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Celera submits to *Science*- or is it the other way around?

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LONDON Craig Venter's [Celera Genomics](#) is never afraid to court controversy, and a new agreement with the US journal [Science](#) has again positioned the company in the vanguard of the assault on conventional academic science. *Science* has agreed to consider publishing a huge paper from Celera that will announce the sequence of the human genome, without Celera complying with the standard regulations for disclosing data.

Ownership and control of intellectual property is the issue. *Science* has always had a policy that it will only publish a paper if the authors place their data in a publicly accessible database. This ensures free and full access to the data. Consequently, a system has evolved whereby, on publication of their work, authors place genomic data in GenBank or one of the other sister databases of the International Nucleotide Sequence Database. "There is no doubt that the use of databases by biotechnology, genomics and pharmaceutical companies helps drive drug discovery," says Don Powell, press spokesman for the Sanger Centre in Cambridge.

But the shutters may be about to drop on that one-stop-shop of genomic knowledge. Enter the new world. Celera's arrangement with *Science* allows the company to retain the data on their own database, and control access. Rather than finding all available information in one place, the scene is now set for researchers to be forced to wander around an increasing number of databases, accumulating bits of information.

Science, Celera and members of the [Human Genome Project](#) have been working since June to develop a set of conditions that would allow Celera to meet the journal's policy of open access, while retaining the control the company feels is essential. The result is that academics can get free access to 1-megabase chunks, publish results that derive from using these data and even seek intellectual property rights over the work. They can apply for access to larger chunks of data, but there are a few restrictions on the way that this can be used. Commercial researchers can get permission to access the data, but won't be able to commercialise their results. "If there are defects in this agreement then we will look for ways to fix them," says Editor-in-Chief of *Science* Donald Kennedy.

Just in case the voluntary agreement goes sour, *Science* has insisted that Celera hands over a copy of the database for *Science*'s safe keeping. Kennedy is adamant that should Celera make clear changes in the access provisions at some point in the future *Science* would make its copy available; however, it seems certain that if this occurred the lawyers would have a wild time.

"Celera has a perfect right to use its data as it wishes," says Powell. "If they think that their interests are best served by retaining their data, then that is their prerogative."

"You could ask the question, why doesn't Celera just copyright the sequence, then they could post it and anyone who takes it - steals it - from them and does something else with it could be hauled into court?" says Kennedy. "The trouble is that the US Supreme Court has said that you can not copyright a database unless you have done some form of creative work on the data, such as algorithm. Mere effort in compiling doesn't do it." On this basis Celera risked handing over all its precious data if it followed the conventional system.

Kennedy felt he was faced with Hobson's choice. He could either find a way of making it possible for Celera to publish, or risk these data being locked away.

Companies have always read scientific journals and kept their own research confidential. What's new now is that while retaining control over their data they are seeking to gain academic legitimacy by publishing their work in peer-review journals. "They are proud of what they have done - I'd want to publish it too," says Kennedy.

In this case, the move can be seen as a way of academic publishing increasing its scope of activity so that it is more accessible to commercial ventures. "That wasn't really the purpose of the decision, although it may have that effect," commented Kennedy.

One intriguing aspect of this issue is that in private conversations, many leading scientists express anxieties that this is setting a dangerous precedent, but ask people to go on record and a deathly hush descends. Former director of the NIH Harold Varmus raised the temperature when he took a leading role in writing a letter expressing concern about the issue, but has since then consistently refused to comment on the issue. Others just say that they are too busy to comment.

Does this raise new issues, or does it simply point to the dawning of a new age? There are, after all, plenty of other companies who may want to use similar mechanisms to protect their investment. "I think that the scientific community as a whole may have to evolve a policy to deal with that," says Kennedy. "If there is substantial public money supporting a venture, the public funder can insist that [the data] goes to GenBank or wherever. If it is privately funded an effort ought to be made to provide a safe harbour for their intellectual property that still allows disclosure."

In the immediate future there are likely to be a few more cases of independently deposited data with a commitment to put them into the single publicly funded database after a certain amount of time.

Is it that the Celeras of the world are the places where research will be conducted and if academic publishing wants a slice of the action they are going to have to be prepared to move with the times?

It all begs the question, does *Science* need Celera more than Celera needs *Science*?

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