THE NEI SERVES A CRITICAL ROLE FOR ALL AMERICANS

NIH Director Francis Collins, M.D., Ph.D.

"It's often, it seems to me, that vision research is a couple of steps in front of things that are happening in biomedical research. It's clear that vision research has played a disproportionately large share in scientific breakthroughs."

—February 24, 2013, NEI's *Audacious Goals* Development Meeting

About the NEI

In 1968, the NEI was established within the NIH as a free-standing institute, being pulled out from the then-National Institute of Neurological Diseases and Blindness (NINDB, now the National Institute of Neurological Disorders and Stroke, NINDS) and given a separate mission and appropriations budget line. NEI conducts basic and clinical research to prevent and treat eye disease and vision disorders. In Fiscal Year (FY) 2013, NEI is funding 1,785 extramural research grants and training awards to scientists at 275 universities, medical centers, hospitals, community-based health centers, and other institutions across the nation and around the world. The NEI also conducts intramural research at its own facilities on the NIH campus in Bethesda, Maryland.

The NEI has established the Congressionally-mandated National Eye Health Education Program (NEHEP), a partnership of more than 60 professional, civic, voluntary associations, and government agencies concerned with eye health. The goal of NEHEP is to ensure that vision is a health priority by translating eye and vision research into public and professional educational programs. NEI is also the lead agency for the vision focus area in Healthy People 2020, the nation's blueprint to improve public health.

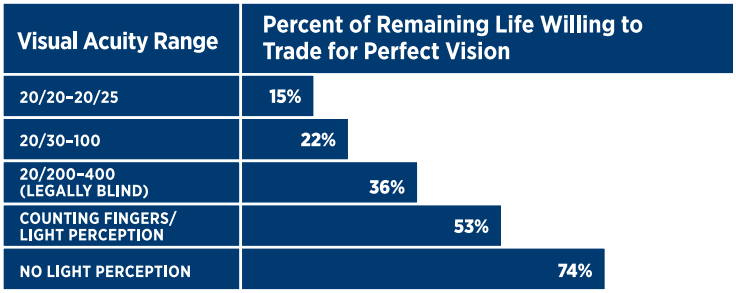
Eye Fact

The NEI's FY2013 budget of $662 M means that the U.S. is spending only $2.10 per-person for vision research, while the cost of treating blindness and low vision is $6,680 per-person, per-year. The FY2013 NEI funding level is also less than 0.5 percent of the $139 B annual cost of vision disorders in the U.S.

NEI Research Addresses the Public's Fear of Vision Loss

Since the first public opinion polls were conducted in the 1960s by private funding foundation Research to Prevent Blindness, Americans have consistently identified fear of vision loss as second only to fear of cancer. The 2005 *Survey of Public Knowledge, Attitudes and Practices Related to Eye Health and Disease*, funded by NEI and Lions Clubs International Foundation, reported that 71 percent of respondents indicated that a loss of their eyesight would rate as a "10" on a scale of "1 to 10," meaning greatest impact on their life.

Other studies have shown that, in patients with diabetes, going blind or experiencing vision loss rank among the top four concerns about the disease. These patients with vision loss are so concerned about its effects on their quality of life that they would be willing to trade years of remaining life to regain perfect vision.



Adapted from Brown, M.M., et al. *Am J Ophthalmol*. 1999: 128: 324-330. and Brown, M.M., et al. *Br J Ophthalmol*. 2001: 85: 327-331

NEI's *Audacious Goal:* Regenerating Neurons/Neural Connections in the Eye and Visual System

NEI Director Paul Sieving, M.D., Ph.D. welcomes attendees to the meeting at which he urged them to use "science, experience, and imagination to help shape the vision research agenda"

NEI was the first NIH institute to systematically engage in strategic planning activities. Under the auspices of the National Advisory Eye Council (NAEC), the NEI expanded its planning to engage and energize the biomedical research community to help establish the most compelling research priorities by identifying a single, ten-year goal in vision research. In February 2013, NEI hosted 200 representatives from every sector of the vision community, as well as government scientists and regulators from various disciplines, at its *Audacious Goals* Development meeting. The meeting's discussion topics were built around the ten winning ideas from a pool of nearly 500 entries selected through the NEI's *Challenge to Identify Audacious Goals in Vision Research and Blindness Rehabilitation,* a unique effort conducted under the *America COMPETES Reauthorization Act of 2010* that sought new scientific ideas from a wide and diverse audience of researchers, engineers, and "citizen scientists."

Based on meeting discussions, the NEI selected "Regenerating Neurons and Neural Connections in the Eye and Visual System" as its ten-year *Audacious Goal.* Two additional areas of research emerged and are considered high priority, including "Molecular Therapies for Eye Disease" and "The Intersection of Aging and Biological Mechanisms of Eye Disease." The NEI *Audacious Goals* Web site describes all activities and funding opportunities for this initiative at www.nei.nih.gov/audacious.

The ten *Audacious Goals Challenge* winners reflected researchers from across the country in a variety of disciplines. Left to right: Russell Van Gelder, M.D., Ph.D. (University of Washington School of Medicine); Dr. Sieving; Jeffrey Stern, M.D., Ph.D. (Regenerative Medicine Foundation); Yingbin Fu, Ph.D. (University of Utah); Robert Duvoisin, Ph.D. (Oregon Health & Science University); Janey Wiggs, M.D., Ph.D. (Massachusetts Eye and Ear Infirmary, Harvard Medical School); Julia Richards, Ph.D. (University of Michigan); Tonia Rex, Ph.D. (Vanderbilt University); Steven Pittler, Ph.D. (University of Alabama at Birmingham); Dennis Clegg, Ph.D. (University of California at Santa Barbara); and Rajesh Rao, M.D. (Washington University School of Medicine)

NEI's "Regenerating Neurons" *AG* Complements NIH's BRAIN Initiative

The NEI *Audacious Goal* of "Regenerating Neurons and Neural Connections in the Eye and Visual System" is complementary to the goals of the Brain Research through Advancing Innovative Neurotechnologies (BRAIN) Initiative, which was announced in April 2013. That initiative seeks to provide a dynamic picture of brain function by revealing how individual neurons and neural circuits interact. The initiative will be funded by NIH, the Defense Advanced Research Projects Agency (DARPA), and the National Science Foundation (NSF). Several private funding foundations are also committed to ensuring its success. At NIH, the Blueprint for Neuroscience Research—which comprises the Office of the Director and 15 Institutes, including NEI—is taking a lead role. NIH has established a working group of experts that will articulate specific goals of the initiative, and leaders in vision research are well represented in this group.