LETTERS

Decision-making

A suggestion that "an advisory committee of Chinese and international experts from the fields of genetics, medicine, epidemiology, ethics, and law" be formed and consulted before Chinese regulations for international genetic collaborations now in draft form are made final is put forth (above, Harvard's Xu Xiping and colleagues consulting at the Anhui Institute for Biomedical Science and Environmental Health). The "relaxation response" and its purported therapeutic effects are defended. The role of scientists in setting priorities for the funding of scientific research is explored. And an approach for "a more economical" (for industry) way to regulate airborne particulate matter is described.

"Gene War of the Century"?

Li Hui and Wang Jue's article about the controversy surrounding international collaborations on genetic research in China (News & Comment, 17 Oct., p. 376) leaves many stones unturned. For example, the "faulty translation" of a brief item in *Science* (News & Comment, 19 July 1996, p. 315), which was widely quoted in the Chinese media (*1*), seems actually to have been a misinterpretation of a paragraph that was taken out of context. Notably, at RMB ¥10 (U.S. $1.25) per sample, "blood samples from 200 million Chinese" alone would cost more than $250 million. This would far exceed the total budget for genetic research, even in many developed countries, in the last 5 years. Although the Chinese media depicted foreign access to China's DNA as "the gene war of the century" (*1*), the fire surely was fueled by some top Chinese scientists who fed reporters background information, often in passionate and patriotic rhetoric, yet replete with factual error, misrepresentation, and overstatement. In voicing their concerns with some validity, these scientists demonstrated an apparent disregard for some basic principles of population genetics and gene mapping and of pharmaceutical research and development. For example, a prominent radiologist and cell biologist held that DNA contained in blood serum could be misused, so serum should be banned from export. (Some serum samples do, in fact, contain a minute amount of DNA, but they are generally in an amount insufficient for genotyping.) Another senior social scientist claimed that exported DNA would be used by the United States to develop biological weapons against China, presumably on the basis of an unfounded assumption that genotypes lacking in the West could be targeted.

Those top Chinese scientists who call for an all-out defense based their arguments on two critical but questionable premises: (i) China has the richest genetic resources in the world because of its large population and diverse spectrum of diseases, and (ii) gene identification is the driving force in drug discovery, leading to huge profits.

Granted, China is the most populous nation in the world, and it may also have a diverse spectrum of diseases. But population size and the diversity of diseases alone do not make it "an ideal place for gene hunters." Few among the common diseases in China are known to have a hereditary component or be amenable to positional cloning. An ideal population for positional cloning would have a well-enumerated genetic disease heritage, such as that of the Finns (*2*), and a well-studied genetic structure. The documentation of Chinese disease heritage is scant, and its research in population genetics and genetic epidemiology lags far behind that of other developing countries (*3*).

The much criticized Chinese Maternal and Child Protection Law enacted in 1995 is perhaps a further example of the apparent disregard in China of basic population genetics. The notion that gene discovery can lead quickly to financial profit ignores the fact that genetic research is an endeavor that requires intensive investment, sophisticated scientific development, and, in the case of positional cloning, an extensive and well-organized commitment to the collection of reliable samples. Even if all gene discovery were ultimately to lead to drug discovery, Chinese science has yet to demonstrate its capability to support and guide independent pharmaceutical research and development.

Until the issue of "what constitutes China's genetic resources" is resolved, it seems premature to enact laws concerning them. Given a realistic evaluation of the inequalities in resources, technology, and intellectual contributions between Chinese and Western science, international collaborations are unlikely to be based on equality for many years to come. It is thus imperative that those Chinese officials in the State Council who are now drafting regulations think deeply about the question, "What is our bottom line?"

Any collaboration that is exploitative in nature or does not benefit the population under study should, of course, be discouraged. But, China's interest would not be best served by simply acquiring some patent rights or technology. Also, China's reputed genetic resources would not be protected if left untouched or made inaccessible to foreigners. Because of the potentially far-reaching consequences of the regulations now being drafted and because China's need for technology and ideas is greater than foreign need for China's DNA, it might be prudent to form and consult an advisory committee of Chinese and international experts from the fields of genetics, medicine, epidemiology, ethics, and law before any regulations are made final.

In genetics, China's premier challenge is to build up a critical mass of highly competent and visionary scientists who will be able to bring Chinese genetics into the world community. This will require the development of sound policies and perhaps an overhaul of Chinese science. It may now be time for panels of international experts to begin participating in the process of evaluation of large scientific grant proposals and research institutions. It is certainly time to stop letting politics interfere with scientific research. The rise and fall of Lysenkoism and China's loss of many outstanding scientists during numerous periods of political turmoil serve as painful lessons. Science thrives on openness and the competition of ideas, and it suffers badly when subjected to political agenda.

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*The opinions expressed are the authors' own and do not represent those of their institutions.

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The Relaxation Response: Therapeutic Effect

Irwin and Jack Tessman (Letters, 24 Oct., p. 561) write that there are discrepancies between my alleged publicizing of the therapeutic claims of the relaxation response and the published data. The data that they cite are in articles that I co-authored, but they compare these data with my comments published in *Time* (*1*). A lay magazine such as *Time* cannot always publish comments with the attention to detail that one would like. It is the data published in the peer-reviewed journals that I stand by.

According to the Tessmans, I essentially repeated these claims related to the relax-