

Korean Researcher Never Cloned Human Embryos

BY Liz Townsend

Two separate investigations concluded that South Korean researcher Hwang Woo-suk falsified two papers once hailed as landmarks in embryonic stem cell research and cloning. DNA tests conducted on stem cells that Hwang claimed were derived from cloned human embryos were actually cells from embryos created for in vitro fertilization or eggs developed without fertilization by sperm, according to Korea Times.

Hwang's research, published in the peer-reviewed journal *Science* in 2004 and 2005, had been hailed as a breakthrough in cloning technology. Hwang claimed in March 2004 to have cloned the first human embryo and extracted viable stem cell lines. In June 2005, Hwang's *Science* article purported to show the first cloned human stem cell lines that genetically matched the donors.

Science, whose reputation as a prestigious medical journal was damaged by the revelations, published a retraction of both papers in its January 20 issue.

The first official investigation was conducted by an eight-member panel at Seoul National University (SNU). Its final report, released January 10, concluded that Hwang and his associates made none of the advances claimed in the *Science* reports. The one claim that the panel found credible was the cloning of an Afghan hound named Snuppy, *Korea Times* reported. However, cloning of animals has already been done in other countries, and is considered much less complicated than cloning human beings.

"Hwang's research team possesses neither the patient-specific embryonic stem cell line described in the 2005 publication nor the No. 1 embryonic stem cell line, the forerunner cloned cell line described in the 2004 publication," panel head Prof. Chung Myung-hee said, according to *Korea Times*.

"The claim ... that the DNA fingerprinting pattern of the purported cloned line and that of the somatic cell donor match perfectly was a clear false report," Chung said. "Such an act is none other than one of deceiving the scientific community and the public at large. That the publications are fabricated alone mandates a severe penalty by academia."

After the SNU panel issued its report, prosecutors began their own criminal investigation. They announced January 25 that DNA tests conducted on stem cell samples sent by Hwang to be cultivated at Mizmedi Hospital, a Seoul fertility clinic, proved that the cells were derived both from eggs fertilized normally in the clinic and from eggs grown by parthenogenesis, or reproduction without using sperm.

"The results of our DNA testing is in the same line with the conclusion made by the investigative panel at SNU," an official from the Seoul District Prosecutors' Office told *Korea Times*. "Right now, there is no reason to believe that Hwang had succeeded in creating stem cells from cloned human embryos, as test results suggest that they never existed."

Hwang, who has remained in seclusion since the first questions were raised about his research in November, spoke at a news conference on Korean television January 12. While he apologized for the "use of fake data," Hwang claimed that two junior scientists at Mizmedi Hospital tricked him into

believing their falsified research, which he used as the basis for the Science articles, the Guardian reported.

“We believe they completely deceived us with their research results,” Hwang said, according to the Guardian. “Relying on the role and responsibility of Mizmedi hospital, we trusted their reports 100%.”

Before the truth came out, Hwang had been extolled in Korea as a national hero. The Ministry of Science and Technology named him Korea’s “top scientist” in June 2005, with an award of 3 billion won (\$3.04 million) for research over the next five years, according to Yonhap.

The government also “issued a postage stamp that engraved Dr. Hwang’s promise to make paralyzed people walk through images of a man in a wheelchair who stands up, dances, and embraces a woman,” the New York Times reported, and “extolled his exploits in government school textbooks, describing him in a sixth-grade textbook as a challenger for the Nobel Prize.”

The government announced in January that it was removing the “top scientist” title, discontinuing the postage stamp, and editing Hwang out of textbooks, according to the New York Times.

The Ministry of Health and Welfare also cut off funding for the World Stem Cell Hub, founded by Hwang to serve as the worldwide center of embryonic stem cell research. The Korean Parliament canceled plans to earmark 11.5 billion won (\$11.7 million) for the hub this year, according to Yonhap.

Korean prosecutors are currently conducting an investigation into whether Hwang illegally obtained the large amounts of human eggs used in his research. The SNU panel reported that Hwang used 2,061 eggs from four hospitals, despite his claims that he cloned the stem cells from 427 human eggs, Korea Times reported. It is alleged that Hwang’s team paid women for their eggs or coerced female researchers to donate their own eggs, according to the Times.

Prosecutors questioned Park Eul-soon, who co-wrote Hwang’s 2004 paper, and three other junior researchers January 25, Korea Times reported.

In addition, the Board of Audit and Inspection (BAI) began to look into the 41.7 billion won (\$42.2 million) Hwang received in government funding, as well as \$4.35 million from private sources, according to Korea Times.

“An investigation is underway into the appropriateness of Hwang’s use of the money,” a high-ranking BAI official told Korea Times. “Auditors have found that Hwang had a female employee manage support funds, including cash donations from companies and ordinary people. We are investigating to determine whether there were any irregularities in handling the money.”

An interim BAI report is expected around February 10, according to Yonhap.