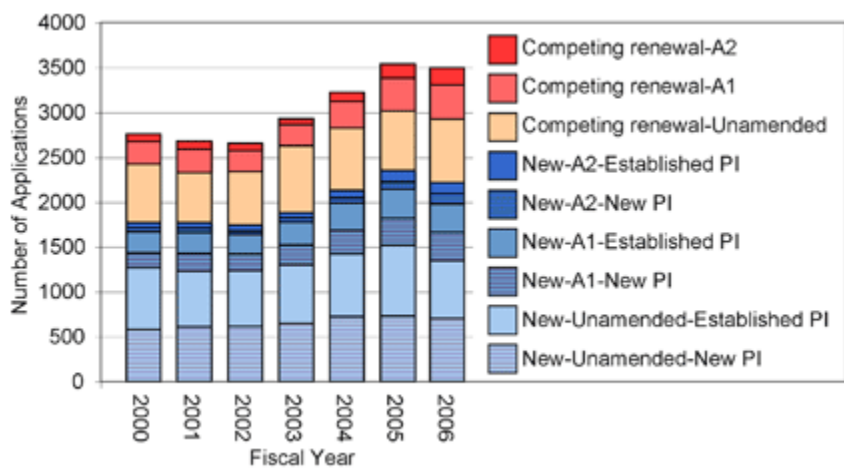
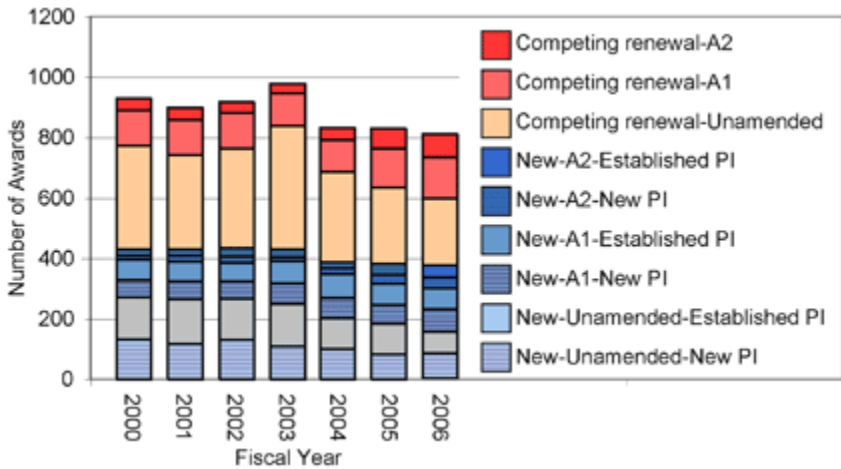


Figure 3. The distribution of new and competing renewal R01 grant applications showing unamended and amended (A1 and A2 (or greater)) applications from Fiscal Year 2000 to

**Fiscal Year 2006. The new applications are separated to distinguish between those from new PIs and established PIs.**

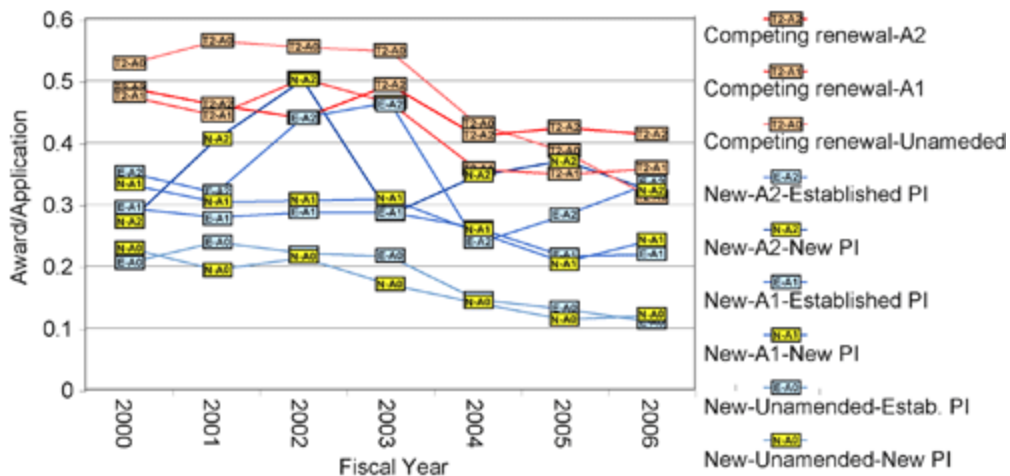
This figure shows the substantial growth in the overall number of applications beginning in Fiscal Year 2003 and tapering off in Fiscal Year 2006. The figure also reveals substantial growth in the fraction of amended (A1 and A2) applications compared to unamended applications, particularly over the past 2 years. Figure 4 shows the corresponding distribution of grant awards.



**Fig 4. The distribution of awards in response to new and competing renewal R01 grant applications showing unamended and amended (A1 and A2 (or greater)) applications from Fiscal Year 2000 to Fiscal Year 2006. The awards in response to new applications are separated to distinguish between those from new PIs and established PIs.**

This figure shows that the overall number of awards decreased from Fiscal Year 2003 to Fiscal Year 2004, when the budget doubling ended, and that the number has been relatively constant over the past 3 years. This figure also shows that the fraction of awards in response to amended applications has increased significantly, particularly over the past 2 years.

To show these trends more clearly, the ratio of the number of awards to the number of applications is presented in Figure 5.



**Figure 5. The ratio of awards to applications for R01 grants derived from the data shown in Figures 3 and 4.**

This figure shows that the ratio of awards to applications for new, unamended applications fell from slightly over 0.2 in Fiscal Years 2000-2002 to slightly over 0.1 for Fiscal Year 2006. Similarly, the ratio for unamended, competing renewals fell from over 0.5 in Fiscal Years 2000-2003 to slightly over 0.3 in Fiscal Year 2006. At the same time, ratios of awards to applications for amended applications—both new and competing renewals—have been more nearly constant and in some cases, such as the ratio for A2 applications from new PIs, have increased from Fiscal Year 2000-2003 to Fiscal Years 2004-2006. Finally, note that ratios for new PIs closely track—and often slightly exceed—those for established PIs.

Support for new, unamended applications was the topic of a recent letter to *Science* (Mandel HG, Vesell ES. *Science* 313(5792):1387-8, 2006). In Fiscal Year 2006, NIGMS committed \$43 million in support of new, unamended R01 applications. This corresponds to 2.2% of the overall NIGMS budget. The data that led to the figures above can put this potentially stunning percentage into context. With the inclusion of new, amended (A1 and A2) applications, this value grows to \$105 million (5.5%). With the addition of competing renewals (both amended and unamended), the value grows to \$255 million (13.3%). Finally, of course, with an average award length of 4 years, approximately three-quarters of the NIGMS research project grant budget supports noncompeting applications. The inclusion of these noncompeting awards brings the total to \$1,110 million (58%). This value represents R01 grant awards only and does not include MERIT awards (R37). With the inclusion of R37 awards, the total is \$1,173 million (61% of the overall NIGMS budget), as noted in my last [NIGMS Feedback Loop message](#).

Note that NIH has been conducting a pilot project to examine shortening the grant review cycle. The goal of this project is to allow the submission of amended applications in the next review cycle in appropriate cases. The pilot has been focused on new investigators in a subset of study sections. A [preliminary evaluation of the program](#) was presented at the last meeting of the Peer Review Advisory Committee, which I co-chair with Toni Scarpa, the Director of the Center for Scientific Review.

### ***Roadmap Request for Information***

Late last month, I sent an e-mail regarding the NIH-wide "Request for Information (RFI): To Solicit Input and Ideas for Roadmap Trans-NIH Strategic Initiatives." Responses are being accepted until **November 17, 2006**. I also want to put this request into context. The initiatives developed based on this input will utilize \$30-50 million in Fiscal Year 2008 funds derived from existing Roadmap projects that are reaching completion or that have been scaled back. Note that submissions need not relate to "big science" projects or even targeted areas, but can be directed toward new approaches to supporting research. The Roadmap provides good articulation of selected NIH goals that is useful in communicating with policymakers and the public. We consider the Roadmap initiatives an enhancement to, rather than a substitute for, purely investigator-initiated research.

### ***Progress Toward an Appropriation for Fiscal Year 2007***

The budget appropriation for NIH has not yet passed either house of Congress and we are currently operating under a continuing resolution. The President's Budget request of \$1,923,481,000 for NIGMS represents a 0.6% decrease from the Fiscal Year 2006 enacted appropriation. It is unclear if Congress will take up the NIH appropriation during the lame duck session that is just beginning.

On September 26, the House of Representatives did pass The National Institutes of Health Reform Act of 2006, reauthorizing the NIH, with a vote of 414-2. This is a substantial vote of confidence for NIH. Among its provisions, the bill includes authorization for a 5% increase in the NIH budget for each of the years 2007-2009. For this increase to become a reality, such funds still must be appropriated by a separate process. Reauthorization of NIH has not been taken up by the Senate as of yet.

I hope the data I have presented are useful in understanding the present funding climate. We are preparing additional data on this topic and will be posting it on

the NIGMS Web site at <http://www.nigms.nih.gov/research/application/trends>. As always, I welcome your questions and comments.

Jeremy M. Berg  
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National Institute of General Medical Sciences  
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## Funding Opportunities

### ***2007 NIH Director's Pioneer Award (DP1)***

Exceptionally creative scientists with innovative approaches to major challenges in biomedical research are encouraged to apply for the [NIH Director's Pioneer Award](#), which provides \$2.5 million in direct costs over 5 years. The application period opens on Friday, December 1, 2006, and closes on Tuesday, January 16, 2007. See [RFA-RM-07-005](#) for application details.

### ***Predoctoral Training in Behavioral and Biomedical Sciences (T32)***

NIGMS has announced a new institutional training grant program for predoctoral research training at the behavioral sciences-biomedical sciences interface. The goal of the program is to develop basic behavioral scientists with rigorous, broad-based training in biology and biomedical science. These programs must provide an interdisciplinary research training experience and curriculum for predoctoral trainees that integrate behavioral and biomedical perspectives, approaches, and methodologies. See [PAR-06-503](#) or contact NIGMS program director Alison Cole at [colea@nigms.nih.gov](mailto:colea@nigms.nih.gov) or 301-594-3827.

### ***NIGMS Program Project Grants (P01)***

NIGMS has reissued its program announcement for program project awards. See [PA-07-030](#).

### ***Reissuing of Announcements***

NIGMS has reissued a number of funding opportunity announcements for electronic submission. In case the terms or application formats are different, please make sure you are working from the most current version of the announcement by checking the NIGMS [Funding Opportunities Directory](#). If you are reading an older announcement, check carefully at the top to see if the announcement has been reissued.



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## NIGMS-Sponsored Events

### *Knowledge Environments for Biomedical Research Conference*

This meeting, convening December 11 and 12 in Bethesda, MD, will focus on areas critical for sustaining knowledge environments in biomedical research. The meeting is co-sponsored by the trans-NIH Biomedical Information Science and Technology Initiative Consortium and the NIGMS Center for Bioinformatics and Computational Biology. For details, visit the conference [Web site](#) or contact NIGMS program director Peter Lyster at 301-451-6446 or [lysterpe@nigms.nih.gov](mailto:lysterpe@nigms.nih.gov).

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## Research Administration Notes

### *R01 Electronic Submission*

NIH plans to transition to the electronic submission of R01 grant applications for the February 5, 2007, receipt date. We encourage you to start the registration process **at least 4 weeks before** you plan to submit an application. In addition, NIH is on track to offer the multiple principal investigator option for applications submitted electronically beginning in February 2007. For more on the multiple investigator policy, see [NOT-OD-07-017](#).

### *New Standing Receipt Dates*

NIH has announced new receipt dates for many grant mechanisms beginning in January 2007. The due dates for new R01s, for example, are now February 5, June 5, and October 5. For a complete list, see [NOT-OD-07-001](#).

### *Possible R01 Page Limit Reduction*

NIH is considering reducing the page limit for the research plan section of the research project grant (R01) application to focus more on key ideas and scientific significance and less on experimental details. An NIH committee is gathering input from the external community (both applicants and reviewers) and exploring possible options. You are invited to respond to a [Request for Information \(RFI\)](#) via a [Web form](#) or [e-mail](#). The deadline for responses is January 5, 2007.

## ***Data and Resource Sharing Requirement Reminders***

- Applications submitted after October 2003 and requesting more than \$500,000 in annual direct costs are required to include a data sharing plan (or an explanation of why sharing is not possible). See [NOT-OD-03-032](#).
- NIH urges all grant recipients to develop patent, license, and material sharing policies to continue scientific advancement. Read the [policies and guidelines](#).
- All investigators submitting an NIH application are expected to include a specific plan for sharing and distributing unique model organism research resources generated with NIH funding, or state reasons for why such sharing is not possible. The submission of a model organism sharing plan is NOT subject to a cost threshold. See [NOT-OD-04-042](#).

## ***NIH Public Access Policy***

The NIH [Policy on Enhancing Public Access to Archived Publications Resulting from NIH-Funded Research](#) took effect on May 2, 2005. It requests all investigators to submit their final manuscripts of peer-reviewed, NIH-funded research to the NIH National Library of Medicine's [PubMed Central](#). For more information, visit the [NIH Public Access](#) Web site or contact NIGMS deputy director for extramural activities Paul Sheehy at 301-594-4499 or [sheehyp@nigms.nih.gov](mailto:sheehyp@nigms.nih.gov).

## ***Revised Appendix Policy***

NIH has published a new grant appendix materials policy ([NOT-OD-07-018](#)) that differs significantly from the current one. For more information, contact NIGMS deputy director for extramural activities Paul Sheehy at 301-594-4499 or [sheehyp@nigms.nih.gov](mailto:sheehyp@nigms.nih.gov) or NIH GrantsInfo at 301-435-0715 or [grantsinfo@nih.gov](mailto:grantsinfo@nih.gov).

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## **Resources**

### ***Human Genetic Cell Repository***

The NIGMS Human Genetic Cell Repository at the Coriell Institute for Medical Research acquires blood and tissue samples from a wide variety of individuals and expands these samples into well-characterized cell lines. The cell lines and DNA derived from them are available to investigators for a modest fee. Visit the [cell repository online](#) for ordering information and details about the available

samples, including panels of samples with molecularly characterized mutations. NIGMS division director Judith Greenberg at 301-594-0943 or [greenbej@nigms.nih.gov](mailto:greenbej@nigms.nih.gov) can answer additional questions.

### ***PSI Materials Repository***

The NIGMS [Protein Structure Initiative \(PSI\)](#) has established a materials repository at the [Harvard Institute of Proteomics](#) that will house expression and DNA clones generated by the PSI research centers. Researchers will be able to order clones for a minimal fee that covers processing, handling, and shipping. For more information, contact NIGMS program director Jean Chin at 301-594-0828 or [chinj@nigms.nih.gov](mailto:chinj@nigms.nih.gov).

### ***NIGMS Fact Sheets***

Three new NIGMS fact sheets track research progress over the past 30 years and highlight future directions in [cell biology](#), [genetics](#), and [predictive toxicology](#). These fact sheets join others on [NIGMS Nobelists](#) and [using computers to model infectious disease spread](#). Many more fact sheets are on the [NIH Research Results for the Public](#) Web page, including ones from NIGMS on [pharmacogenetics](#) and [burns and traumatic injury](#). Send fact sheet questions or comments to NIGMS science writer Alisa Zapp Machalek at 301-496-7301 or [alisa.machalek@nih.gov](mailto:alisa.machalek@nih.gov).

### ***MORE Working Group Update***

The National Advisory General Medical Sciences (NAGMS) Council working group on NIGMS minority programs issued a [report](#) last summer. In line with the group's recommendations, the NIGMS Division of Minority Opportunities in Research (MORE) has modified or refocused several of its programs to maximize their effectiveness and will continue to analyze and adjust others as needed. For details, read the [Minority Programs Update](#) or contact NIGMS division director Clifton Poodry at 301-594-3900 or [poodryc@nigms.nih.gov](mailto:poodryc@nigms.nih.gov).

### ***NIH Director Discusses Post-Doubling Era***

At the September meeting of the NAGMS Council, NIH Director Dr. Elias Zerhouni gave a [presentation on NIH in the post-doubling era](#) that described funding trends and addressed common misconceptions about the NIH budget. To view additional slide sets and download them for use in your own presentations, visit the [NIH Research Results for the Public](#) Web page.

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