HUGO Takes on Role as Marriage Broker

After a near-debacle at a meeting in London, HUGO is carving out its niche in the Human Genome Project

AFTER 3 YEARS OF FLOUNDERING, THE HUman Genome Organization (HUGO) seems finally to have found its role in life. At *Science*'s Human Genome III meeting in San Diego in mid-October, HUGO president Walter Bodmer of the UK Imperial Cancer Research Fund announced that HUGO will serve as a marriage broker between two disparate and sometimes hostile communities—the traditional gene mappers and the newer, high-tech physical chromosome mappers—thereby helping to ensure that the map of each chromosome is completed. And in a marked departure, HUGO, which until recently was seen as an elitist old boy's club seeking to manage international genome efforts, has adopted a new, more humble stance. Vice president Charles Cantor articulated that view in San Diego when he said that HUGO is trying to "assist but not manage, help but not dictate."

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HUGO gurus: *Walter Bodmer and Charles Cantor.*

What brought about this transformation? The catalyst was a meeting in London in August, where, by all accounts, HUGO presided over a public relations disaster. The occasion was the 11th Human Gene Mapping workshop (HGM-11), the yearly gathering where gene mappers pool their data to create updated maps of the chromosomes, showing the location of all the known genes. When HUGO was first created in 1988, founder Victor McKusick, a geneticist at Johns Hopkins University, suggested that running these workshops would be a natural role for the organization. But the gene mapping community, which had been running the workshops just fine since 1973, was originally less than enthralled with the idea. The HGM organizers didn't join forces with HUGO until just last year, when HUGO began sponsoring the workshops.

Even before the London meeting, nearly everyone involved agreed that the HGM workshops were becoming unwieldy and prohibitively expensive. Since the first workshop in 1973, attendance had climbed from 65 to 800 at HGM-11. What's more, once the gene mappers began entering their new data directly from the meeting into the Genome Data Base at Johns Hopkins, the cost soared to several million dollars per workshop. But as unwieldy as the workshops were, no one was prepared for HUGO's plan, announced in London, for doing away with them altogether in favor of the small meetings focusing on single chromosomes that have been springing up in the past few years. "It was a fiasco," concedes one HUGO official. "Uproar is an appropriate word," says McKusick.

"Hundreds of people felt left out," says David Cox, a genome researcher at the University of California at San Francisco, who adds that the gene mappers had already felt disenfranchised. They see their work, which aims at finding the locations of disease genes, as being pushed aside by the high-tech physical mappers, who use molecular cloning techniques to piece together fragments of DNA to build an actual physical representation of the chromosomes—a major thrust of the Human Genome Project. Since the project began a few years ago, the physical mappers have started two meetings of their own—one run by Cold Spring Harbor Laboratory, the other by *Science*—and both have a high-tech focus that essentially ignores the old-style gene mappers, says Cox, who considers himself in both camps. So when HUGO officials proposed scrapping the gene mapping meeting altogether, they were adding insult to injury.

And it's not just a matter of wounded pride; the gene mappers insist the big meeting is essential. While the smaller chromosome meetings are "fantastic," says Sue Naylor of the University of Texas in San Antonio, "you lose a lot because you don't stay in touch with developments on all the chromosomes." For the so-called global mappers, like Michael Conneally of Indiana University, who work on many chromosomes, it's "the one forum we have to integrate what has gone on the year before."

As one gene mapper after another denounced the plan in London, HUGO officials took the message to heart. Since then, a new HUGO committee, which includes the organizers of the HGM workshops, has been trying to come up with a structure that will bridge the rift between the gene mappers and the physical mappers. Says committee member Cox: "If we are going to map the genome, we have to get both together."

Newly sensitized HUGO officials revealed the still tentative plans in San Diego. As they said in London, HUGO's major focus will be on the small workshops concentrating on individual chromosomes, where the hard work of integrating the map data and entering it into the database will be done. HUGO had in fact suggested running these meetings a year or so ago but was politely told to take a hike by the scientists already organizing them. This time, the emphasis is on helping the genome community organize its own meetings.

HUGO staff will help investigators write grant applications for the chromosome workshops, to be held annually. HUGO is also crafting guidelines on how best to organize these meetings, drawing on the pitfalls and successes from the meetings held so far—information that will be most helpful to researchers working on the less-studied chromosomes. "The well-established chromosome communities don't need much input from HUGO," said Cantor, who added that HUGO will try to spark interest in the "orphan" chromosomes.

To ensure that data from the individual meetings are entered promptly into the database, the HUGO committee envisions rotating "editors" who will take on responsibility for a particular chromosome. Then once a year HUGO will hold a "chromosome coordination meeting," where representatives from all of the chromosomes will meet to update the maps and hash out common problems. The first of these coordination meetings is set for Baltimore in the fall of 1992.

Every other year, HUGO will hold a big human gene mapping meeting—essentially the Human Gene Mapping workshop, but without the costly online data entry. To curb the proliferation of meetings, the gene mapping meeting will probably be held alternately with *Science's* more high-tech Human Genome meeting, which is now held yearly. Cantor and Bodmer are optimistic that this new plan will find a more favorable reception with the gene mappers. "Honestly, this marriage has not been so easily made," admits Cantor. "But I think we are past that now." ■ LESLIE ROBERTS