Drug Firms Back Move to Link Databases

Because the world's major biological databases are constructed differently, it is virtually impossible to devise search programs that tap into them all effectively. A user has to hop from one to the other using each database's search engine to retrieve information that comes in a variety of different formats. That may soon change, however. A group of leading pharmaceutical companies last week put their considerable weight behind the development of common standards for the interface between biological databases, based on an approach popular in the computer industry. But bioinformatics specialists who run key databases used by academic researchers say they are not enamored of the interface standards chosen, although they may now be forced to adopt them.

The strategy was agreed to at a meeting in Philadelphia, attended by representatives of pharmaceutical giants such as Smith Kline Beecham, Glaxo Wellcome, and Zeneca, together with a number of software companies and representatives of databases, including the European Bioinformatics Institute (EBI) in Cambridge, U.K., and the Genome Data Base at Johns Hopkins University. The participants unanimously agreed on a fast-track plan to bring life sciences databases under standards drawn up by the world's largest software consortium, the Object Management Group (OMG). “The pharmaceutical industry is fed up with the lack of standards between biological databases,” says the EBI's hand of servers, Graham Cameron.

The OMG was set up 8 years ago to tackle the problem of incompatible databases. The OMG's approach, dubbed the Common Object Request Broker Architecture (CORBA), does not impose an external set of rules for the contents of databases to which everyone must adhere. Instead, CORBA defines interfaces that allow different databases to communicate with each other no matter what their format. Software companies can then use these interfaces to devise programs that allow researchers to access data in otherwise incompatible locations. “The idea behind CORBA is that database managers will never entirely agree on common formats for data entry in databases,” says Eric Neumann of the biological software company NetGenics.

The EBI has already championed the CORBA approach, winning funds from the European Union to study its application to biological databases in collaboration with other European partners. The Philadelphia meeting, chaired by Cameron, agreed to work toward getting the OMG to establish a life sciences “task force” by the end of the year to hammer out the details of applying CORBA to life sciences databases. Seven task forces in various business areas already exist.

Cameron is concerned, however, that biologists may not back a move to CORBA in the belief that other standards must ultimately be more useful for life scientists. “The plan is by no means a done deal,” he says. Researchers at the National Center for Biotechnology Information (NCBI) in Bethesda, Maryland, for example, are not convinced that CORBA will provide the best solution for biologists. “CORBA is one among many technologies,” says head of applications development, Jim Ostell. “There’s no real reason why a number of other standards couldn’t be applied, but given the critical mass of interest in CORBA it’s a reasonable choice,” he adds. NCBI will be looking at CORBA alongside other potential technologies for linking databases.

Supporters of CORBA will ultimately have to convince skeptics to use the standards, but they are optimistic. “The best outcome would be standards to which software developers and database managers adhere. It could do us all a great deal of good,” says Cameron.

-Nigel Williams

Calf Cloned From Bovine Cell Line

In the beginning there was Bolly, the first mammal cloned from an adult cell, then Dolly, a lamb cloned from genetically altered fetal skin cells. Now there’s Gene, a male Holstein call ABS Global, an animal breeding company in DeForest, Wisconsin, last week unveiled a 6-month-old calf, who was produced much the same way a Scottish tom made the sheep clones (Science, 7 March, p. 1415). Although not the first bovine genes, Gene and several others backed by the company are the first to come from cells that had been grown and replicating for a long time in laboratory dishes. Those types of cells “are an unlimited genetic resource,” says Michael Bishop, a molecular geneticist with ABS Global, because they can be frozen and used to produce large numbers of animals.

To create Gene, scientists first removed this calf's genetic material from an uncloned egg, fertilized the egg with a lab-grown sperm, and implanted the embryo. Unlike with Dolly, after the embryo began dividing, a cell was removed and fused with an already enucleated egg. That cell guided the egg's development. A lab dish for 7 days. The resulting embryo was then placed in a cow's uterus to gestate. In December, Gene was born.

Supernova

Supernova 1987A—a massive star that exploded with the blast of a billion suns—may be seeing a new kind of explosion center.

So far, the fastest star with the slowly expanding supernova is a red giant star that has been blowing outer layers since 1987. The collision also showed that Harvard-Smithsonian Center for Astrophysics. "We're excited," says last month. Gianfranco Petrelli noticed a brightening inside supernova of a white dwarf star orbiting it. Taken together, the moving debris may have something to do with this with a detailed understanding.