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Dr. Norton Zinder, a microbiologist at Rockefeller University, and others do not take the position that the cloning of Dolly didn't happen, merely that so far there is not enough evidence to prove it.

With no other 'Dolly' yet, cloning report is challenged

Comparison test impossible since donor ewe died

By NICHOLAS WADE
The New York Times

The credibility of the experiment reporting the cloning of Dolly the sheep from the cell of an adult ewe is being sharply challenged by a leading biologist, and other eminent scientists agree the experiment needs to be repeated before it can be accepted.

The skepticism comes almost a year after the original report. Critics note that no other scientist has yet succeeded in cloning a mammal from an adult cell, although the birth of at least one calf cloned this way is said to be imminent. The cloned calves born earlier this month were generated from fetal cells, not those of an adult cow.

The challenge is in the form of a letter, published yesterday in the

journal *Science*, by Dr. Norton D. Zinder, a microbiologist at Rockefeller University and a member of the National Academy of Sciences, and Dr. Vittorio Sgaramella, of the University of Calabria in Italy.

In a response, the chief author of the cloning experiment, Dr. Ian Wilmut, of the Roslin Institute in Scotland, dismissed the possibility of error but said that some extra tests suggested are now under way and will be reported when complete.

Zinder's position is not that the cloning of Dolly never occurred, merely that so far there is not enough evidence to prove it.

In their letter, Zinder and Sgaramella note that Wilmut's cloning of an adult sheep was successful only one out of some 400 times and that in science, one success in 400 "is an anecdote, not a result."

They also criticize Wilmut's original report for failing to mention that the adult sheep from which Dolly was cloned had died several years earlier. Its absence prevented any direct comparison between Dolly and her donor, in

particular the decisive test of a skin graft from one to the other. If true clones, each would have accepted the other's skin graft; if not, any graft would have been rejected.

Dolly was cloned from a vial of sheep breast cells that had been frozen in Wilmut's freezer as part of another project. Critics say it is hard to know what other kinds of sheep cell may have been around in the vial but, since the sheep in question was pregnant at the time, the vial could have contained some of the fetal cells that circulate in the mother's body. If it was a fetal cell that generated the clone, the outcome would not be startling because Wilmut had already shown that fetal cells could be cloned.

"The most heinous crime was not saving the parent," Zinder said. "I just don't understand that. There could be nothing more exciting than seeing the two twins standing there," he said, referring to the fact that the cloned animals would be like identical twins although of different ages.