

# Korean stem cell hero quits in disgrace

By Barbara Demick and Karen Kaplan, Seoul

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South Korea's most prominent scientist resigned from his post at Seoul National University yesterday after a panel found results in his landmark paper on tailored embryonic stem cells were fabricated.

Hwang Woo-suk had been regarded as a hero in South Korea for bringing the country to the global forefront of stem cell and cloning studies.

"I am stepping down as a professor at Seoul National University," Professor Hwang said in a brief televised statement outside his laboratory at the university.

Earlier, a university panel that investigated the study said Professor Hwang bore a large responsibility even if the scale of his involvement was not yet clear.

The panel found that nine of 11 stem cell lines he claimed to have created did not exist.

His actions "were not simple mistakes", Roe Jung Hye, head of research at the university, said. "There was intentional fabrication. This activity was major misconduct that damages the foundation of science."

Professor Hwang worked in the university's College of Veterinary Medicine.

His paper, published in May by the journal *Science*, purported to describe the creation of 11 human embryo clones using DNA from patients suffering from spinal cord injuries and genetic diseases. No other research group has succeeded in cloning human embryos, though many have tried.

His team claimed it used the embryos to create individualised lines of stem cells that were perfect genetic matches to the 11 patients. The achievement, known as therapeutic cloning, was believed to be the first step towards creating personalised stem cell therapies for anyone.

Instead, the expert panel found that only two stem cell lines existed when the paper was submitted to *Science* on March 15. The validity of those cell lines is still being studied.

"Everyone in the field really wished that the paper was right," said Dr George Daley, a scientist at the Harvard Stem Cell Institute in Massachusetts. "It's just profoundly disappointing and disturbing that this has occurred. It's really hurtful to the whole scientific endeavour."

Professor Hwang and his senior co-author, University of Pittsburgh biomedical researcher Gerald Schatten, asked *Science* to retract the tarnished paper last week. The panel at Seoul National

University said his team faked the DNA results for the nine stem cell lines by using two sets of regular cells from each patient for genetic comparison.

Last week, Professor Hwang, 53, insisted that his team had created patient-specific stem cell lines and vowed to prove it by reproducing his work within 10 days. However, he acknowledged that four of the cell lines described in his original study were no longer available because they had been accidentally contaminated and died.

The panel said it would expand its inquiry to include a 2004 paper, also published in Science, in which Professor Hwang claimed to have created the first human embryo clone and turned it into stem cells.

It will also investigate his report of cloning an Afghan hound named Snuppy, which he claimed was the world's first cloned dog. Some researchers now suggest the dog might be a twin created from a split embryo rather than a clone.

The revelations of fraud are a huge blow to South Korea, whose government and people had invested vast sums of money and support for Professor Hwang.

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