

NEW FIELDS, NEW OPPORTUNITIES

This issue of the HHMI *Bulletin*—the first to be published in our new format—speaks to a period of energetic renewal at the Howard Hughes Medical Institute. Our recently concluded competition will bring 43 scientists into our ranks over the next several months, all at early stages in their careers. Many represent fields of research that lie at the vibrant edges of biomedical science and have not been highly represented in HHMI. Significantly as well, they include scientists at five institutions that do not currently have an HHMI investigator.

Almost a quarter of the new investigators fall outside traditional biological disciplines and are drawn from the fields of chemistry, physics, computer sciences, engineering, and geomicrobiology. And the label “traditional” hardly applies to the other scientists we selected. Whether their research focuses on dissecting the attributes of deadly pathogens, parsing the components of neural circuits, or devising novel ways to glean secrets of human disease from model organisms, they bring fresh thinking to challenging problems in biomedical science. They will be welcome additions to the Hughes community.

The promise embodied by these new investigators—and the continued creativity of their colleague scientists at HHMI, who as of May include 10 new members of the National Academy of Sciences—prompt me to reflect on two related themes: mentoring and independence.

On March 31, HHMI lost one of its stars, Stanley J. Korsmeyer, M.D. While in his mid 30s, and already an HHMI investigator, Stan made pivotal discoveries that led to the identification of key genetic mechanisms governing apoptosis, or programmed cell death. Stan’s research revealed how cancer cells escape death by apoptosis and pointed the way to new therapies. In fact, 6 weeks after Stan’s death from lung cancer, *Nature* published preclinical studies showing that a compound that inhibits proteins in the Bcl-2 family shows promise for lung cancer treatment. Stan and his frequent collaborator, Craig Thompson, a former HHMI investigator and now chair of the HHMI Medical Advisory Board, were among the authors.

Stan loved being a Hughes investigator—he thought of his HHMI colleagues as an extended family—just as he derived so much satisfaction every day working with his postdocs and helping them become independent scientists. He was the consummate mentor.

Science needs more researchers who share Stan’s convictions about helping to shape scientific careers in light of



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the daunting barriers that young scientists face. Many linger in an extended postdoctoral limbo. On average, they have to wait until their early 40s before they receive their first independent funding from the National Institutes of Health. In 1980, 50 percent of all new grants went to scientists aged 40 or younger; by 2003, it was 17 percent. Yet by that age, Stan Korsmeyer was well established as an independent scientist and had made some of his most groundbreaking discoveries. There’s no telling what path Stan might have followed today.

To its credit, the National Institutes of Health is asking the right questions. A year ago, NIH Director Elias Zerhouni asked the National Academies to examine the circumstances of early-career scientists, the impediments to independence, and the consequences for our nation. I chaired the study panel, which was aptly named “Bridges to Independence” (see page 41). I hope our recommendations will be put into effect. They include placing limits on the length of funding for postdoctoral researchers coupled with clear expectations for how principal investigators on NIH grants will prepare postdocs for independent careers. We recommend more independent awards for postdocs, including foreign scholars, and career transition grants to bridge from postdoctoral to independent research. And we suggest policies to ensure that new investigators have a fair chance to compete for R01 grants, which are the mainstay of biomedical research.

The nation needs to nurture and support scientists who are ready to move beyond “safe” research that follows well-established paths, scientists who have the requisite independence to make discoveries with a new level of impact on medicine and human health. At HHMI, we provide this freedom to a relatively small number of promising scientists through focused competitions like the one we just completed. Individual scientists, like Stan Korsmeyer, must do their part. But it is the NIH policies that have the most sweeping impact, and it is there that action is most urgently needed.