

NIGMS Feedback Loop

A catalyst for interaction with the scientific community



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The *NIGMS Feedback Loop* e-mail newsletter alerts researchers to NIGMS [funding opportunities](#), trends and plans. NIGMS grantees and recent applicants are automatically subscribed; we encourage other interested individuals to subscribe

themselves. To subscribe, change your subscription options or unsubscribe, visit the *NIGMS Feedback Loop* [subscription page](#) on the NIH LISTSERV Web site.

Director's Message

What an extraordinary time this is for the scientific community and NIH! The enactment of the American Recovery and Reinvestment Act of 2009 (hereafter the Recovery Act) on February 17 has provided significant additional resources for fiscal years 2009 and 2010. We are very pleased and grateful that the Congress and President Obama have shown such confidence in biomedical and behavioral research and other types of science as powerful drivers of economic development, both in the short run, through direct and indirect creation or preservation of jobs, and in the longer run, through scientific advances, technology development and health care improvements.

I have been delighted (and a bit overwhelmed) by your responses to my [e-mails](#) updating you on the Recovery Act and soliciting your thoughts about the various ways these funds might be invested.

In addition to the Recovery Act, President Obama recently signed an omnibus appropriations bill to fund NIH and many other components of the federal government for the remainder of this fiscal year. This bill includes an increase of 3.2% for NIH overall and an increase of 2.7% for NIGMS (relative to the fiscal year 2008 appropriation, including the [supplement](#) that passed on June 30, 2008).

The passage of this bill has several important consequences for NIGMS. First, since we now know the NIGMS budget level for the current fiscal year, we are able to make many more funding decisions about new and competing grant proposals. Second, we are able to restore the funds associated with cuts to grants funded earlier this fiscal year at [90% of their previously committed levels](#).

In recognition of the tremendous number of exciting scientific opportunities, the needs of the scientific community and the ability to stimulate the economy through grant funding, we anticipate extremely strong competition for awards made with Recovery Act and regular appropriation funds. Each investigator should therefore carefully consider how best to use time and other resources in responding to various funding opportunities. A challenge is that we must allocate the great majority of the funds by the end of this fiscal year (September 30, 2009)—and the fiscal year is already almost half over. Funding opportunities that require the preparation and review of new applications will place considerable demands on NIH staff and systems as well as on the scientific community. Finally, Recovery Act funds must be allocated and utilized with a very high level of accountability and transparency. NIH staff and the scientific community will have to work together to achieve these objectives.

As we award Recovery Act funds, it is essential that we document not only how this money is being spent, but also what it has helped achieve. Please share your stories of how you have used Recovery Act resources to create or retain jobs, obtain necessary equipment, stimulate economic growth in some other way and make important research advances. Send your stories to me or to the NIGMS Office of Communications and Public Liaison at info@nigms.nih.gov. Also be sure to share such stories with your institution's public information officer, who can communicate the impact of the Recovery Act at the institutional, community and other levels.

Recovery Act Funding Approaches

As you know from my earlier messages, the Recovery Act includes a total of \$10.4 billion for NIH to be distributed and largely spent by the end of fiscal year 2010. These funds are to be allocated in the following manner:

- \$1 billion for [extramural construction, repairs and renovation](#) (administered by the National Center for Research Resources, NCRR)
- \$0.5 billion for NIH buildings and facilities
- \$0.3 billion for [shared instrumentation](#) and [capital equipment](#) (administered by NCRR)
- \$0.4 billion to support comparative effectiveness research
- \$0.8 billion to the Office of the NIH Director for programs including the [NIH Challenge Grants in Health and Science Research](#)
- \$7.4 billion to the NIH institutes and centers (ICs) and the NIH Common Fund, to be divided in proportion to each funding component's percentage of the overall regular NIH budget. For NIGMS, this amounts to \$507 million over two years, in addition to our regular appropriations. The ICs have considerable flexibility to distribute the Recovery Act funds within the constraints posed by the goals of the Act.

NIH will use the Recovery Act funds in three major ways.

First, we will consider for funding applications that are already in the system and have been or will soon be peer-reviewed but could not be supported without the additional resources provided by the Recovery Act. The great majority of these grants will be two-year R01s awarded by the end of this fiscal year. Based on our regular appropriation, we anticipate that the [NIGMS funding curve for fiscal year 2009](#) will be similar to that for fiscal year 2008. For Recovery Act funding, NIGMS will consider applications from fiscal years 2008 and 2009 on a case-by-case basis, selecting projects on their ability to provide the short-term economic stimulus that is the primary goal of the Recovery Act and their potential to make significant progress over two years, in addition to our [normal considerations](#).

Because the Recovery Act funds are distinct from the base budget of the NIH, we must be very mindful of the impact that these two-year awards will have on the pool of investigators and projects that will compete for funding in fiscal year 2011. By that time, the Recovery Act funds must have been distributed and largely spent. While we have not determined how much of the NIGMS Recovery Act funds will be used to support such two-year grants, the following calculation provides a sense of scale. If we were to use all of the Recovery Act funds for this purpose and we assume an average total cost per grant of \$340,000, this corresponds to 746 grants. For comparison, we expect to fund approximately 900 new and competing grants in fiscal year 2009 through our regular appropriation.

Second, we are developing a range of supplement programs that will accelerate the tempo of ongoing research projects by providing funds for additional personnel or for specific items of equipment. It is important to note that these supplements will also be determined on a case-by-case basis and will not be made in a formulaic fashion. Since these supplements will be to ongoing projects, it should be possible for the funds to have a relatively immediate economic impact. Read the announcements for more details about the [competitive revisions](#) (formerly known as competing supplements) and [administrative supplements](#). Also be sure to read the [NIGMS approaches and guidance](#) document.

Third, NIH is developing a number of other new competing funding mechanisms for Recovery Act support. We already announced the first of these, the [NIH Challenge Grants for Health and Science Research](#). Challenge Grants provide up to \$500,000 in total costs (direct costs plus facilities and administrative costs) for two years. Applications must identify one of a wide range of [topics](#) [PDF, 1.68MB] considered by the ICs to have the potential to make significant progress over a two-year period and to be in areas with more scientific opportunities than are represented in NIH grant portfolios. At this point, NIH has committed \$200 million for the Challenge Grant program, although the Office of the Director and individual ICs may add funds to it depending on the number and quality of applications received.

Although there is no amount set aside for small business grants, [Small Business Innovation Research and Small Business Technology Transfer Research](#) grants are eligible for Recovery Act funds.

A major challenge for NIH is to avoid great imbalances between the number of applications submitted and the number of awards that it can support with the available funds for Recovery Act programs. In addition, since funds must be committed by the end of this fiscal year to make two-year awards, the periods between the release of the funding announcements (which are being posted at <http://grants.nih.gov/recovery> and <http://www.nigms.nih.gov/recovery>) and the deadlines for applying may be relatively short. While these programs will require considerable effort from the scientific

community in terms of both preparing and reviewing grant applications, the opportunities will allow additional investigators and projects to contribute to Recovery Act-supported research.

Enhancing Peer Review

The Enhancing Peer Review implementation continues to move forward rapidly, and many of the [changes](#) will be applied to Recovery Act programs. These changes include 12-page applications for the [Challenge Grants](#) and independent scoring of individual criteria. A [video](#) on the [Enhancing Peer Review Web site](#) summarizes the current status of peer review implementation. I recommend spending the 13 minutes to watch this video to get up to speed about the activities under way and occasionally checking the Web site for updates.

Research Category and Disease Coding (RCDC)

Historically, many institutes and centers (although not NIGMS) have classified or “coded” their grants into categories in an effort to capture how much of their budget is invested in a particular area. As part of the [NIH Reform Act of 2006](#) [PDF, 93.3KB], Congress mandated that NIH “establish an electronic system to uniformly code research grants and activities” of all NIH programs. The new system, the RCDC, was released on January 15, 2009. It currently reports results in 215 categories that historically have been determined by Congress and the Office of Management and Budget.

The RCDC system is a work in progress, but it already offers tremendous conceptual advantages over the previous system. First, it is automated and, hence, reproducible. Second, it uses the same definitions across all the institutes and centers of NIH. NIH program staff worked hard sorting through lists of grants to develop “fingerprints” for each category that best captured the appropriate grants without too many false positives. Third, the RCDC system provides an easy link to individual grants, including the abstract and the size of the award. Note that when a grant is listed in a given category, the full amount is included, and a single grant can be included in multiple categories. One outcome of the RCDC system is that NIGMS-funded research is listed in many categories, underscoring the relevance of basic research to many disease areas.

A new tool, [RePORT](#), is publicly available to query the NIH grant database. All of the functionality associated with the previous tool, [CRISP](#) (Computer Retrieval of Information on Scientific Projects), is maintained.

NIH Diversity Supplement Program

I want to remind you of a funding opportunity that focuses on one of NIGMS’ key goals: enhancing the biomedical workforce through diversity. This NIH-wide program offers

administrative supplements to improve the diversity of the research workforce by supporting and recruiting students, postdoctoral fellows and eligible investigators from groups that have been shown to be underrepresented in biomedical research. The program's goal is to enable talented candidates to enhance their knowledge, skills and experience so that they are prepared to advance to the next stage toward an independent research career. The program supports individuals at various career levels. Eligible candidates include individuals from underrepresented racial and ethnic groups, individuals with disabilities and individuals from certain disadvantaged backgrounds. Detailed eligibility criteria are described in [NIH Research Supplements to Promote Diversity in Health-Related Research](#)

While this program has been used extensively to enable graduate students and postdoctoral fellows to advance their careers, it can also be used to provide one to two years of support to postbaccalaureate students who may be uncertain about entering a competitive graduate program or who need more research experience before pursuing an advanced degree. If you are interested in this program or would like help in finding candidates, contact John Whitmarsh at 301-451-6446 or whitmarj@nigms.nih.gov.

PSI: Biology

We have been engaged in extensive planning for a potential new initiative in the area of structural genomics. The formal process began with an [assessment of the Protein Structure Initiative \(PSI\)](#) in 2007. After [discussion at our Advisory Council meeting](#), we held a meeting with broad participation from the biological research community, including structural biologists and others who might have an interest in protein structures in the context of their research. Both the assessment and the [report from this meeting](#) highlighted the success of the PSI centers in developing pipelines capable of producing well-refined protein structures in a high-throughput fashion, and also the need to better engage the biological research community in target selection and post-structure determination analysis. Based on these analyses, we recently presented a plan for a [new structural genomics initiative](#), PSI: Biology. A key feature of this plan is the [deep integration](#) of small groups of researchers from across the biological sciences into a highly interactive research network.

I urge investigators whose research could potentially benefit from access to high-throughput structural determination centers to participate in PSI: Biology through the funding opportunities that will appear soon. The ultimate success of PSI: Biology will depend on the quality and creativity of the groups that engage in this effort.

New NIGMS Logo

We recently developed a [new logo](#) for NIGMS.



For an organization with as broad and diverse a mission as ours, the development of an appropriate logo was an exciting challenge. We sought to capture some key features of biology, such as DNA, RNA and cells, and the fact that research is fundamentally a human endeavor.

NIGMS Feedback Loop Blog

I am delighted to announce that the *NIGMS Feedback Loop* will be moving into a new format next month, namely, the *NIGMS Feedback Loop* blog! The new approach offers to two key advantages. First, staff from across the Institute will be able to alert you right away to funding opportunities and other news. Second, readers will be able to post comments, creating a more interactive environment. Once the blog launches, I will send a note describing how to access and/or automatically receive the posts.

Side Reactions: Success Rate Versus Percentile Scores

Perhaps no topic has elicited more discussion and confusion in my five years at NIGMS than the relationship between success rate and percentile scores. From an empirical perspective, we have tried to address this confusion by presenting [funding curves](#) each year with the distribution of R01 grants funded as a function of percentile score in combination with the success rate. As shown in Figure 1, the R01 success rate in fiscal year 2007 was 33% while the midpoint of the funding curve was approximately at the 25th percentile. Let us probe this example in more detail.

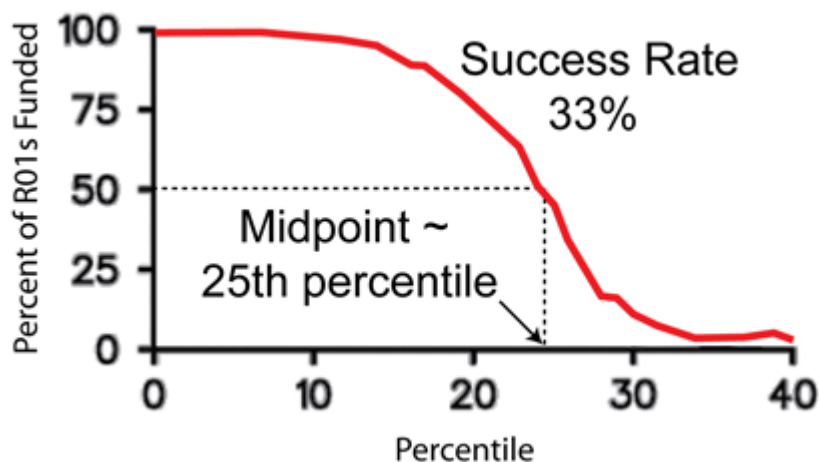


Figure 1. Fiscal year 2007 funding curve and success rate for NIGMS R01 applications.

The success rate is defined as the percentage of reviewed grant applications that receive funding. They are computed on a fiscal year basis and include applications that are peer reviewed (both scored and unscored) by an initial review group. The success

rate is determined by dividing the number of applications funded by the total number of applications reviewed. Applications submitted in more than one version (initial submission, resubmission or revision application) in the same fiscal year are counted only once. For fiscal year 2007, NIGMS awarded 999 R01s. The total number of applications reviewed was 3,628. Of these, 594 were reviewed in more than one version over this year. Thus, the success rate is $999/(3,628-594) = 33\%$.

Percentile scores attempt to capture the rank of a given application in the overall pool of applications reviewed by NIH. Since application scores must be “percentiled” across different study sections and over time, a given score is compared with those of the set of applications reviewed by the same study section in its current and two previous meetings. Because scores tend to escalate toward better values over time, particularly in times of constrained budgets, the use of this comparison group affects the relationship between the percentile score and the actual rank within the population, as shown in Figure 2.

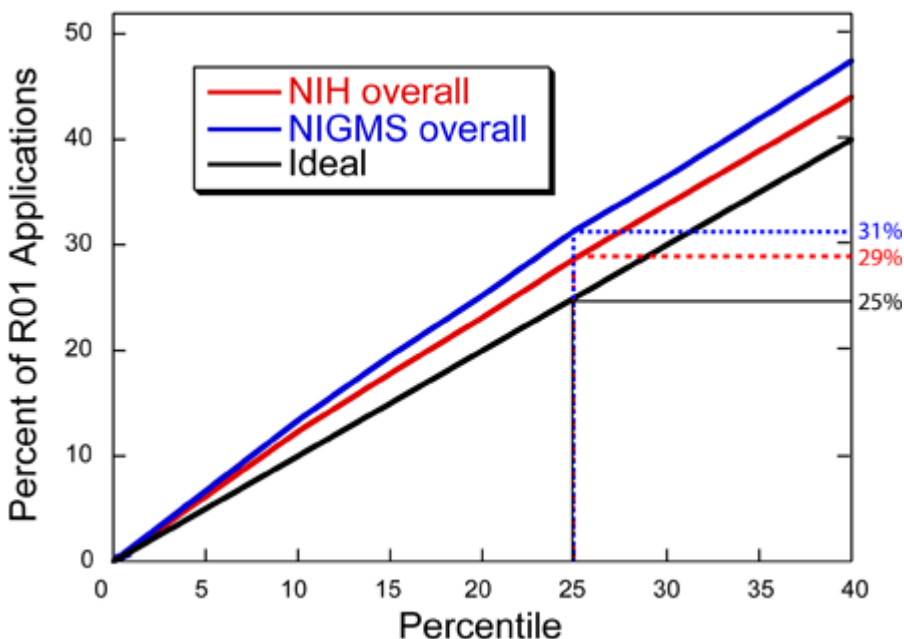


Figure 2. A plot of the distribution of percentile scores for R01 applications for NIH overall and for NIGMS for fiscal year 2007. The ideal line has a slope of 1 with, for example, 25% of applications better than the 25th percentile.

For NIH overall, and even more so for NIGMS, the distribution is skewed above the ideal line of slope 1. Thus, approximately 29% of the applications for NIH and 31% of the applications for NIGMS scored above the 25th percentile.

The percentile distribution also varies between different subpopulations of applications. The most important difference involves new (type 1) and renewal (type 2) applications.

Renewal applications tend to receive better scores than new applications. The impact of these effects on the distribution of percentile scores is shown in Figure 3.

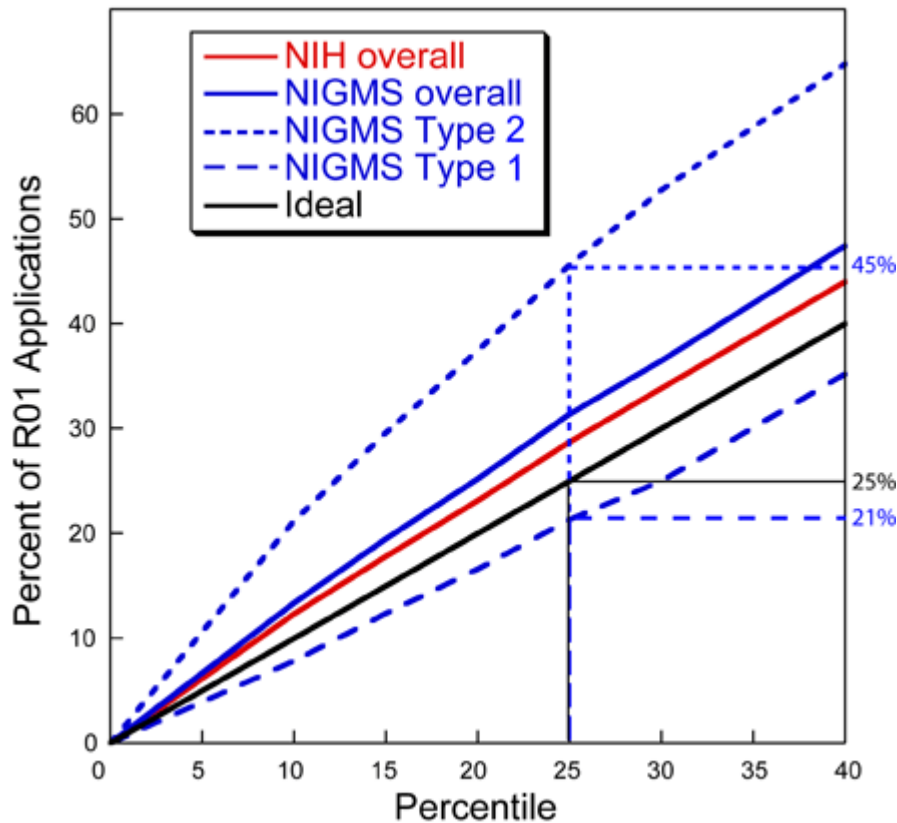


Figure 3. A plot of the distribution of percentile scores for NIGMS type 1 (new) and type 2 (renewal) R01 applications for fiscal year 2007. The corresponding overall distributions from Figure 2 are also shown for comparison.

Approximately 45% of NIGMS type 2 applications and 21% of type 1 applications scored above the 25th percentile. 41% of the applications reviewed for NIGMS were type 2 applications, while 59% were type 1 applications. These two subpopulations combine to yield an overall group of $(.41 \times 45\% + .59 \times 21\%) = 31\%$ of the applications with percentile scores better than the 25th percentile.

Based on the “NIGMS overall” curve, if NIGMS funded all applications that scored better than the 25th percentile (the midpoint on our funding curve), we would have funded 31% of our applications. This almost accounts for the quoted success rate of 33%, with the remaining difference due to the correction for applications reviewed in two versions in this year.

As always, I welcome your comments and look forward to our interactions through the upcoming *Feedback Loop* blog.

Best,
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Director
National Institute of General Medical Sciences
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Advisory Council Concept Clearances

Protein Structure Initiative—PSI:Biography

The council approved plans for a new direction of the PSI. The next phase will foster the use of PSI-developed high-throughput structure determination pipelines and other technologies to explore a broad range of important biomedical research questions. The program will include eight components that support research partnerships between groups of biologists and high-throughput structure determination centers. We expect to publish the first RFAs in late April. For details, read the [concept clearance](#), see the [NIGMS news release](#) or contact Acting PSI Director Peter Preusch at 301-594-0828 or preuschp@nigms.nih.gov.

Human Genetic Cell Repository Contract Re-Competition

The [Human Genetic Cell Repository](#) contains high-quality, well-characterized cell lines and DNA samples derived from them that are widely used for genetic studies. Since its inception in 1972, the Repository has been supported by a series of contracts. The council approved plans to re-compete the contract for five more years. Address questions or comments to Repository Project Officer and NIGMS Division Director Judith Greenberg at 301-594-0943 or greenbej@nigms.nih.gov.

Modeling Workforce Diversity

Two NIGMS working groups met to discuss the feasibility and merits of creating models of the scientific workforce that would inform the development of programs and policies. Based on those reports, NIGMS Director Jeremy Berg requested and received council approval to issue a small funding solicitation for U01s in this area. He can respond to your comments or questions at 301-594-2172 or bergj@nigms.nih.gov.

Funding Opportunities

Pharmacogenomics Research Network (PGRN) (U01,U19)

We invite research groups to create network resources that serve the entire PGRN (see [RFA-GM-10-001](#)). We will award U01s to research groups and U19s to groups with network resource component add-ons. For more information, contact Program Directors

Rochelle Long (301-593-3827, longr@nigms.nih.gov) or Richard Anderson (301-594-0943, andersor@nigms.nih.gov).

Research Centers in Trauma, Burn and Peri-Operative Injury (P50)

We welcome applications to the re-announced Research Centers in Trauma, Burn and Peri-operative Injury program (see [PAR-09-048](#)). Contact Program Director Scott Somers (301-594-3827, somerss@nigms.nih.gov) with your questions.

New Methodologies for Natural Products Chemistry (R01)

As part of the NIH Molecular Libraries Roadmap for Medical Research program, this initiative (see [RFA-RM-09-005](#)) will support R01s to develop new methodologies for natural products chemistry. NIH plans to commit up to \$1.4 million per year in total costs to support approximately three to four grants. Send your questions to NIGMS Program Director John Schwab at 301-594-3827 or schwabj@nigms.nih.gov.

Pharm.D./Ph.D. Fellowships (F31)

Pharmacy students enrolled in dual-degree Pharm.D./Ph.D. programs may apply for Ruth L. Kirschstein National Research Service Awards for Individual Predoctoral Fellowships to support intensive research experiences. Applicants must pursue clinical pharmacology projects within the NIGMS research mission. For more information, see [PA-09-029](#) or contact Program Director Richard Okita at 301-594-3827 or okitar@nigms.nih.gov.

Administrative Supplements for Collaborative Science

The next two deadlines for applying for supplements to support new collaborations that further the aims of NIGMS grants (R01, R37 or SC1) are June 15, 2009, and December 15, 2009. Before submitting an application, investigators should contact their program director to discuss the proposed collaborative project. See the [complete announcement](#) for details.

NIGMS-Sponsored Events

Statistics and Modeling in Infectious Diseases Institute

The very first Summer Institute in Statistics and Modeling Infectious Diseases will be offered at the University of Washington in Seattle campus from June 15 to July 1, 2009. The program includes a series of workshops that introduce infectious disease researchers to modern methods of statistical analysis and mathematical modeling and that also introduce statisticians and mathematical modelers to the statistical and

dynamic problems posed by modern infectious disease data. Visit the [Institute's Web site](#) for registration details, pre-requisites and workshop descriptions.

Bridges Technical Assistance Workshops

We will hold all-day technical assistance workshops on the NIH Bethesda campus for the [Bridges to the Doctorate program on Monday, April 27](#), and for the [Bridges to the Baccalaureate program on Friday, June 19](#). All applicants are welcome to attend, but we do require teams of at least two key individuals from each institution. These could include the prospective program director and an official at the level of dean or higher. In addition, we welcome one or two potential program coordinators to attend. Participants pay their own travel expenses and cannot use funds from active NIH grants, including Bridges, to defray costs.

Research Administration Notes

Electronic Submission: Fs and Ks

All applications in the K series (other than K12s) must now be submitted through Grants.gov using the SF424 forms. New information is required, and new business processes apply (see [NOT-OD-09-029](#)).

The transition to electronic submission of applications for the F series of awards has been postponed (see [NOT-OD-09-044](#)), so please continue to submit these applications using the paper PHS416-1 application forms.

Part-Time Appointments for K Awardees

K awardees may now request to temporarily reduce their appointment to less than full-time, but not less than three-quarter time. See [NOT-OD-09-036](#) for specific conditions that apply for different types of K awards. Policies on level of effort are unchanged.

Register for Reviewer Reimbursement

NIH now requires reviewers to register in the new reimbursement system to receive payment and honoraria related to their service in NIH peer review meetings. [NOT-OD-09-033](#) includes details and step-by-step registration instructions.

Resources

Recovery Act Updates

For Recovery Act information and funding opportunities specific to NIGMS, visit our [Recovery Act Web site](#). From here, you can easily access all [NIH Recovery Act funding opportunities](#).

Don't Miss a Beat

Beat-to-beat changes in heart rate contain important information about health and aging status as well as a wide range of pathologic states, such as heart failure and neurological diseases. If you use heart rate variability (HRV) analysis techniques, you might check out [PhysioNet](#), which offers the first freely available and comprehensive [toolkit](#) of open source HRV algorithms.

Evolution Alert!

NIH is celebrating Charles Darwin's 200th birthday with a host of events during the year. For the complete lineup, see the [Evolution Revolution Web site](#). Activities sponsored by NIGMS include the annual [Evolution and Medicine lecture series](#), which you can watch via [videocast](#); and a special issue of our magazine [Findings](#).

FREE Glycan-Related Resources and Services

The NIGMS-supported Consortium for Functional Glycomics offers a wealth of resources and services free of charge. These include [glycan array screening](#); [synthetic carbohydrates, anti-glycan antibodies and glycan binding proteins](#); [purified and characterized polysaccharides](#); and [antibodies](#). You don't need to be a member of the consortium to [make an online request](#).

The NIGMS Feedback Loop is produced by the National Institute of General Medical Sciences, 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. For more information about the Institute, visit <http://www.nigms.nih.gov>. The material in this newsletter is not copyrighted and we encourage its use or reprinting.

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