Soviet Offer Puts Astronomers in a Bind

A Soviet invitation for Western astronomers to collaborate on a pair of orbiting radio antennas has left U.S. and European astronomers facing a classic quandary: if they join with the Soviets, they could be taking data by the early 1990's—but they would also undermine their chances for getting a much more capable European-American joint mission some 5 years later.

An orbiting radio telescope, considered one of the highest priority missions in space astronomy, would combine its signals with data from ground antennas to produce ultrahigh resolution images of objects such as quasar nuclei. It would also be relatively cheap as space missions go, perhaps $100 million.

Thus, the National Aeronautics and Space Administration (NASA) and the European Space Agency (ESA) have spent the last year studying a possible joint mission called QUASAT, in which a 15- to 20-meter antenna would be flown in the mid-1990's. The Soviets, meanwhile, have been planning a mission known as RADIOASTRON, which would supplement QUASAT and the ground-based instruments with signals from a much higher orbit. Since the result would be images of even higher resolution than before, U.S. and European astronomers have been cooperating with their Soviet counterparts very closely. Indeed, the setup is ideal for East-West collaboration: nothing would be exchanged but the data, so there could be no concern about transfer of militarily significant technology.

However, the Soviets have apparently grown frustrated with the inability of NASA and ESA officials to give them a firm commitment to QUASAT. On 3 October, at the most recent international planning meeting in Budapest, Soviet scientists announced that they had decided to go ahead with both orbital antennas on their own, starting in 1990, and would welcome Western participation.

The response of the Western community, according to one participant, was and is "polite dismay." On the one hand, the Soviet mission looks firm and the Soviet antennas will indeed fly early. On the other hand, the antennas will be smaller than QUASAT's—10 meters as opposed to 20 meters—and they will be very poor receptors at the 1.3-centimeter wavelength deemed most critical by the astronomers themselves. And yet the overall mission is similar enough that funding agencies in Europe and the United States may be unwilling to build QUASAT later. As one American observer puts it, "The danger is that it will look like QUASAT, but it won't *be* QUASAT." In short, a decision to accept the Soviet offer could effectively kill the more capable mission.

For now, at least, American participation in the Soviet mission is most unlikely, since the Reagan Administration allowed the U.S. Soviet space cooperation treaty to lapse in 1982 in retaliation for the imposition of martial law in Poland. So the decision now rests with the European scientists, who seem inclined to go with the Soviets. In December there will be an international meeting in Moscow to discuss Western participation—given the political delicacies, few Americans are expected to attend—and in February, ESA will be making a long-range decision on whether or not to support QUASAT.—**M. Mitchell Waldrop**

Gene-Spliced Hormone for Growth Approved

Human growth hormone made by genetic engineering has been approved by the Food and Drug Administration to treat certain types of dwarfism in children. The synthetic substance fills an important gap because supplies of the natural hormone were pulled from use last spring after contamination with a dangerous virus was suspected (*Science*, 7 June, p. 1176). The new product is a feather in the cap for its manufacturer, Genentech, Inc., and the biotechnology industry in general.

At least 3500 children and adolescents in the United States have pituitary glands that do not secrete sufficient amounts of growth hormone, and without treatment these individuals would only grow to about 4 feet. Until recently, children with the disorder have been treated with hormone extracted from human pituitary glands, which, if given early enough, allows them to grow to normal height. But last spring, two patients who had received human growth hormone died of a rare and degenerative slow-virus infection of the brain called Creutzfeldt-Jakob disease. A third death was thought to be linked to the virus. At that point, the federal government, which is a major supplier of the natural growth hormone, stopped distribution.

Through genetic engineering, however, the growth hormone can be made without risk of this viral contamination and in unlimited quantities. The Genentech product, called Protropin, has the same chemical makeup as the natural hormone except that the synthetic version has an extra methionine group. In clinical trials, which began in 1981, the synthetic hormone produced the same effects as the natural version in stimulating the children's growth rate and weight gain, according to Selna Kaplan, professor of pediatrics at the University of California at San Francisco and chief investigator of the clinical trials for Genentech. Some patients developed high antibody levels to Protropin, but Kaplan said that the patients "have not shown any apparent long-term effects." Of the 84 patients who have the deficiency and were tested, only one did not respond to treatment. Protropin will be available only by prescription and at centers where there is an established clinical program for growth disorders.

Protropin represents the second product of recombinant DNA techniques to hit the market. The first one was a synthetic version of human insulin and was also discovered by Genentech but licensed to Eli Lilly. Genentech will manufacture and market the growth hormone. Protropin will be sold for $35 per dose, $10 less than the price for the natural product. Genentech's stock went up $1 to $47 on the day of FDA's approval.

Approval of the synthetic growth hormone raises questions about the future of clinical research on other pituitary hormones. The National Hormone and Pituitary Program processes 50,000 pituitary glands a year mainly to supply and study growth hormone. Other hormones, even more rare in quantity, were extracted at the same time. It is unclear whether it will be worth continuing the program to supply such small amounts of other hormones for research.—**Marjorie Sun**