

A Massive Snowball of Fraud and Deceit

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From the headlines to the somewhat cryptic media reports, it seemed as if Dr. Woo Suk Hwang of Seoul National University (SNU) had falsified the precedent-setting results of creating the first cloned human embryo and patient-specific stem-cell line. In a December 2005 press conference, he confessed to ethical lapses in his work, stating, “I am sorry that I have to tell the public words that are too shameful and horrible . . . I should be here reporting the successful results of our research, but I’m sorry instead to have to apologize.”¹ Of his own volition, Dr Hwang promptly resigned his position as head of the World Stem Cell hub and his other official posts, as a conciliatory gesture to the scientific community as well as to the general public. So what exactly was Dr Hwang’s scientific/ethical sin?

All About the Ethics

Assuming the accuracy of the initial investigation by *Nature*² and South Korea’s Health Ministry, Hwang’s research and results remain scientifically valid. Apparently it was not his scientific technique but rather his failure to adhere to Western ethical standards that befell the scientist and tainted the research. Specifically, two junior research team members secretly and under pseudonyms donated eggs for the trailblazing research, but only after Hwang declined their overt offers. If it is true that Hwang initially refused the donors’ offers, that he was unaware, but not conveniently so, of their subsequent donations, and that the women as they

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¹Alok Jha, Clone human embryo creator admits ethical lapses in work, *The Guardian (UK)*, November 25, 2005.

²*Nature*, 439, 8; 2005.

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proffered were in no way “coerced or coaxed,” what then is the concern? For some non-Western societies, and the South Korean Health Ministry in particular, there is no ethical problem, because the donations were made voluntarily, without undue persuasion, and violated no existing South Korean law. Simply put, there was no ethical breach. Hwang is not bereft of supporters outside the West, claiming to be baffled as to why “foreigners would see the donations as ethical violations.”³ The president of NeoDin Medical Institute, Hwang Yoo Sung (no relation), offered a non-Western perspective on the controversy, explaining, “Researchers know that they need to abide by certain ethical procedures when they launch a project, but in reality, researchers in South Korea don’t feel the need to constantly contemplate these issues.”⁴ Conversely, for Westerners and Western trained physicians and scientists in general, the mere possibility that donations were procured from a potentially vulnerable class of subjects—junior researchers—much like prisoners, children, and others who are without the fundamental capacity to give unfettering consent is in and of itself ethically unacceptable.

Here is why.

The three basic principles of ethical analysis are beneficence/nonmaleficence, justice, and autonomy. Applying these edicts to Hwang’s research would curtly go as follows. The first principle commands that the researcher do good and/or no harm to his or her subject(s). Of course, even by Western practice, this is a pliable concept, because almost every surgery, cancer treatment, and research participant donation could be found to cause subjects some harm. Thus, more realistically the command dictates that the potential good from the research or therapy outweigh the bad of harm caused. Focusing on the ova donors and not the resulting embryos as “research subjects” as recipients of harm, which is well beyond the scope of this article, the vast potential for stem cell research to cure debilitating diseases such as Parkinson’s or Alzheimer’s, repair spinal cords, and replace failing organs is unquestion-

³A. Faiola and J. Cho, S. Korean stem cell expert apologizes for ethical breach: scientist admits team members provided egg samples that led to cloning of first human embryo, *Washington Post Foreign Service*, November 25, 2005. p. A24.

⁴*Ibid.*

ably a greater good than the “harm” of ovary-stimulating injections, monitoring, and ova procurement, although that is not to say that this process is absent its travails for the participants.

The second ethical edict is justice. Is the experiment fair to its participants? Are they informed of the pros and cons of participation and the potential individual benefits or lack thereof? Clearly, here, where the donors were so intimately involved in the intricacies of the research, this edict is satisfied.

Lastly, and at issue herein, is the principle of autonomy. Did the research subjects willingly participate without coercion, force, or threat? Once again, assuming the veracity of their statements and the accuracy of the South Korea Health Ministry investigation, it appears that donor autonomy was preserved. The two junior team members who donated their eggs, in statements to a government commission, averred that “they had made their donations in secret and under false names after Hwang had refused their offers.”⁵ The findings of the Health Ministry’s investigation reported the donations by Hwang’s team members as not “coerced or coaxed” and concluded that there had been “no violation of ethics guidelines” by Hwang’s team. However, most ethical codes, and certainly Western standards, deem some subject populations (eg, minors, the incarcerated, and the mentally disabled) “off limits” because, despite vows of autonomy and professions of volunteerism, the population is unilaterally presumptively presumed unable to autonomously consent and because the potential for coercion is too great. Of course, some would argue that these are paternalistic ethics in direct contrast to the principles of justice and autonomy, but almost ubiquitously this argument has succumbed to an ethical standard of protecting the vulnerable populations even if they claim they are not vulnerable or do not need the protection.

About Much More Than the Ethics

As various investigations pressed on, it publicly became clear that assuming the truth of the junior researchers’ original statements exemplified the old adage about “assuming” and provided yet additional credence to the need for limited paternalistic ethics with respect to specified populations.

It now appears that in a rush to vilify or vindicate Hwang’s research, investigators prematurely reported their somewhat benign findings, only to be later baffled by the vastness not only of Hwang’s ethical lapses but of his scientific and legal violations as well. The snowball

first began rolling downhill on June 1, 2005, when a tip was e-mailed to a Seoul-based investigative TV news program asking the show to contact the tipster regarding “problems he knew of with Hwang’s research.”⁶

The tipster told producer Hak Soo Han that he had been involved with the research for Hwang’s 2004 *Science* paper but subsequently left the team because of ethical and technical concerns. He provided names, donation records, and an e-mail message from a junior researcher confessing that Hwang pressured her to donate her eggs. Enlisting independent consultants and other researchers with intimate knowledge of Hwang’s research, Han’s team reviewed Hwang’s 2004 and 2005 *Science* papers^{7,8} in light of the seemingly valid tip. They discovered that the majority of the papers’ coauthors had never seen the cloned embryonic stem cells and that cell lines 2 and 3 reportedly created by Hwang were actually genetic matches to pre-existing cell lines at the Miz Medical Hospital in Seoul, and collaborator Sun Jon Kim confessed on hidden camera that under Hwang’s direction he manipulated 2 cell lines to appear as if there were 11 distinct lines. These adulterated photos accompany Hwang’s 2005 *Science* paper. But before the TV news show aired, Hwang’s University of Pittsburgh collaborator Dr Gerald Shatten ceased their affiliation, citing Hwang’s “ethical breaches” in oocyte collection. Eleven days later, the broadcast aired, alleging that donors were paid for their eggs, that junior researchers were among the donors, and that Hwang had lied about his oocyte sources. In spite of his continued widespread popularity and support, the snowball kept rolling, picking up mass.

In the early hours of December 5, a post on the Biological Research Information Center site suggested that readers “look for duplicated pictures among the supporting online materials accompanying [Hwang’s] 2005 *Science* paper.”⁹ Similar revelations followed concerning duplications in the DNA fingerprinting traces. By December 10, 2005, the allegations were international fodder and the investigations by SNU began. Contrary to those initial uncatastrophic reports, by January 10, 2006, the SNU investigators and others rolled out the massive snowball of evidence in concluding that not only had Hwang unethically used his junior researcher’s eggs and paid women to take fertility drugs

⁶J. Couzin, How young Korean researchers helped unearth a scandal, *Science*, 22–24; 2006.

⁷W. S. Hwang et al, Evidence of a pluripotent human embryonic stem cell line derived from a cloned blastocyst, *Science*, 303, 1669–1674; 2004.

⁸W. S. Hwang et al, Patient-specific embryonic stem cells derived from human SCNT blastocysts, *Science*, 308, 1777–1783; 2005.

⁹Ibid.

⁵Ibid.

to yield eggs for retrieval, but also that he had overtly lied about the number of eggs used in his 2004/2005 research; completely fabricated, falsified and manipulated the data and pictures in his 2004 and 2005 *Science* papers; never cloned a human embryo; never extracted stem cells from a cloned embryo; and never derived patient-specific stem cell lines as claimed.

In addition to the scientific community's investigation, Korea's Supreme Public Prosecutor will be reviewing the evidence against Hwang for potential criminal indictments for fraud and misappropriations of government, university, and investor funds.

Contrary to his initial tearful regret of ethical infringements, Hwang's response to the larger allegations has been to claim that "some of his stem cells were

maliciously switched by other researchers" and subsequently to shrink from public scrutiny.

Sometimes the West is accused of wanting the rest of the world to play by its rules or live up to its standards, and in the beginning this may have seemed like one of those imperialistic times. But should the West's ethical values be solely for the West, or should they rightfully become humanity's ethical values, given the international nature of research? Had the controversy over junior researchers donating eggs not been controversial by Western values, the snowball might never have started rolling, and the scientific community and the public at large might still be in a whiteout regarding the truth of Hwang's scientific hubris and personal audacity.