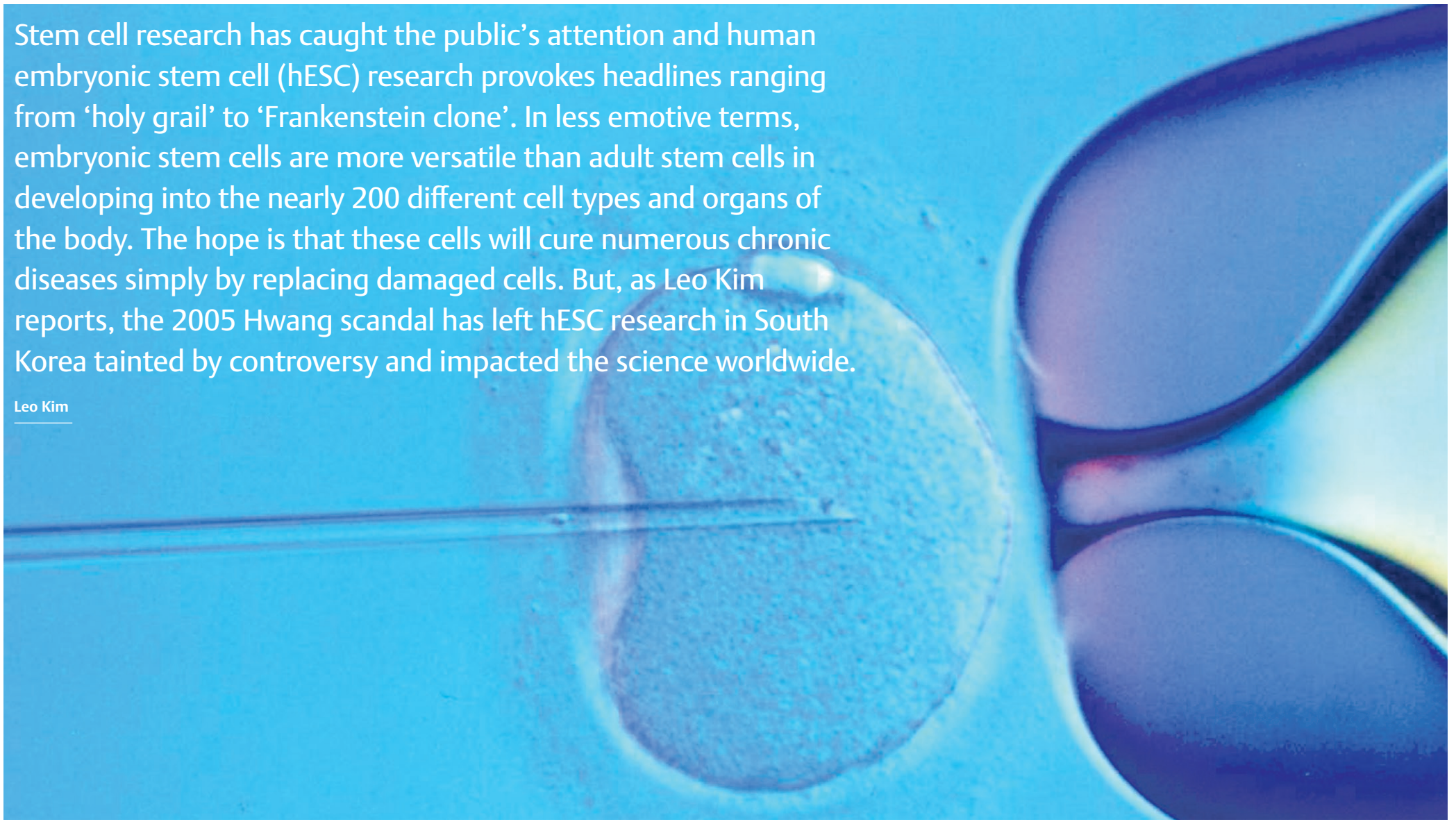
Beyond Hwang ‘International stem cell war’ in South Korea



Stem cell research has caught the public’s attention and human embryonic stem cell (hESC) research provokes headlines ranging from ‘holy grail’ to ‘Frankenstein clone’. In less emotive terms, embryonic stem cells are more versatile than adult stem cells in developing into the nearly 200 different cell types and organs of the body. The hope is that these cells will cure numerous chronic diseases simply by replacing damaged cells. But, as Leo Kim reports, the 2005 Hwang scandal has left hESC research in South Korea tainted by controversy and impacted the science worldwide.

Leo Kim

ONE CONTROVERSIAL SIDE of stem cell research is that it requires destroying embryos, which some people regard as full human life. Furthermore, the therapeutic application of somatic cell nuclear transfer (SCNT), also known as ‘therapeutic cloning’, requires many human eggs for a successful implementation. Since the ‘natural supply’ of ova is very limited, the medical extraction of ova involves injecting hormones into women to facilitate ovulation. This process carries a risk of infertility and pain for the female.

Such ethical concerns have led to the creation of guidelines for using human eggs, including the observation of the 14-day limit for growing embryos. But the underlying motives and processes for establishing ethical guidelines are very complex. This is because the holy grail of stem cell research also promises lucrative business in medicine. Nevertheless, an important aim of the ethical guidelines is to prevent the exploitation of less advantaged people in order to obtain valuable research materials, such as embryos and ova, and to provide a guide to ensure publicly recognised ethical conduct in research.

The so-called Hwang scandal, which occurred in South Korea in late 2005, involved a breach of trust in two senses. Woo-Suk Hwang, a Korean scientist who had claimed to have successfully derived stem cell lines from ‘therapeutic cloning’, not only fabricated research results but was also involved in the unethical collection of ova by coercing his junior female researchers to donate their own eggs and by purchasing many others from impoverished women without proper informed consent. This disclosure has resulted in a setback not only for the stem cell science in South Korea but also for many research communities in other countries. Understandably, government officials in South Korea became very hesitant about supporting hESC research. The government’s large-scale investment into embryonic stem cell science, compared to the less controversial adult stem cell research, was curtailed in 2007, a year after Hwang was convicted for fraud and other research-related crimes.

To many scientists engaged in embryonic stem cell science in South Korea the unexpected decision by the Parliamentary Life Science Research Forum to organise a workshop (16 April 2009), to explore ways to promote human embryonic stem cell research more actively in the future, came as a blessing. As the chairman, scientist Yongman Han, clearly explained, the underlying motives for this promotion were both international and domestic. US President Obama’s brisk move to lift former President Bush’s strict limits on embryonic stem cell research – which had included banning federal funding in the field – was a direct catalyst for South Korean scientists to reconsider its policy, as many regard the US as the benchmark model. Domestically, South Korean stem cell scientists also shared frustrations about South Korea’s stem cell science policies. They had recently witnessed some colleagues’ applications for stem cell research grants being turned down by the Bioethics Committee, and the infamous Woo-Suk Hwang’s team was one of the unsuccessful cases.

Dong-Wook Kim, chief of the National Stem Cell Research Centre since 2006, claimed that Obama’s new policy represented the desire of the US to prevail over the rest of the world in the ‘stem cell war’, referring to the strong nationalistic competition in the field. In contrast to the global trend of investing in stem cell research, according to Kim, Korea’s position had been weakened over the previous few years by the ‘cynical atmosphere’ which afflicted stem cell research following the Hwang scandal and the subsequent withdrawal of government funding. Kim diagnosed that Korean scientists are now suffering from a ‘loss of war morale and ammunition’. For this reason, South Korean stem cell scientists regard a swift decision by the Korean government to increase funding for stem cell research and to loosen regulation as both urgent and necessary.

For instance, the stem cell scientist Hyung-Min Chung, who recently applied for funding for his stem cell research project, was asked by Korea’s National Bioethics Committee to revise it.[1] Chung, a speaker at the above mentioned workshop, complained:

> *“Even compared to the regulation in the UK, Korea’s bioethics law incorporates excessively detailed articles, which does not respond to the rapidly changing international research situation. I think that the law should be revised to accommodate reality by containing only declarative phrases, while leaving details to secondary or tertiary orders. Also, the limitation on using ova and embryos is extremely restrictive. The law only permits using frozen embryos. This would even inconvenience the sterile patients that wish to donate fresh embryos, as they can only donate after freezing them.”* [2]

Agree or not, it is apparent that there was a shared notion among speakers to regard the change of US policies as the ‘global’ trend; and a shared irritation regarding ethical regulation in Europe. Thus, Jung-Chan Rah, Director of RNL Bio and one of the speakers at the workshop, asked pejoratively: ‘Why does the EU raise bioethical issues while the USA is silent?’

The panel of the workshop made it clear that the eventual purpose of the workshop was to attract interest among Members of Parliament and to secure more support, which is vital for South Korean scientists who depend on the government for most of their funding. There were conspicuous efforts by the speakers to invoke nationalistic sentiments, exaggerate prospects for medical application and profits, and profuse expressions of gratitude to those MPs who showed an interest in this issue. They even named many of those who had not turned up but had put down their name for the workshop. Predictably, the prolonged speeches by bureaucratic scientists stirred outrage on the floor. This atmosphere provoked reactions from the panel, one of which included an unconventional speech made by the representative of a disabled group, Haesup Kim. Kim queried if society alone was to be held responsible for the ‘cynical atmosphere’ during the years after the Hwang scandal. He also asked whether Korean scientists had reflected upon their research approach, which is labour intensive, and mainly relies on the quantity of resources – that is, the number of ova – as well as funding, rather than improving their ‘scientific’ understanding.

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Some other questions cross my mind. How can South Korean scientists engage in international collaboration with other scientists if they talk of this research in terms of an international war? In these circumstances it seems unlikely that the government’s financial and legal backing is sufficient to clear away some of the systemic problems in South Korean stem cell research which the Hwang scandal revealed. Furthermore, would it not be problematic that South Korean scientists feel comfortable ignoring those internal cultural and institutional limitations in the science community that have hampered the set-up of transparent research practices in Korean laboratories? Regretfully, these questions were not discussed at the workshop, as chairman Han rushed to wrap up the session with a last remark: ‘We should leave behind the Hwang trauma.’ It is not clear, however, how the trauma is to be overcome. For the workshop showed that the lack of ethical consciousness among scientists that had failed to prevent scientific and ethical misconduct is still there. The social concerns about ethical issues that were touched upon remain mere rhetoric. Worse, for the moment, there seems to be little opportunity for open discussion with the public and experts in other fields.

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Notes

1. The Bioethics committee pointed out that Chung’s title for the 3-year grant, ‘establishment of embryonic stem cell and developing therapeutic medicine’, for enumerated diseases could raise misunderstanding. The committee also pointed out that the team’s project requirement of 1,000 human eggs might be excessive. Chung complied by modifying the title and reducing the number of ova to 800. His application was finally accepted on 29 April, only a few days after the workshop.
2. Workbook, p.29 (http://www.gokorea.org/bbs).