



## Nucleotide Sequence Database Policies

**THE INTERNATIONAL NUCLEOTIDE SEQUENCE Databases (INSD)** has been an international collaboration between DDBJ, EMBL, and GenBank for over 14 years. Its advisory board, the International Advisory Committee, is made up of members of each of the databases' advisory bodies. At their last meeting, members of this committee unanimously endorsed and reaffirmed the existing data-sharing policy of the three databases that make up the INSD, which is stated below.

Individuals submitting data to the international sequence databases managed collaboratively by DDBJ, EMBL, and GenBank should be aware of the following:

1) The INSD has a uniform policy of free and unrestricted access to all of the data records their databases contain. Scientists worldwide can access these records to plan experiments or publish any analysis or critique. Appropriate credit is given by citing the original submission, following the practices of scientists utilizing published scientific literature.

2) The INSD will not attach statements to records that restrict access to the data, limit the use of the information in these records, or prohibit certain types of publications based on these records. Specifically, no use restrictions or licensing requirements will be included in any sequence data records, and no restrictions or licensing fees will be placed on the redistribution or use of the database by any party.

3) All database records submitted to the INSD will remain permanently accessible as part of the scientific record. Corrections of errors and update of the records by authors are welcome and erroneous records may be removed from the next database release, but all will remain permanently accessible by accession number.

4) Submitters are advised that the information displayed on the Web sites

maintained by the INSD is fully disclosed to the public. It is the responsibility of the submitters to ascertain that they have the right to submit the data.

5) Beyond limited editorial control and some internal integrity checks (for example, proper use of INSD formats and translation of coding regions specified in CDS entries are verified), the quality and accuracy of the record are the responsibility of the submitting author, not of the database. The databases will work with submitters and users of the database to achieve the best quality resource possible.

The INSD is an outstanding example of success in building an immensely valuable, widely used public resource through voluntary cooperation across the international scientific community. This success has been achieved by following the guidelines and principles outlined above.

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## Looking at the Future of Radioecology

IN RICHARD STONE'S ARTICLE ON THE FUTURE of radioecology ("Radioecology's coming of age—or its last gasp?", *News Focus*, 13

Sept., p. 1800), some scientists portray recent attempts to develop a systematic approach to assessing effects of radiation on the biotic environment (1, 2) as merely a device to breathe new life into an aging branch of environmental science. The truth is very different, and the underlying scepticism both shortsighted and potentially damaging.

The development of the International Commission on Radiological Protection (ICRP) system (3) for human protection has arisen largely from the need to control radiation exposures within the context of the workplace and in medical practice. With the advent of nuclear power, and hence radioactive waste, it has since been extended to protection of the general public in an environmental context. This historic development has also led to an emphasis being placed on the need to interpret our knowledge of the complex biological effects of radiation primarily in terms of its consequences for humans. The unintended side-effect is that we are now left with no general understanding of the effects of radiation across the whole spectrum of living things, nor any framework for evaluating the actual or potential consequences of radioactive waste disposal into the environment in the absence of human beings.

In some countries, this deficiency already has legal implications, because protection of the environment has to be demonstrated explicitly (4), irrespective of the presence or absence of humans. With a greater emphasis now being placed on concepts such as the need to maintain biological diversity and to protect all natural habitats on a large scale, in relation to any

## 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 by e-mail (science\_letters@aaas.org), the Web (www.letter2science.org), or 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.

regulated pollution control activity, such legislative demands are increasing, particularly in Europe.

The more general concern, however, is that because of the lack of any agreed set of criteria, objectives, or biological end points that can be measured to any specified degree of accuracy and precision, it is difficult to demonstrate whether the environment is protected from ionizing radiation to a level deemed legally, socially, or economically acceptable under different circumstances. These circumstances extend beyond the trivial routine discharges from nuclear power stations, into the realms of evaluating waste disposal options in general, preparing for the consequences of accidents, and working to remediate contaminated environments.

We have a fair amount of knowledge on the effects of radiation on creatures other than man and on the behavior of radionuclides in the environment, but most of this has been derived or interpreted in the context of human radiation exposure. It needs to be reevaluated within a different framework: potential effects on and consequences for the environment. Yawning gaps will be found, and further research work will be needed. Not to address this

deficiency is shortsighted; the legislative need is already creating different approaches from one country to another. What we desperately need is a sensible global debate about the relative merits of energy production from different sources. This must be done on a quantitative basis to produce something like a "human and environmental impact index" per GW(e). The proposed new systematic approach, combined with the existing ICRP one for humans, would enable this to be done for nuclear power.

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#### References

1. R. J. Pentreath, *J. Radiol. Prot.* **19**, 117 (1999).
2. ———, *J. Radiol. Prot.* **22**, 45 (2002).
3. International Commission on Radiological Protection, *ICRP Report 60* (1991).
4. L.-E. Holm, L. Hubbard, C.-M. Larsson, S. Sundell-Bergman, *J. Radiol. Prot.* **22**, 235 (2002).

**THE CENTRAL ISSUE IN THE DEBATE ON environmental radiation protection, recently covered by Richard Stone in his article "Radioecology's coming of age—or its last gasp?" (News Focus, 13 Sept., p. 1800), is whether the current anthropocentric system of protection is also adequate to protect the environment.**

Much of the groundwork for the Monte Carlo meeting mentioned in the article was laid at a consensus conference in Oslo in October 2001 (1). The conference was arranged by the Norwegian Radiation Protection Authority and the Agricultural University of Norway in cooperation with the International Union of Radioecology to explore ethical, philosophical, and environmental issues regarding environmental protection. Key conference conclusions include the following: (i) There is a need to address environmental protection as part of the effort to revise and simplify the current system of protection for humans. (ii) Ethical values, sustainable development, conservation, and biodiversity are reasons for specifically protecting the environment. (iii) The best available technology, including consideration of economic costs and environmental benefits, should be applied to the control of environmental releases of radionuclides in a balanced manner with respect to other environmental insults. (iv) Precautionary measures to reduce the potential risks within reasonable cost constraints should be applied when a product or activity may cause serious harm to humans or the environment and significant uncertainties exist about the probability of harm.

The United States is the only country that has developed or proposed guidance

for environmental radiation protection. Limits range from 1 to 10 mGy/day for aquatic and terrestrial biota (2). By comparison, exposures to the general public are limited to 1 mGy/year (assuming exposures are from x and gamma radiation sources).

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#### References

1. Consensus Conference on Protection of the Environment from Ionising Radiation, Oslo, 22 to 25 Oct. 2001 ([www.iur-uir.org](http://www.iur-uir.org)).
2. U.S. Department of Energy, *Fed. Reg.* **61** (no. 36), 6799 (26 Feb. 1996).

## Keeping Meetings Under Wraps

**SEVERAL FACTORS HAVE CONTRIBUTED TO THE unhappiness with the current operating mode of the U.S. National Science Board. In addition to the factors mentioned in Jeffrey Mervis's article "Congress puts the squeeze on NSF's oversight board" (News Focus, 4 Oct., p. 42), the board's narrow interpretation of the 1978 Government in the Sunshine Act has made too many of its policy deliberations opaque.**

Specifically, the board, beginning in December 1979, elected to close all its committee meetings to public observation and to increasingly conduct detailed policy deliberations in those committees. As a result, too often, the two full days of board meetings held five or six times annually included public sessions of only 1 or 2 hours, which were devoted to routine personnel and other announcements. One result has been that most of the science press, congressional staff, and members of the public stopped attending board meetings as observers.

At the October 2002 board meeting, the search for a new and less narrow approach to open meetings appeared to have begun. Most significantly, there was evidence of a new and different attitude toward public access to the board's activities. But much remains to be done. A good model of openness might well be the Director's Advisory Committee at the NIH.

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## Advice Without Dissent at the DOD

**THE BUSH ADMINISTRATION HAS MOVED unwisely to assure scientific advice without dissent in the Department of Defense (DOD), a situation that may be more serious than the instance at the Department of**

Health and Human Services cited by D. Michaels *et al.* in their Editorial "Advice without dissent" (25 Oct., p. 703).

Last fall, I was part of a group, most of whom had been consultants to the Army Science Board (ASB), who were nominated to become full members of that Board, which is composed of scientists, engineers, and retired flag-rank military whose mission is to advise the Army on technical matters. The Army passed our names to the White House Liaison Office in the Office of the Secretary of Defense (OSD) after the Army's approval. Once there, however, about a dozen of us were disapproved.

I learned from an ASB colleague that there is a Web site ([www.opensecrets.org](http://www.opensecrets.org)) that is being used to see the names of donors to political campaigns. I was also told by a member of the ASB staff that I was supposed to have contributed to Senator John McCain's campaign—the reason for my being disapproved. I went to the Web site (still active) and saw that a William S. Howard, a retiree from Fairfax, VA, had contributed twice for a total of \$1000 to McCain's campaign. Because "S" is not my middle initial, I do not live in Fairfax, VA, and the zip code listed on the Web site is not the same as mine, and because I had made no such contributions, I asked the ASB to try to reverse the OSD decision. They demurred, saying that they did not want to upset the OSD White House Liaison Office.

The Editorial by Michaels *et al.* is right on the mark. I wonder if the problem is broader than this. The country is not being well served by any administration's policy of seeking advice only from a group of scientists and engineers who have passed the administration's political litmus test.

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## Unpopular Opinions Need Not Apply

**THE EDITORIAL BY D. MICHAELS *ET AL.*** ("Advice without dissent," 25 Oct., p. 703) describes attempts by Secretary of Health and Human Services Tommy Thompson to influence the advice the government gets from advisory committees by stacking their membership with scientists who share President Bush's views on science and health policy. The stories about efforts to manipulate committees that advise the government on such highly charged issues as genetic testing and childhood lead poisoning are troubling, but the manipulation extends even more deeply into the federal

science establishment than they suggest.

Secretary Thompson announced when the Bush administration took office that he wanted to conduct a review of Department of Health and Human Services (DHHS) advisory committees and that nominations for membership on those panels would be frozen until his review was completed. Thompson's review includes not only the high-level panels that advise the DHHS on matters of policy, but also some peer-review study sections, which are also advisory committees under federal law. I am chair of one of the affected study sections, which reviews research grant proposals submitted to the National Institute for Occupational Safety and Health (NIOSH) and other agencies. The 2-year freeze on new memberships has complicated our work, but it was assumed that study sections, which are charged rather narrowly with advising federal agencies on the scientific merit of proposed research projects, were not the real targets and that we would eventually be allowed to continue with business as usual.

This assumption has proven to be incorrect. Secretary Thompson's office recently sent word that three candidates nominated for permanent membership on the study section would not be confirmed. NIOSH's Director was allowed to nominate replacements for the three rejected candidates, however, rather than having to accept a slate named by Thompson's office.

The secretary declined to give reasons for rejecting the three scientists nominated for membership on the study section. They are all established scientists who had served as temporary members for some time and whose qualifications had been duly reviewed and approved at every other level. The reasoning nevertheless seems clear in at least one case: One of the rejected nominees is an expert in ergonomics who has publically supported a workplace ergonomics standard.

It is not clear how such views could affect public policy, except through a long, convoluted pathway in which a reviewer might favor a proposed project whose results, when the project was completed, could eventually be cited in support of a standard. But that is beside the point. In contrast to policy advisory boards, where the potential for political conflict is recognized and members are supposed to represent a range of views, study section members are selected for their expertise in research and may not consider the relevance of the projects they review to specific government policies.

This level of political interference with peer review is an ominous precedent for research throughout the federal government. I am not aware of attempts to ma-

nipulate the membership of other DHHS study sections, but many aspects of human biology and medicine are controversial, and there is no assurance that the same tactics will not be used elsewhere. All scientists who have served as reviewers or rely on study sections for expert, unbiased reviews should be concerned, and so should the end-users of the knowledge that federally funded research generates.

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### CORRECTIONS AND CLARIFICATIONS

#### SPECIAL ISSUE ON THE DYNAMIC SYNAPSE: REVIEWS:

“Emerging roles of presynaptic proteins in  $\text{Ca}^{++}$ -triggered exocytosis” by J. Rettig and E. Neher (25 Oct., p. 781). The first three sentences of the abstract are not the authors’ work. The correct abstract appears here: “The twinning of techniques from biophysics and molecular biology has led to remarkable progress in understanding the molecular mechanisms of synaptic

transmission. Here, we review the current picture of  $\text{Ca}^{++}$ -triggered exocytosis which has emerged from studies of a simple, cellular model, the adrenal chromaffin cell. We discuss the molecular players which have been assigned a specific role in a particular step of this process and give a brief outlook on what these insights might tell us on mechanisms of short-term plasticity at classical synapses.”

**PERSPECTIVES:** “Vortex cores—smaller than small” by J. Miltat and A. Thiaville (18 Oct., p. 555). Several errors were introduced during editing. In the third paragraph of the first column, in line 10, (1) should be cited instead of (9), and in line 12, (5) should be cited instead of (3). In the caption for the first figure, (4) should have been cited rather than (1, 2). Panel A in this figure is from (4); the credit line was omitted by mistake. In the first full paragraph of the second column, “high-temperature superconductors” should read “superconductors.” In line 10 of the third column, (5) should be

cited instead of (4); in line 26, (3) should be cited instead of (5). In the second figure, panel B, the formula should read “ $\mathbf{B} = \nabla \times \mathbf{A}$ .” In reference (1), the first author’s name is Feldtkeller.

**PERSPECTIVES:** “Sex differences in mortality rate” by I. P. F. Owens (20 Sept., p. 2008). An earlier version of the figure was mistakenly published. The correct version appears below.

