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Replacing competition with cooperation

Just as events this century have been molded and driven by the industrial revolution, the next century, we are told, will belong to the life sciences and in particular will be beholden to the insight and opportunity that molecular genetics will bring. (It is poignant that the first full sequence of an entire human chromosome is being published just as we embark on the new millennium (see page 1358)). Hand-in-hand with this development is the emergence of 'big science'—where grand projects emerge and squeeze out some of the individual investigations that have characterized the last 20 years of biomedical research. Only 'big science' is big enough to tackle some of the major questions facing the biomedical community, and as such this development is welcome. However, major projects require a new level of organization and cooperation and it is not clear that all sectors of the community are ready for this.

Despite some concern that the race between shotgun-wielding Craig Venter's Celera company and the huge publicly funded initiative to sequence the human genome is an unnecessary duplication of effort, it has to be acknowledged that the same competition has expedited the cause. It has brought us chromosome 22 much sooner than was anticipated just a few years ago and will slash the time to sequence the whole genome.

But even here, cooperation could help bring the project to an earlier conclusion. Indeed, according to the *New York Times*, the two groups are considering putting their rivalry aside and combining forces. This tentative suggestion of collaboration should be nurtured as a characteristic of a responsible research community—one that does not waste valuable time and resources.

Such collaboration, rationalization and coordination of resources is increasingly a signature of the field of cancer research. Worldwide, the US National Cancer Institute (NCI) is without doubt the largest player in cancer research—FY00 appropriations will probably see its budget exceed $3 billion for the first time—and never before has the strategy behind its clinical trial work been so consolidated. Within the US, the NCI's pediatric oncology clinical trials groups are expected soon to merge to form one unit, and in recent years, transatlantic clinical cancer research has been improved and streamlined through agreements between the 12 US cooperative groups funded by the NCI and the Brussels-based European Organization for Research and Treatment of Cancer. Cancer researchers recognize that progress comes not from the competitive duplication of efforts, but from collaboration.

And the same is true of at least some other communities. For example, under the auspices of the World Health Organization's Roll Back Malaria campaign, the traditionally uncomfortable bedfellows of industry, academia and the public health sector are collaborating closely in effort to reduce by half malaria deaths worldwide by 2010 (see page 1334).

Sad to say, there are, however, still communities that seem bent on duplicating and even triplicating efforts through increasingly unnecessary and nonproductive competition. AIDS vaccine research is one. Last month's announcement of the creation of EuroVac, an impressive consortium of European AIDS researchers with a strong scientific agenda, funded with $9.2 million from the European Union, is the latest in a series of disparate initiatives clamoring to be first to develop a successful HIV vaccine. EuroVac will compete with the NIH's AIDS Vaccine Research Center, the International AIDS Vaccine Initiative (a private organization who, despite support from the World Bank, Bill Gates and the British Government, do not appear to have the full support of the established HIV research community) and smaller country-specific efforts such as the South African AIDS Vaccine Initiative.

Duplicated effort is not only wasteful, it can also be damaging to the cause. The AIDS vaccine community is very protective of population cohorts that might be used in vaccine trails. There are two main concerns. First, there is a limited pool of appropriate trial participants. A tremendous amount of work goes into identifying, monitoring and following trial participants. Even in a country as big as China (with an estimated 400,000 HIV-positive people), well-characterized, appropriate and willing trial participants can become a limiting factor. The second problem is the expected reaction within the at-risk or infected community to failed vaccines. Each time a vaccine is tested and fails to yield positive results, it diminishes confidence in the next vaccine trial. Some worry that the cumulative effect of premature trials will badly damage their chances of finding willing volunteers when it comes time to test more promising vaccines.

Not all of the competition is wasteful. After all, one vaccine is not going to solve the problem and many trials will be necessary. However the absence of effective global coordination and cooperation between the major groups is worrying. Surely there is a role here for a truly international group that can put aside the egos and politics of the HIV vaccine race and focus on the patients?