

New Investigator Grants Expand Research Opportunities

By Cynthia Weber

Recently, the U.S. National Institutes of Health (NIH) expanded its efforts to promote biomedical research among young researchers through changes to the R01 grant process. These newest incentives specifically target early stage investigators (ESIs), that is, those investigators who are within ten years of their terminal research degree or medical residency completion.

According to Sally Rockey, NIH's deputy director for extramural research, "By shifting new investigator incentives to those at earlier career stages, we hope to shorten the prolonged periods of training" that are due, in

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part, to limited access to independent research funds. As the biomedical field has rapidly expanded and education has become more specialized, it is no longer unusual for students to spend several years completing their Ph.D. degree or for recent graduates to take extended postdoctoral or residency positions. Consequently, the average age of entry into independent research and faculty positions has reflected this trend. Although previous efforts to target new researchers have had some success, the average age at which the investigators first receive traditional NIH research (R01) funding increased by five to six years between 1980 and 2001. After renewed commitments, new investigators comprised about 25% of all competing R01 recipients between 1998 and 2003, an increase from previous years. However, the percentage of new investigators remained variable, reaching a low in 2006 and rising again by 2008 [1].

But Rockey hopes to change the overall trend through the NIH's pledge to award new investigator R01 grants at equivalent rates to those of established investigators submitting new R01 applications. Beginning in fiscal year (FY) 2009, and continuing through 2010, the data have shown that these renewed efforts have been successful in meeting the initial goals. According to Rockey, "More than 30 percent of all investigators receiving competing R01-equivalent awards were

new investigators, replicating entry rates for new investigators that have not been seen since 1987. It also appears that the average age of new investigators with a Ph.D. has leveled off at slightly less than 42 years."

Using this new approach, the applications from ESIs are given special consideration during the peer review process and at the time funding is awarded. The NIH targets now specify that half the new investigator applications under review need to be from those in the early stage of their career (ESIs). Additionally, peer reviewers are asked to primarily focus on the research proposed by the candidate, rather than on the candidate's previous research record, and to expect less preliminary data on the proposal. The hope is to increase not only the likelihood of ESI acceptance rates but also the incentives are meant to encourage more innovative research overall. "The peer review process tends to protect existing paradigms," commented Dr. Wally Schaffer, senior scientific advisor for extramural research at NIH. "That is one of the reasons we are very interested in bringing in new investigators to make sure there is a flow of new ideas."

In general, these efforts are also intended to address the demand associated with attrition from the pool of NIH-supported principal investigators and to help initiate independent research careers. Leaders in the NIH acknowledge that, in part, the organization is dependent on a capable population of workers at university research institutions for innovative and valuable research. Yet as universities have experienced budget changes in the recent years, the hiring of new faculty and the number of faculty doing independent research have grown more slowly. In addition, as current researchers near retirement age, there is a continual need for more people entering these positions to keep the system stable. The current attrition rates are about 10% a year. Consequently, supporting younger researchers helps to fill this need, while at the same time, this focus nurtures the latest technology and knowledge. "The scientific workforce is special, it's about ideas and discovery," Schaffer notes. Therefore, it's vitally "important to replenish the population of researchers, to bring new people on board [in order] to keep the level of discovery high."

Although the NIH has supported efforts to bridge generational research gaps through programs focused on new

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Frequently Asked Questions

Who qualifies as a new investigator?

New investigators are NIH research grant applicants who have not yet been awarded a substantial, competing NIH research grant. Some small grants do not disqualify you for this status; for a complete list, visit http://grants.nih.gov/grants/new_investigators/resources.htm.

Who qualifies as an ESI?

An ESI is a new investigator who has completed his or her terminal research degree or medical residency (the latter date is used) within the past ten years and has not yet been awarded a substantial, competing NIH research grant.

How does the NIH system recognize new investigators and ESIs?

A new investigator is identified in the NIH Electronic Research

Administration (eRA) Commons by searching for the evidence of previous substantial research grant awards. ESIs are identified in the eRA Commons based on the information entered about the degree conferral date or the end of residency date.

Which grant opportunities are available to ESIs?

For the most part, all grant opportunities are open to new investigators and ESIs. However, the ESI status will be considered only on applications for traditional research grants (R01s) and the NIH Directors New Innovator Awards (DP2s), and only ESIs may apply for DP2s.

For more frequently asked questions, see http://grants.nih.gov/grants/new_investigators/investigator_policies_faqs.htm.

investigators since 1977, earlier programs suffered from insufficient funding flexibility and limited timetables needed for the awardees to establish long-term careers, which meant that there was a high dropout rate among new researchers (that is, many of these grant recipients did not apply for or receive additional funding). Established in 1988, the First Award remedied some of these problems, but by the late 1990s it became clear that this award was insufficient for launching research careers. The choice to focus renewed efforts on R01 applications has evolved over the past decade as NIH systems have become more adept at sorting and identifying new investigators. The initial procedures such as checking off a question box on award applications to identify new investigators and ESIs resulted in a number of inaccurate identifications and

have been abandoned for a more sophisticated electronic sorting system that provides more accurate data. This assists the NIH in clustering new investigator applications at the review stage, allowing reviewers to better assess the quality of those applications. As noted, the overall goal of this initiative is to match the number of new investigators funded through R01 grants with the number of experienced researchers who receive these awards.

Regarding the impact of this current approach, Schaffer notes that it has been “much more successful than other programs we have tried in the past” in recruiting and supporting ESIs, as the past two years have shown a marked increase in new investigator awardees (Figure 1). The continued hope is that this initiative, combined with others such as the Pathway to Independence Award (K99/R00), which provides support for the transition between postdoctoral training and a faculty position; and the New Innovator Award, which targets promising innovative research among ESIs, will effectively reduce the postdoctoral training period and encourage universities to hire up-and-coming researchers at an earlier stage. As Rockey states, “The NIH remains committed to identifying and attracting new biomedical researchers and

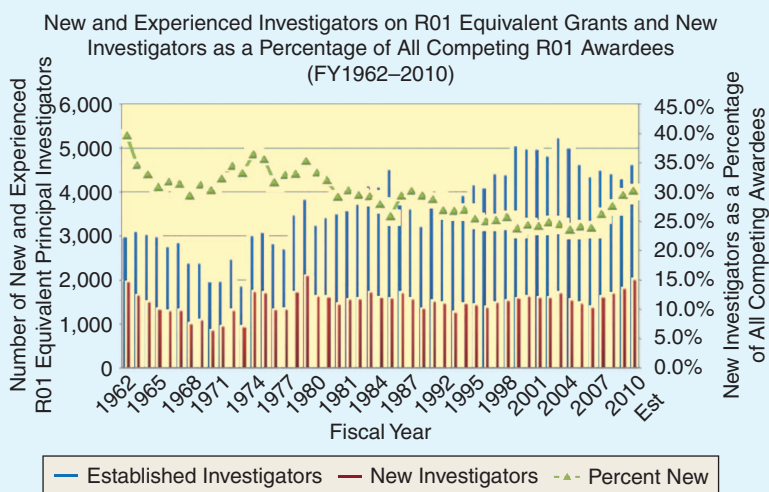


FIGURE 1 Final results for the number and percentage of new investigators on competing R01 equivalent awards, FY 1962–2010. (Chart courtesy of Dr. Wally Schaffer.)

will continue to explore novel ways to encourage early transition to independence. However, the NIH cannot do this alone. Institutions—our partners in this venture—must continue to look for ways to reduce the duration of graduate and postdoctoral training and to find new ways to enable new investigators to compete successfully for extramural funding.” Working together, we can ensure the future of discovery and innovation in the biomedical field.

For further information on ESI incentives and policies, refer to the NIH grants Web site at http://grants.nih.gov/grants/new_investigators (see “Frequently Asked Questions”).

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Reference

- [1] Office of Extramural Research, National Institutes of Health. (2011). Statement of commitment to new and early stage investigators. [Online]. Available: http://grants.nih.gov/grants/new_investigators/index.htm#earlystage

