

A concise life

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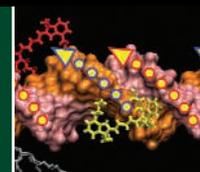
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LETTERS

edited by Etta Kavanagh

Why Aren't There More Scientists Advocating for Funding?

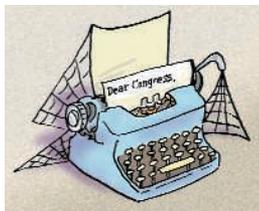
THE FUNDING OUTLOOK FOR BIOLOGICAL SCIENCES IN THE UNITED STATES is bleak; success rates are in the single digits for some grant programs at NIH and NSF. Yet, when the Federation of American Societies for Experimental Biology (FASEB) recently sent out a policy alert to its 80,000 members urging support for a congressional measure to increase the NIH budget, only 8000 members responded. Why? The following are a few explanations for this passivity we've heard over the years and why they don't hold up.

Lack of time. Of course, scientists are busy and must do science. However, if every scientist devoted just an hour per month to advocacy, the science funding condition would likely be much improved.

Ignorance. Scientists may not know how to advocate or what to do. Many scientific societies have staff that can help. A little research and a few conversations with them on how to engage in advocacy is all that is needed to get started. Use these resources!

Someone else is doing it. You may think that your personal involvement isn't necessary, since some societies may be engaged. However, there is no substitute for a scientist in a meeting with a legislator. No legislator ignores a constituent. Contacting your legislator should be a regular item on your monthly "To Do" list.

It's too big a job and I'm only one person. The problems of science funding may seem insurmountable. However, the power of a single individual to bring about change has been amply demonstrated throughout history, including by such scientists as Galileo, Charles Darwin, Albert Einstein, and Rachel Carson.



Elitism. Unfortunately, some scientists feel that politics is less ethical than science, and that politicians are not as smart as they are. Thus, getting involved in politics is a step down for them, both morally and intellectually. If getting involved out of a sense of civic duty is not enough motivation, keep in mind that congressmen control our "purse strings" and, thus, it is in our self-interest to do so.

Politicians won't listen to me. Most legislators don't know many scientists and often will value a meeting with you because of your expertise. One of us had a meeting with a prominent senator that went on for well over an hour (such meetings typically last 10 minutes). The senator's comment at the end of the meeting was very telling: "I rarely have the opportunity to talk with a person like you, Dr. Wells." Thus, don't be intimidated. Most legislators will support science if they know that their constituents care.

I can't afford it. Most federal legislators are in Washington part-time and spend the remainder of their time at their home base. Make that local appointment; it will only cost you a bit of time.

I'm not allowed to advocate. Absolutely false. Publicly funded scientists do not relinquish their rights to free speech. Use your own computer at home and your own time. Scientists do not give up their right to free speech because they receive federal funds.

So what's your excuse? Unfortunately, scientists cannot depend on Congress to adequately fund science. We (biologists, physicists, chemists, mathematicians, etc.) must work together. Alternatively, will you wait to act until your lab is unfunded? Science and our country need us.

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Fighting Waterborne Infectious Diseases

IN HIS PERSPECTIVE "WATERBORNE INFECTIOUS DISEASES—could they be consigned to history?" (Special Issue on Freshwater Resources, 25 Aug., p. 1077), A. Fenwick presents a hopeful outlook, based principally on drug effectiveness and distribution, for gaining control over serious waterborne infectious diseases in the developing world.

Although treatment is an effective first step, we issue a cautionary note regarding drug-based strategies as the sole means to eradicate transmission or even to suppress it sustainably to levels below the threshold of concern.

In China, the anti-helminthic drug praziquantel has been the principal tool, together with the molluscicide niclosamide, for notable progress in the control of the *S. japonicum* parasite in humans and domestic animals (1–3). However, in recent years, the disease has re-emerged in formerly endemic areas where

transmission had earlier been terminated (4, 5), leading to widespread recognition that a more comprehensive strategy, including environmental interventions, will be necessary to achieve a long-term solution in China (6).

The decrease in disease burden "if exposure to a risk factor were reduced, not to zero, but to some achievable level" by environmental means has recently been estimated to be 100% for schistosomiasis, 66% for lymphatic filariasis, 42% for malaria, and 100% for intestinal nematode infections (7). Although

these estimates do not diminish the importance of drug therapy, they illustrate that these diseases are susceptible to environmental controls. Moreover, the large increase in drug use required even for adequate control of morbidity for these diseases heightens concern over the potential for drug resistance.

In the same issue, Bill Gates was quoted with reference to the economic dimension of large-scale treatment for HIV/AIDS infections: "Treatment without prevention is simply unsustainable" ("At International AIDS Conference, big names emphasize big gaps," J. Cohen, News of the Week, 25 Aug., p. 1030). We agree. In the case of waterborne infections, prevention often begins with clean water and improved sanitation. It is essential that policy-makers remain committed to these traditional public health measures and not rely solely on the promise of vaccines and inexpensive drugs.

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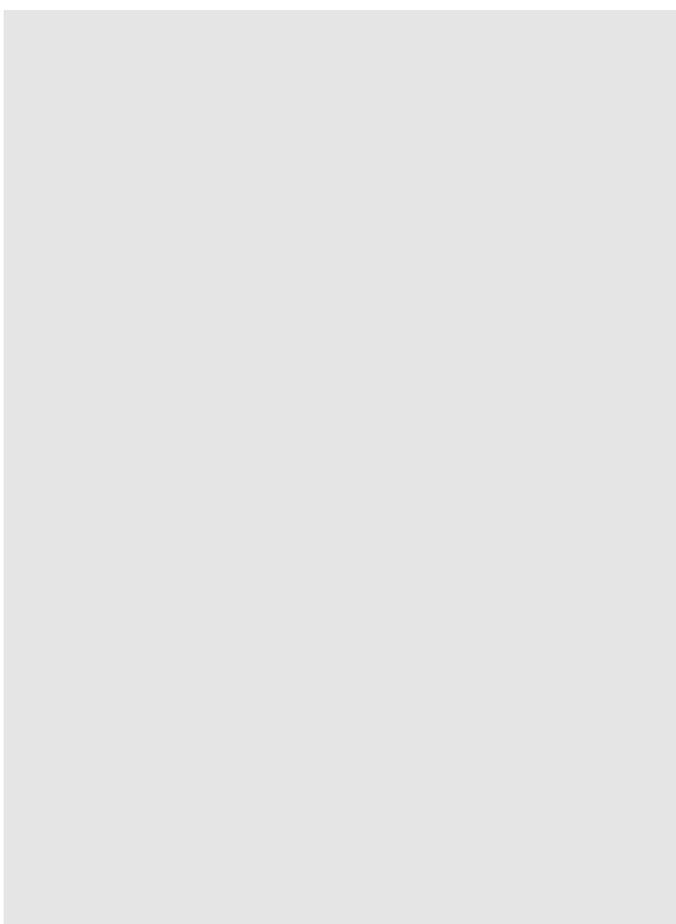
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Response

I THANK SPEAR *ET AL.* FOR HIGHLIGHTING THAT my optimism for gaining control over serious waterborne infectious diseases in the developing world is based principally on drug effectiveness and distribution. Their cautionary note about chemotherapeutically based strategies achieving eradication, or even breaking transmission, reads rather more into my optimism than was there. My optimism is directed toward reduced morbidity rather than eradication of infections.

However much I support chemotherapy for morbidity control, I have stated that eradication cannot be achieved without significant and dramatic improvement in socioeconomic status (1). Spear *et al.* state that these diseases are susceptible to environmental controls (2). This may be true, but I believe that the degree of environmental controls needed in sub-Saharan Africa is currently unobtainable in many settings. I also believe that the risk of resistance being caused by the large increase in drug use to achieve the control of morbidity is no reason not to use the existing tools to treat those unfortunate people infected with lymphatic filariasis, onchocerciasis, or schistosomiasis. However, monitoring for drug resistance must accompany mass drug administration campaigns (3).

Bill Gates's statement that "[t]reatment without prevention is simply unsustainable" may be correct, but for neglected tropical waterborne infections, the cost is so minimal at \$0.50 per person per year that it is cost-effective. Exposure to parasitic infections is not in any way to be blamed on individuals so poor that they are dependent on surface water. Thus, although I agree that policy-makers should remain committed to all available pub-



lic health measures, I believe that in the short term, they must rely on the currently available donated and inexpensive drugs.

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Debating the Worth of NCCAM Research

MARCUS AND GROLLMAN MISS THE MARK IN their critique of the National Center for Complementary and Alternative Medicine (NCCAM) ("Review for NCCAM is overdue," D. M. Marcus and A. P. Grollman, Policy Forum, 21 July, p. 301). We believe that NCCAM, under the leadership of Stephen Straus and Margaret Chesney, has made remarkable progress in laying the groundwork

and advancing rigorous research in complementary and alternative medicine (CAM). They have brought definition, a conceptual framework, strategic plans and goals, and scientific standards to the field of CAM research.

The processes through which proposals are submitted, reviewed, funded, and managed are all consistent with standard NIH practice. The disciplinary diversity of the NCCAM study section members and NCCAM councils is in keeping with the breadth of CAM research. The broad representation is also consistent with current practice in other centers and institutes. NIH advisory bodies regularly include members who are grantees, and well-tested procedures are in place for managing conflicts of interest. The same procedures are used for the study sections and advisory councils for NCCAM.

Marcus and Grollman's comment that the NCCAM research agenda is shaped more by politics than by science is gratuitous, as is their suggestion that the Institute of Medicine (IOM) report, *Complementary and Alternative Medicine in the United States (1)*, was flawed because some of the members of the panel were NCCAM grantees. In fact, like

NIH, the IOM has procedures for recognizing and managing conflicts of interest. Those of us who participated in it were very mindful of any potential conflicts of interest and guarded against them in our deliberations. Further, the report was carefully reviewed by external, independent reviewers before publication.

Because CAM is already in the public domain, used by millions of people at a cost of billions of dollars each year and with health effects that largely have not yet been scientifically evaluated, it is appropriate that a significant focus be on clinical research. As is true in clinical trials with new conventional drugs, we should expect that many trials of CAM treat-

Letters to the Editor

Letters (~300 words) discuss material published in *Science* in the previous 6 months or issues of general interest. They can be submitted through the Web (www.submit2science.org) or by regular mail (1200 New York Ave., NW, Washington, DC 20005, USA). Letters are not acknowledged upon receipt, nor are authors generally consulted before publication. Whether published in full or in part, letters are subject to editing for clarity and space.

ments will not show definitive efficacy, and as with most research on understudied agents, multiple studies are often needed to develop a research base adequate for mature judgment concerning efficacy or the lack thereof. We need to be patient and use our best tool, that is, science, to understand and evaluate these widely used health practices. We believe that NCCAM has established a standard not for advocacy, but rather for rigorous objectivity.

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Response

THE MAIN POINT OF THE LETTER FROM FOLKMAN *et al.* and the response to our Policy Forum by S. E. Straus and M. A. Chesney (“In defense of NCCAM,” Policy Forum, 21 July, p. 303) is that NCCAM uses standard NIH procedures for review of proposals, appointments to advisory and review groups, and management of conflict of interest. That is formally true but misleading. Because of its charter, NCCAM advisory and review groups include many individuals whose scientific credentials would not qualify them for appointment to other NIH institutes. Of greater importance, the continued funding of poor-quality proposals refutes Straus and Chesney’s claim that NCCAM applies the same review standards as other NIH institutes.

Except for Bondurant, the signatories of the Folkman *et al.* letter all hold leadership positions in CAM or integrative medicine centers supported by NCCAM. Bondurant is a senior academic officer at Georgetown University Medical Center, which has a CAM center, and he was chairman of the IOM Committee that issued the report on

CAM. Berman, Eisenberg, and Folkman also served on the IOM committee.

The NCCAM appropriation for 2005, \$123 million, understates NIH expenditures on CAM research. In 2004, the NCCAM budget was \$117.8 million, and the total NIH expenditure on CAM research was estimated at \$305 million, much of which represented projects that were co-funded by NCCAM and other institutes. NCCAM recently announced the creation of five new centers that will conduct research on multicomponent traditional African and Chinese herbal medicines. Each center will receive approximately \$1 million per year, which is the equivalent of 20 RO-1 research grants. Some of this research is meritorious, but much of it is not.

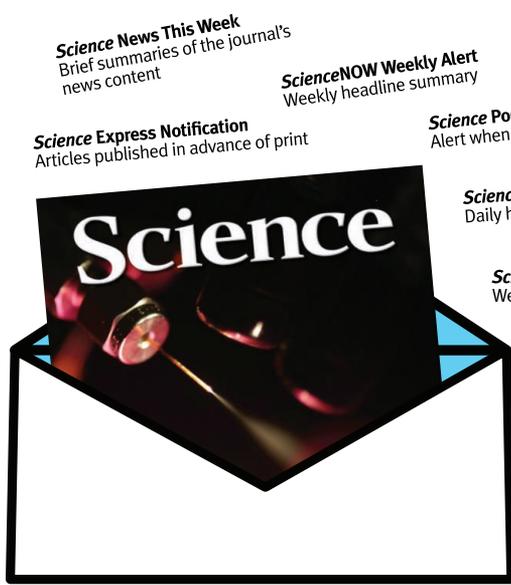
An independent review is urgently needed to bring the evaluation of proposals by NCCAM into line with the rest of NIH and to ensure that the limited funds available for biomedical research support the best science.

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Debating the Worth of NCCAM Research

Susan Folkman, Brian Berman, Stuart Bondurant, David Eisenberg, Aviad Haramati, Mary Jo Kreitzer and Fredi Kronenberg

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