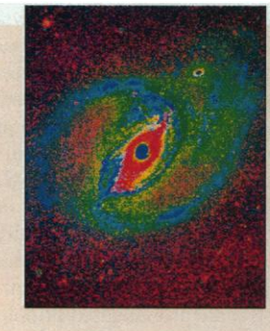
LETTERS

Eye of the storm

Major players in human genome research stake out their positions on the status of "intellectual property rights" agreements. Genetic testing ethics are discussed. A professor offers "some initial suggestions" for improving the quality of teaching at large universities. And an astronomer says that, with regard to cosmology, we should "stay open for any surprise" (right, a view of galaxy NGC 1097).



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Human Genome Agreements

Responses that we have received to the News & Comment article "The human gene hunt scales up" by Eliot Marshall (29 Nov., p. 1456) suggest that some readers may have misunderstood the status of the relationship between Human Genome Sciences (HGS) and the Institute of Genomic Research (TIGR). In 1992, HGS and TIGR entered into an agreement whereby TIGR agreed to assign all rights to intellectual property arising from its research to HGS in return for a 10-year $85-million grant. Under the terms of the agreement, TIGR is also obligated to withhold research results from publication for certain periods of time to permit HGS to evaluate and to selectively file for patent protection on inventions based on such research results. This agreement remains in force.

A separate agreement between TIGR, HGS, and SmithKline Beecham (SB) governing disclosure of human complementary DNA (cDNA) sequences was reached in 1995 whereby, in return for additional funding from HGS and SB, TIGR agreed to additional restrictions on publication of human cDNA sequences. This second agreement will end in April 1997, along with the additional publication restrictions, leaving the original agreement unaffected. Such termination will not affect HGS's intellectual property rights to TIGR's research, including genomic as well as partial and complete human cDNA sequences, and HGS has the right to have TIGR withhold publication for a period of time sufficient to permit HGS to file appropriate patent applications.

Bradley G. Lorimier
Senior Vice President,
Human Genome Sciences, Inc.
9410 Key West Avenue,
Rockville, MD 20850, USA

Response: Marshall's article is accurate as it relates to TIGR. There are, on the other hand, several inaccuracies in Lorimier's letter, not the least of which relates to the characterization of TIGR's reasons for entering into the SB/HGS database agreement. On 18 April 1997, as a result of TIGR's and SB's mutual decision to terminate the human cDNA database agreement, TIGR will completely open its existing human cDNA database to any and all users without restrictions and submit all of the human expressed sequence-tagged cDNAs (ESTs) in the database to GenBank. We are also working with the National Center for Biotechnology Information to create a special database at the National Institutes of Health for all of the tentative human consensus (THC) assemblies of human ESTs with World Wide Web links to the TIGR database. With the release of this data by TIGR, more than 600,000 EST sequences and over 60,000 THC assemblies from the worldwide human EST effort, representing approximately 80% of all human genes, will be available in public databases. The number of human sequences in public databases should continue to increase substantially this year and will likely approach 100% representation of expressed human genes in the not too distant future.

The agreements between TIGR and HGS covering human cDNA research provide for a limited period of delay before publication, during which time HGS may apply for patents. However, circumstances have changed considerably since 1992, when the TIGR/HGS agreements were signed and only a few thousand human genes were known. For most of the human cDNA research that TIGR now expects to do, the data are already in the public domain or are the subject of patent applications filed by HGS and others, or both. This should dramatically reduce the possibility of

any substantial delays associated with future releases of new cDNA sequence data by TIGR. In any event, throughout TIGR's 5-year history, TIGR has promptly published its research results and made its data available to the scientific community while honoring its obligations to HGS, and TIGR will continue to do so for the remaining few years of TIGR's relationship with HGS. This has made, and will continue to make, TIGR a leader in the worldwide effort to develop a complete set of human genes.

J. Craig Venter
President/Director,
The Institute for Genomic Research,
9712 Medical Center Drive,
Rockville, MD 20850, USA

Marshall reports (News & Comment, 3 Jan., p. 22) that a "subcommittee" of NIH–Department of Energy Working Group on Ethical, Legal, and Social Implications (ELSI) of Genome Research "spends much of its time talking to independent agencies, trying to devise rules on genetic testing." The "subcommittee" Marshall refers to is the Task Force on Genetic Testing. The task force has not spent most of its time talking to "independent agencies." Nor should the role of the task force be deprecated because it is a "subcommittee of a subcommittee." Marshall does not note that the panel whose recommendations were the subject of his article has commented, "The task force approach already has been effectively used, as illustrated by the current Task Force on Genetic Testing." The goals of the task force are to ensure that genetic tests will be safe and effective, performed in laboratories of assured quality, and used appropriately by providers and consumers. Its members represent the biotechnology and insurance industries, consumers, and professional genetics and medical societies, as well as the ELSI Working Group. Representatives of five agencies in the Department of Health and Human Services serve as nonvoting liaison members. NIH has provided financial support. The task force promulgated principles to meet its goals and recently drafted recommendations to implement its principles. (Both are available at http://ww2.med.jhu.edu/tfgtelsi. The proposed recommendations will be published in the *Federal Register* in February 1997.) The task force has spent most of its time gathering information, hearing from the public and the organizations represented on the task force, and debating principles and recommendations. The low position of the task force in the hierarchy of committees should not detract from the commitment of its members and the groups they represent, the importance of its goals, and the seriousness with which its recommendations should be taken.

Neil A. Holtzman
Chair, Task Force on Genetic Testing,
550 North Broadway, Suite 511,
Baltimore, MD 21205–2004, USA
E-mail: holtzman@welchlink.welch.jhu.edu

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Teaching Quality

Kenneth L. Verosub's diatribe against small liberal arts colleges (Letters, 6 Dec., p. 1595) makes little contribution to the subject of how the quality of postsecondary education can be improved. However, he ends his letter with the intriguing suggestion that faculty at small liberal arts colleges should help those at larger institutions to improve the quality of their teaching. On the assumption that faculty at universities are interested in such advice, let me offer some initial suggestions based on 15 years of teaching at both a public research university and a small liberal arts college: (i) hire faculty who have demonstrated their commitment to high-quality teaching; (ii) deny promotion and tenure to faculty who have not demon-