RANDOM SAMPLES

edited by CONSTANCE HOLDEN

Mary Had a Little ... Clone

Until now, the ability to create whole new organisms from single adult cells has been more the stuff of science fiction than science. Not any more. This week, embryologist Ian Wilmut and his colleagues at Scotland's Roslin Institute reported that his group had cloned a lamb using a cell nucleus taken from an adult ewe's udder.

Others have made new organisms, primarily amphibians and mice, using nuclei from embryo cells, but failed when they used cells from adults. "Now we have convincing evidence that it's doable," comments embryo researcher Colin Stewart of the National Cancer Institute-Frederick Cancer Research and Development Center in Frederick, Maryland.

The researchers first grew the udder cells in laboratory dishes, then put nuclei from those cells into ova, the DNA of which had been removed. They found that in the egg, the transferred genome reverted to embryonic patterns of expression, prompting the egg to begin dividing. The viable embryo was then placed in the womb of the ewe that had produced the egg.

Wilmut's group first used this technique a year ago, producing lambs with nuclei transplanted from very early embryos. In the 27 February issue of *Nature*, they describe how cells taken from sheep at any point in their lives will do the job. In addition to the lamb from a 6-year-old ewe's mammary tissue, four offspring were produced with nuclei from 9-day-old embryos and three from the cells of 26-day-old fetuses.

I. WILMUT, ROSLIN INST./*NATURE* **385**, 810 (1997)

Udderly amazing. Six-month-old Dolly came from a mammary cell.

It had been thought that in mature somatic cells, some genes necessary for development were permanently turned off, even lost. Thus, the group's success was a "big surprise," says Wilmut. "The mechanisms which regulate gene expression are more labile than might have been imagined." Stewart says part of the secret for success was first to starve the udder cells, causing many of the genes to shut down. That made the nuclei more amenable to reprogramming.

Eventually, says Wilmut, he hopes to use nuclear transplantation to create sheep, or cattle, with specific genes added to their genomes.

Second Chance for Cluster

A new set of Cluster spacecrafts, succeeding those destroyed when Europe's Ariane 5 rocket went down on its maiden flight last June, may arrive at their destinations by hitching a cut-rate ride on a Russian rocket.

The European Space Agency (ESA), hard hit by recent budget cuts, has been delaying future space programs to liberate the 210 million ECUs ($244 million) needed to fly four new identical spacecraft that are supposed to take unprecedented measurements in Earth's magnetosphere. But none of the major partners (France, Germany, and the U.K.) is willing to spend the 25 million more ECUs needed to rebuild Cluster scientific instruments. And Arianespace, the company that builds the rockets, says it would cost more than the 60 million ECUs that ESA has budgeted to launch the new probes on two old Ariane 4 rockets.

So last week, the Science Program Committee met in Paris to decide how to avoid scrapping the project altogether. The outcome: "Cluster isn't dead yet," says ESA spokesperson Simon Vermeer. Arianespace, which has set up a joint venture with the Russians to commercialize Soyuz and other rockets, has proposed that Cluster-2 be launched instead by the Russian Soyuz launchers, saving considerable but as yet unknown amounts of money. This would allow ESA to use some of its science budget to underwrite the scientific payloads individual countries won't shell out for. "The absolute condition is that we will not exceed the 'envelope' of 210 million ECUs," says Serge Volonté, ESA's astronomy missions coordinator.

A final decision will be made at a 3 April meeting. Even if the full-scale mission bites the dust, one Cluster probe, Phoenix—the "spare" that didn't make the ill-fated first flight—will be piggybacked on another Ariane payload to orbit without its fellows.

THE OSAKA MUSEUM OF NATURAL HISTORY

Butterfly windfall. This South Asian butterfly is part of what an official of the Osaka Museum of Natural History describes as one of the world's leading collections of bird-wing butterflies (*Ornithoptera croesus*). It's one of some 6000 butterfly and beetle specimens—valued at more than $300,000—recently donated to the museum by the widow of an Osaka-area butterfly scholar, Kaoru Sumiyoshi, a retired public health doctor who died in 1995 at age 70. Sumiyoshi had already donated some 1600 specimens to the museum. The bird-wing specimens in particular will be useful for classifying subspecies and are "very precious," because collecting is now prohibited by treaties protecting endangered species, says Takashi Ohya, a surgeon and amateur entomologist.

Internet Science Prize

An electronic magazine about science launched last year in Italy has won a new prize intended to foster "scientific culture" on the Internet.

The Pirelli INTERNETional Prize was set up last year by the Italian tire giant—which is also heavily involved in communications research—to call attention to the enlightened side of the Internet. The Web is too often popularly portrayed as a source of pornography and a guide to such pastimes as making explosives, complains Massimo Armeni, the award's technical director. Entries, accepted from any noncommercial entity, are judged by a jury headed by former Italian science minister Umberto Colombo.

The magazine, *Galileo*, at www.galileo.webzone.it, was started by a group of scientists and journalists. Currently posted is a story on how pharmaceuticals such as Prozac, barbiturates, and even some banned drugs can be obtained without prescription through the Internet. In a test, the editorial team was able to get packages of drugs from countries such as Thailand in the mail, ordered via British and U.S. Web sites.

Other winners include an Italian science high school's hypertext project on lichens and a multimedia arts and crafts encyclopedia to be available on CD-ROM. First prize is 20 million lire ($12,000). Contestants for this year's prize were mostly Italian, but next year's (deadline November 1997) is open to all 6 million Internet users in Europe; by 2000, says Armeni, anyone can apply.