DAMON RUNYON
CANCER RESEARCH
FOUNDATION

One Exchange Plaza
55 Broadway, Suite 302
New York, NY 10006
212.455.0500
www.damonrunyon.org

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Lida Beninson, Ph.D.
Program Officer
Board on Higher Education and Workforce
Policy and Global Affairs

Dear Lida,

We appreciated the opportunity to speak with you last week about the Next Generation Researchers Initiative. The Damon Runyon Cancer Research Foundation focuses exclusively on early career scientists, supporting postdoctoral fellows and junior faculty, and has been very concerned about the challenges they face in the 21st Century. Since you offered, the following are what we see as key issues in biomedical research that need to be addressed.

The Narrative

What makes academic research such a unique and amazing career is that individuals have the opportunity and freedom to explore their new ideas and pursue the answers to questions that will have an impact on humanity. The R01 system is the funding mechanism that enables this. The plummeting of success rates for R01s and significant increase in the age at which scientists receive their first R01 have done tremendous damage to the perception among young people about the practicality and desirability of academic careers in biomedical research. For almost two decades, they have heard from more senior scientists about the dire funding environment, and many talented individuals are opting out. The NIH has tried very hard to address this issue, including creating new award programs for early career scientists and helping first-time applicants for grants. But these laudable efforts focused just on early career scientists will not solve this problem. The NIH must change the narrative. To do so, it should:

- Reaffirm its commitment to the R01 mechanism as the primary funding mechanism for academic research.
- Determine the amount of funding necessary for this program to reach an appropriate success rate and reduce the age of first R01, and commit to funding that amount. (This must take into account the fact that scientists are retiring later, thanks to past research that has increased lifespan and productive work years in the US.)
- Commit to increasing this amount annually, at a minimum to keep pace with inflation.

The NIH has another narrative problem in connection with R01s: that they do not support innovative work, but instead fund safe, incremental research. Rather than addressing this issue head on, it has established separate award programs focused on

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"pioneers" and "innovators." It is great to reward exceptional scientists with larger, longer term grants, but all NIH awards should be encouraging innovation, not the less than 1% of its budget allocated to these separate awards. Hopefully, a more robust commitment to the R01 program will encourage and empower reviewers to take risks on new ideas.

The Career Path

The postdoctoral fellowship model worked well when there were fewer fellows and the length of a standard fellowship was 2-3 years. It no longer works. The system now generates too many PhDs and funnels them into fellowships, where they are joined by thousands of foreign scientists. It has created a workforce that is underpaid, hyper-competitive and increasingly frustrated and unhappy. To change this, the NIH should:

- Limit the number of PhDs awarded in biomedical research and use the money saved to improve the postdoctoral fellowship experience.
- Since postdoctoral fellows have already spent 5-7 years in graduate school and are typically in their late 20's and early to mid-30's, they should be paid more and be required to receive health and retirement benefits from their institutions, whether they are funded by individual or institutional training grants or research grants. Since this will increase the cost of each fellow, it will cause senior scientists to reduce their reliance on fellows and possibly shift to using staff scientists in their lab, something that has been recommended for many years, but not achieved because of the economic disincentives.
- Damon Runyon has increased its Fellowship Award to 4 years and we encourage others to do so, since the reality is that most fellowships last at least that long.
- Continue and expand the K99-R00 awards with the goal of moving fellows into junior faculty positions more rapidly.
- Figure out a system, once and for all, for tracking postdoctoral fellows in the US!

Physician-Scientists

We believe strongly in the importance of physician-scientists in both basic and translational/clinical research. Their understanding of diseases in humans and passion to help their patients make them an essential part of the biomedical research enterprise. In 2000, Damon Runyon established our Clinical Investigator Award, which focused on junior faculty conducting patient-oriented research, similar to the K23 Award. We included loan repayment for this group (before the NIH offered this extramurally). The individuals we have supported have been exceptional, and many claim that our awards saved them from leaving research and going into clinical practice.

Recently, we have begun to focus at an earlier stage and on MDs who have not obtained a PhD. We call them the "late bloomers," since they are individuals who decide

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during or after medical school that they want to become researchers. At this point, it is harder for them to compete with PhDs and MD-PhDs for funding since they do not have a scientific pedigree. We have established the Damon Runyon Physician-Scientist Training Award, a generous 4-year grant with loan repayment, to enable these individuals to obtain training from an experienced mentor. (One thing we have learned through these two awards is that the loan repayment is more meaningful at the earlier stage and may keep more MDs in the field than if given at the junior faculty level.)

Based on this experience, we recommend that:

- The NIH continue to focus on early career physician-scientists as a special group in need of funding through K08 and/or K23 Awards and loan repayment.
- Evaluate whether there are variations on the MSTP program that would enable more MDs, not just MD-PhDs, to choose research careers during medical school or fellowship.

These are just some thoughts and ideas, most probably not feasible. You have a challenging task and I hope that you can identify a few concrete initiatives to implement that will make a difference for early career scientists. Please let us know if we can be helpful in any way.

Sincerely,

Lorraine W. Egan
President and CEO

cc: Yung Lie, PhD
Clare Cahill