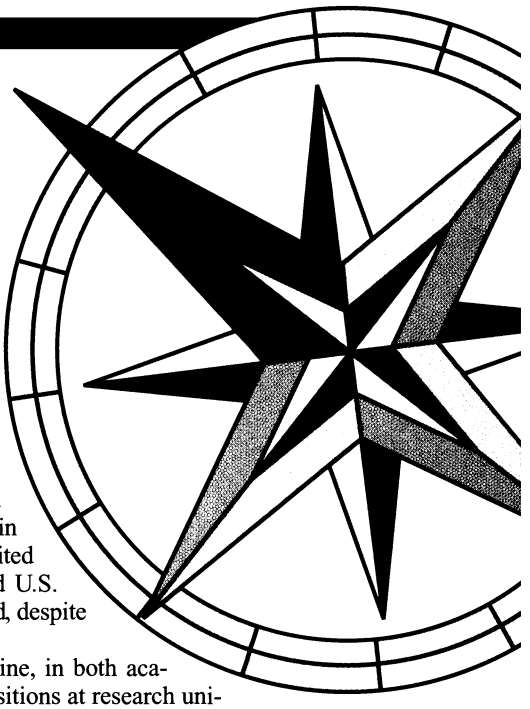

Balancing Biomedicine's Postdoc Exchange Rate

Torsten Wiesel

When I came to the United States from Sweden over 40 years ago to begin a postdoctoral fellowship in the still-unnamed field of neuroscience, many young U.S. biomedical researchers were making reciprocal journeys to European laboratories. Indeed, the flow of young minds back and forth across the Atlantic continued to flourish into the late 1970s and early 1980s. Yet since the 1980s, this pattern of international cross-fertilization in the biomedical sciences has become seriously unbalanced. Increasingly, the United States has become a mecca for foreign postdocs; conversely, newly minted U.S. Ph.Ds have become more and more reluctant to do their postdoc training abroad, despite the presence of many excellent laboratories in other parts of the world.

The strong U.S. economy and the dynamism of many fields of biomedicine, in both academic and industrial arenas, combined with a tight market for tenure-track positions at research universities in the United States, have led to a somewhat paradoxical situation. Young U.S. scientists do not wish to cross the borders of this thriving and highly competitive biomedical marketplace for fear of falling out of what they consider the scientific mainstream and thus being forgotten. Therefore, a generation of U.S. biomedical researchers lacks the career-transforming experience of having studied in laboratories embedded in foreign cultures. At the same time, non-U.S. laboratories are denied young U.S. talent, skills, and perspectives. Conversely, foreign postdocs often see the highly competitive U.S. marketplace as providing far more opportunities for advancement than those of their home countries, causing many of the most talented and ambitious to stay in the United States, thus weakening research efforts in both developed and developing nations.

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The experience of the Human Frontier Science Program (HFSP), of which I recently was appointed secretary general, has reflected these trends. HFSP, with an annual budget of $50 million funded by Japan, European nations, Canada, and the United States, provides grants for international collaborations in molecular biology and neuroscience and supports cadres of postdoc fellows from around the world who wish to train in other countries. Postdoc programs with similar aims are supported by the U.S. National Institutes of Health's Fogarty International Center, the UK Wellcome Trust, the Pew Latin American Fellows Program, and other organizations, but a study of 1990–1997 HFSP fellows will be used here to illustrate the trend in the 1990s. The analysis shows that although over 60% of all HFSP fellows, representing 47 countries, came to the United States to study, less than 7% of HFSP fellows were Americans doing research abroad, a figure that stems from the small number of U.S. applicants to the program. Further, less than 50% of all HFSP fellows returned to their home countries upon the conclusion of their fellowships, and 70% stayed in the United States.*

In an attempt to redress this imbalance, HFSP has decided to expand the funding of fellows from 2 to 3 years; crucially, the third year can be spent in either the host or home country. Thus, fellows may now work for 2 years in a foreign laboratory and spend a third year pursuing research and career opportunities at home—a measure that we hope will stimulate more U.S. students to apply to the program and at the same time promote the repatriation of other students. By also instituting special career transition awards, which will provide salary and research support for an additional 2 years in the research fellow's home country, HFSP hopes to further facilitate the successful repatriation of outstanding young biomedical talent.

In a global culture increasingly driven by scientific and technological innovation, research in areas ranging from microbial genomes to the human brain will become ever more inextricably linked to public health, medicine, and industry. HFSP and other international biomedical research programs can serve as models for the far larger investment efforts needed to promote and maintain research networks and training across national boundaries. Public and private funding agencies in the United States, a nation whose prosperity has been generated in no small part by the infusion of human talent from all over the world, have a special responsibility to support these critical efforts.

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*See www.sciencemag.org/feature/data/1049206.shl