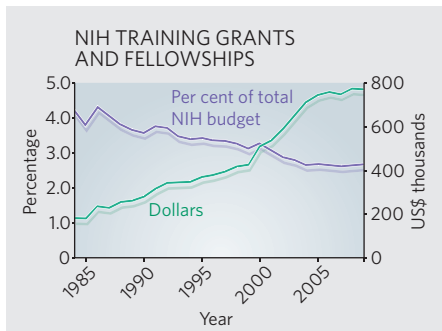




MICE CAN SMELL GREENHOUSE GAS
Rising CO₂ makes a stink for mice.
www.nature.com/news



and-butter grant to an independent researcher — has risen from 34 in 1970 to 42 now.

The percentage of PhDs still in a postdoctoral fellowship three or four years after their doctorate has declined since 1997, from 45% to 30%, although the total number of postdocs grew from about 25,000 to 33,000 in the same period.

What does this mean for biology and biomedicine as a career option? It's more than an abstract question to Howard Garrison, director of FASEB's office of public affairs, who has a college-bound daughter. "She's thinking of biological sciences, so I tell her don't give up, but make sure you're realistic about your future," Garrison says. "People are drawn to the biological sciences because it's an exciting field and an exciting time, but people have to have a broad and flexible approach to their careers."

A huge question is why the doubling of the

NIH budget from 1998 to 2003 seems not to have helped young scientists. Most of the money went into infrastructure rather than tenure-track jobs (see *Nature* 443, 894; 2006). The NIH dollars devoted to training fellowships did grow, but not as fast as the rest of its budget, and when the NIH budget stopped growing, so did the dollars (see graphic on left).

Most NIH-supported postdoc appointments are now financed by research grants, not training grants. "If you're being supported to do research on research grants, but you're still a postdoc, there's a tension, because you're not being funded to be trained," says Jodi Lubetsky of the Association of American Medical Colleges.

Norka Ruiz Bravo, deputy director for extramural research at the NIH, says the agency welcomes the FASEB report: "FASEB has performed a very useful and timely service for the biomedical research community in highlighting this important issue. It is a matter of great interest and concern for NIH." The NIH recently instituted the Pathways to Independence awards, which help postdocs set up their own labs.

A posting to an online careers discussion group puts the matter bluntly: "If you aren't thinking about 'alternative careers' before ever setting foot in graduate school, then you're being foolish."

Erika Check
See Editorial, page 839.

Let down by the statistics

Most claims that men and women are affected differently by disease-associated gene variations are poorly founded. A team of researchers has found that the data supporting such claims are often poorly analysed statistically or come from studies that were not adequately designed to show these links.

"The abysmal standard of statistical analysis in much of genetic epidemiology is little short of scandalous," says David Balding, professor of statistical genetics at Imperial College London, UK, who was not involved in the study. "This paper reveals an entire industry of prominently reported results that are largely unjustified and probably mostly false."

John Ioannidis and his colleagues at the University of Ioannina School of Medicine in Greece evaluated 432 claims in 77 research papers (N. Patsopoulos *et al. J. Am. Med. Assoc.* 298, 880–893; 2007). The team applied a set of criteria to determine whether the papers' authors had performed the correct analysis, such as comparing like with like, and had taken steps to show that the association was not due to chance. Worryingly, only 12.7% of claims satisfied these criteria. "There is quite a gap between what should have been done and what the journals and reviewers should have asked for, compared with what the authors did," says Ioannidis.

Many studies were not designed to test for a link between sex and gene variants, with researchers trying to extract associations from their data after the fact. Sample sizes were at least ten times smaller than they needed to be to yield statistically robust results, Ioannidis adds.

"This paper tells us that we don't have a clue whether gender is a real biomarker for any of the clinical areas assessed," says Howard McLeod, director of the UNC Institute for Pharmacogenomics and Individualized Therapy in Chapel Hill, North Carolina. "Gender, as well as age and race, are crude ways of understanding the complex factors regulating clinical effect," he adds.

AMERICAN IDOL/19 TELEVISION/FOX/FREEMANTLE MEDIA/KOBAL



aware of these findings," he says.

Deborah Linebarger, an expert in child development and television at the University of Pennsylvania in Philadelphia, was asked by Disney to defend Baby Einstein to the FTC. Although believing such products can be useful, she declined. "I have concerns that anything called Baby Einstein, Genius, etcetera, is exploitive of a vulnerable

population," she says.

Despite having "some methodological issues" with the paper, she says: "There are some valid conclusions in it that warrant additional



research. I'm cautious, but it makes sense." Daniel Cressey

What babies watch: it may not make a difference.

Mark Emmert has refused to retract the press release and says he stands behind the research. "The findings were

considered significant enough to be reported in a major journal, and as a public institution we feel duty bound to make the public