Duplicate publication: a bitter dispute

Korea's scientific community is once again under scrutiny as a row erupts about the origins of a study published in a Korean and a US journal. **Jonathan Gornall** investigates

A bitter dispute over the authorship of a twice published medical paper has pitted a 35 year old Korean doctor against one of the most powerful players in the country's struggle for biotech supremacy. The battle is threatening to disrupt Korea's efforts to recover scientific credibility in the wake of the recent scandal over Woo-Sok Hwang's stem cell research.¹

On one side is Jeong Hwan Kim, a Korean doctor now working in Singapore. On the other is Kwang Yul Cha, a fertility specialist with important medical business interests in Korea and the United States and an emerging front runner in the race to inherit the disgraced Hwang's crown as Korea's foremost stem cell research pioneer.

Dr Kim claims a paper about premature ovarian failure that he originally published in the *Korean Journal of Obstetrics and Gynaecology* in January 2004² was translated and republished in the American journal *Fertility and Sterility* under a different title and with different authors in December 2005.³

What is indisputable is that Dr Kim's name was not present in the later version of the paper and that in his place as lead author was Dr Cha, his former employer and the head of CHA Health Systems, a "global healthcare enterprise" whose many interests include the CHA Stem Cell Institute, Pochon CHA Uni-

versity and College of Medicine, and seven hospitals and clinics in Korea and the CHA Fertility Centre, CHA Regenerative Medicine Institute, and Hollywood Presbyterian Medical Centre in Los Angeles.

Now, as the dispute escalates into a series of allegations and counter allegations, the editor in chief of *Fertility and Sterility* has been accused of defamation and threatened with legal action by Dr Cha. However, the *BMJ* has also learnt that following an investigation by the public prosecutor's office in Korea, Dr Sook Hwan Lee, one of Dr Cha's coauthors on the disputed paper, has been charged with criminal copyright infringement.

The dispute is a major embarrassment for the CHA organisation, which only recently hired Professor Kwang Soo Kim, a respected Harvard professor, to boost its credibility in stem cell research. In February, only weeks before the dispute became public, the journal *Stem Cells* published an editorial by Professor Kim headlined "Stem cell research continues in Korea beyond the Hwang scandal," an episode he described as "an impermanent disgrace in the history of modern Korean science."⁴

He was, however, "glad to report that stem cell science in Korea is bouncing back with better focus . . . for example, the CHA medical group recently announced its plan to build a new CHA Stem Cell Institute." He was opti-

mistic "that stem cell science in Korea will not halt in the aftermath of the scandal, but rather continue with better integrity, sound perspectives, and realistic long-term expectations."

But Professor Kim has now found himself drawn into a bitter dispute that will do nothing to repair the reputation of Korean science.

Origins

The story begins a decade ago, when Dr Kim, then a 25 year old graduate from the College of Medicine at Korea University, joined the CHA organisation. After a year as an intern, in March 1998 he began four years of residency in the obstetrics and gynaecology department at CHA General Hospital in Seoul. This was followed by a fellowship at the CHA Infertility Medical Centre and, after a year, promotion to consultant in the same unit. He studied at the graduate school at Korea University while working at CHA General Hospital, achieving a master's degree in obstetrics and gynaecology in 2001 and completing his PhD in 2003.

Dr Kim told the *BMJ* that the paper now in dispute had begun life as his PhD thesis and that there were just two names on it when it was published by Korea University in May 2003: his and that of his university supervisor, Jae Sung Kang, head of obstetrics and gynaecology at the university. Dr Kim

The title had changed but comparison of the two papers shows that ... they are substantially the same

says he submitted his thesis as a paper to the *Korean Journal of Obstetrics and Gynaecology* in July 2003, one month before he left the CHA group for a post in Singapore.

The paper now carried five additional names. Dr Kim had added Sook Hwan Lee, head of the human genetics laboratory at CHA General Hospital, with whom he says he discussed the study. In addition, he credited as authors three researchers who had carried out DNA extraction from blood samples and Tae Ki Yoon, his superior at the Infertility Medical Centre.

Now in Singapore, Dr Kim says he next saw his paper as a PDF, shortly after it was published in the *Korean Journal of Obstetrics and Gynaecology*. He was, he says, surprised to see that Dr Lee had become the corresponding author and that an additional three names had been added to the list, which now totalled 10.

He was also surprised to see that the paper now carried a statement that the study had been conducted with the aid of government funding. This was, he says, news to him. "I have never had any penny of it," Dr Kim told the *BMJ*. "I paid all my expenditure with my own cash and I have my receipts."

Duplicate publication

Dr Kim says his surprise turned to shock when he saw the paper had surfaced again—this time in the December 2005 edition of *Fertility and Sterility*. The title had changed but comparison of the two papers shows that, although sentences have been restructured and they are not word for word identical, they are substantially the same.

He was even more shocked to see that the number of authors had reduced to six and that he was no longer one of them. In fact, only two of the authors credited had also been listed in the *Korean Journal of Obstetrics and Gynaecology* version of the paper, and one of them was Dr Lee. Dr Kim's place as lead author had been taken by Dr Cha.

The three other newcomers to the paper included Hyung Min Chung, codirector of the new CHA Stem Cell Institute, and Kyu Bum Kwak, one of the institute's 36 principal investigators.⁵

Dr Kim says his immediate concern was for his future in Singapore. "They are very strict about these things here. I was the first doctor to have come direct from Korea and work

here and I got a very sceptical view from the Singapore Medical Society.

"When my boss, also a fertility specialist, saw the *Fertility and Sterility* article he very politely asked me, 'I know KY Cha, and I know he is a big figure, I can't help but think—did you buy your PhD thesis?'"

Shortly after publication of the paper in *Fertility and Sterility* Dr Kim contacted Dr Alan DeCherney, the journal's editor in chief. Dr Kim told Dr DeCherney not only that he was the rightful and uncredited author of the paper but also that it had been published before.

Dr DeCherney investigated Dr Kim's claims and on 21 July 2006 replied to say that while there was "considerable overlap between the article we published and the materials that you submitted . . . the issue of plagiarism cannot be resolved by this Journal or its Editorial Board. We suggest that the matter be resolved by your institution. If the matter is resolved in your favor, and there is adequate documentation, please forward the information to us."

Dr DeCherney told the *BMJ*: "The way that we sort this out in America is that I would go to the dean or the chairman of the department, but the problem is that this was all done at the CHA [organisation]."

Harvey Marcovitch, chair of the Committee on Publication Ethics, said, "All the appropriate bodies—the International Committee of Medical Journal Editors, the Council of Science Editors—are quite clear that it is wrong to try to publish the same data more than once. Duplicate publication is taken very seriously and COPE deplores it because it can corrupt the record."

On 9 February this year Dr DeCherney received an email from the editor in chief of the Korean journal, requesting retraction of the article by *Fertility and Sterility* on the ground of duplicate publication. On 18 February, Dr DeCherney was quoted in an article in the *LA Times* as saying that he was going to recommend to the April meeting of his editorial board that the paper be withdrawn and the authors banned from publishing in the journal for three years.⁶

On 7 March, Dr DeCherney received a letter from lawyers acting on behalf of Dr Cha. It quoted comments attributed to him in the *LA Times* on 18 February and in *The Scientist* on 20 February and accused him of having made "false and defamatory statements" about Dr Cha. It threatened legal action and demanded

that Dr DeCherney sign a statement of retraction. The letter, seen by the *BMJ*, calls for Dr DeCherney to "acknowledge that 1) Dr Cha was entitled to be credited as an author of the F&S [*Fertility and Sterility*] article; 2) you have no reason to disbelieve Dr Cha's statement that he was unaware of the prior publication in the KSOG Journal; and 3) Dr Cha did not plagiarise Dr Kim's work, in that Dr Kim's name was on the list of authors initially submitted to F&S by Dr Lee, and was only omitted because he could not be located."

In December last year, Dr Kim filed a lawsuit in Korea against Dr Cha and Dr Lee, alleging breach of copyright. Dr Lee responded by alleging that Dr Kim had defamed her, while the CHA organisation claims that Dr Kim stole the data used in the study. It is Dr Lee, however, who is facing criminal charges in Korea, as a spokesman for the CHA organisation told the *BMJ*: "Dr Lee confirms that the other authors named in the F&S article were unaware that it had already been published, as is supported by the fact that she is the only defendant named in the public prosecutors office's charge of copyright infringement, after a full investigation by that body."

"She accepted full responsibility for the dual publication and has apologised to F&S. While she denies most of the charges by Dr Kim, Dr Lee feels that the incident has hurt the reputation of the medical school and the hospital, and as a result has offered to resign her professorship at the medical school and all posts at the hospital and the laboratory."

The *BMJ* has been unable to reach Dr Lee to confirm this.

Disputed history

So how was the disputed paper produced and by whom? According to the CHA organisation, Dr Kim's role in the research was not as important as he would have it. A spokesman for the organisation informed the *BMJ* that it was Dr Cha who had "originated the idea for the project, and provided guidance and oversight for the collection of the patient samples for the research data upon which the F&S article was based. He is therefore fully entitled under the relevant rules to a credit as a first author." The spokesman also claimed that Dr Cha had designed the study in 1998 and that he and Dr Lee had been "developing research ideas and plans on premature ovarian failure since 2000 and, accordingly,

began collecting samples among the patients of CHA General Hospital . . . Professors at the Fertility Center of CHA General Hospital worked jointly on research plans . . . they were assigned to collect the blood samples of outpatients . . . who were suffering premature ovarian failure. They passed on their findings to [Dr] Lee, who was the research supervisor."

As for Dr Kim, he had been "a junior researcher . . . employed by Dr Lee's laboratory . . . a resident in the CHA General Hospital, to which Dr Lee's laboratory was attached." As regards the blood samples which formed the basis of the study, Dr Kim "had collected only two of these samples." Then, in August 2003 Dr Kim "obtained his doctorate from a third-party institution, and left the hospital shortly afterwards, leaving no forwarding address. Moreover, he took with him without permission the original research data from Dr Lee's laboratory, and has refused to return it."

As for the publication of this research, Dr Cha's lawyers' letter of 7 March to Dr DeCherney asserts that in 2002 Dr Lee had "offered to let [Dr Kim] use the data obtained by her laboratory concerning mitochondria DNA to write his thesis," on the understanding that an article be submitted for publication to a journal in the Science Citation Index. Dr Lee reportedly says she discovered that Dr Kim had submitted his paper to the *Korean Journal of Obstetrics and Gynaecology*, which is not in the index, when the editors contacted her because they could not locate Dr Kim. Because Dr Lee "had always intended for the data to be published in a SCI [Science Citation Index] publication, and because Dr

TWISTS OF EVOLUTION

Jeong Hwan Kim

May 2003: Korea University publishes the PhD thesis of Dr Jeong-Hwan Kim. It has the names of two authors on it: Dr Kim and Professor Jae Sung Kang, head of obstetrics and gynaecology at the university

July 2003: Dr Kim submits his thesis as a paper to the journal of the Korean Society of Obstetrics and Gynaecology

January 2004: *Korean Journal of Obstetrics and Gynaecology* publishes Dr Kim's paper with the title: "The quantitative analysis of mitochondrial DNA copy number in premature ovarian failure patients using the real-time polymerase chain reaction"

December 2005: *Fertility and Sterility* publishes "Quantification of mitochondrial DNA using real-time polymerase chain reaction in patients with premature ovarian failure," which is very similar to Dr Kim's paper. It is credited to six authors at the Department of Obstetrics and Gynaecology at CHA General Hospital, Seoul. Dr Kim's name is not on it. The lead author is Dr Cha, the head of Cha Health Systems

Kim had taken the original research data, his thesis was the only source left and, consequently, Dr Lee had the KJOG article translated into English and submitted it to F&S."

There are some obvious problems with this account. If Dr Kim's role in the study was as minor as the CHA organisation now claims, it is unclear why Dr Lee, the corresponding author for the Korean version of the paper, would have allowed him to be listed as the paper's lead author. Indeed, given Dr Lee's supposed intention that the paper be published in a journal in the Science Citation Index, it is strange that she allowed publication in the Korean journal to go ahead at all. Furthermore, given Dr Lee's role in the Korean paper, why was Dr Cha not included at that stage as an author?

Dr Kim's version of events is somewhat different. He told the *BMJ* that it was his study, that he had generated the data for it, and that he had full records, complete with names and time-stamped consent forms, of all the blood samples he had collected from 30 patients he had personally recruited from November 2002. This suggested timeframe is supported by the account in both published versions of the paper, where it is stated

that "The study ran from November 2002 to January 2003."

Moreover, Dr Kim told the *BMJ* that because the CHA organisation at that time had lacked the necessary equipment to conduct real time polymerase chain reaction analysis of the 30 blood samples, he had paid for the use of another organisation's facilities and had the receipt. In response to this claim, Dr Cha's spokesman conceded that Dr Kim had

indeed paid some of the costs for the use of such equipment: "Dr Kim paid only 2 805 490 won (\$2950) [£1500; €2200], related to the marginal variable cost, such as outsourcing to Yonsei [University] and some reagents for that specific experiment. The project cost amounted to 34 378 230 won (\$36 400) including the fixed cost of laboratory operation for salary for researchers, equipments, maintaining facilities, etc."

One matter that is not in dispute is that it was Dr Lee who had the paper translated into English and submitted it to *Fertility and Sterility*. At this stage, the CHA organisation claims, Dr Kim was included as an author by Dr Lee, but "F&S required all authors to sign certain documents . . . she was unable to find Kim and therefore his name was ultimately left off the list."

Dr Kim, however, points out that his colleagues at CHA hospital—including Dr Lee—had known for a year before his departure that he was going to work in Singapore, that it would not have been hard to find him there, and that his two email addresses were on the original paper he had submitted to the Korean journal. What is more, after leaving Korea, he remained in direct contact with some of his former colleagues: "A clinician at the infertility centre where S H Lee and I used to work, visited Singapore with his whole family. They stayed at my house for about a week in 2004." Also, he says, "I sent a New Year message to the vice head of the centre in 2005 and 2006. I don't think she [Dr Lee] can insist that she couldn't find my whereabouts."

Professor Kwang Soo Kim, director of the molecular neurobiology laboratory at Harvard's Mclean Hospital and the newly recruited codirector of the CHA Stem Cell Institute, now finds himself having to defend his new employer. No fewer than three of his new colleagues at the institute—including his fellow codirector, Hyung Min Chung—are among the disputed authors on the paper. In February he wrote to Dr DeCherney of *Fertility and Sterility* on behalf of the CHA organisation as "a fellow research scientist with more than 23 years of research experience in the US as well as first-hand knowledge of standard practices in the scientific community in Korea," to express regret about the incident.

In his letter, a copy of which the CHA organisation sent to the *BMJ*, he suggests that "The main issue that appears to be at

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the center of this controversy is the multiple publication of the paper.” But he then makes a disturbing disclosure: “In Korea, it has been a customary practice and an accepted procedure by the scientific community to submit top-quality research outcomes concurrently (or subsequently) to internationally-recognized journals in an effort to promote and advance the work of Korean scientists, which was also the case when Dr Lee submitted her paper to *Fertility and Sterility*.

“I personally have very strong objections to this practice and have been trying to convince the scientific leaders in Korea to put a stop to this. It was only recently in 2006 that this guideline was in fact revised in Korea to prohibit this practice.”

Professor Kim’s intervention leaves little doubt about how seriously the CHA group views the potential of the incident to damage its bid to inherit Hwang’s crown: “The reputation and credibility of our university and that of its researchers and scientists are also at stake,” Professor Kim writes. “This is an extremely critical issue in light of the fact that I believe our institution will serve a pivotal role in restoring the severely damaged reputation and credibility of stem cell and life science research in Korea after the Hwang scandal.”

Before his fall from grace, Professor Hwang received the bulk of Korean government funding in stem cell research. In January last year the journal *Science* retracted two papers by Hwang et al after an investigation committee at Seoul National University concluded that they contained fabricated data.⁷ Professor Hwang, who worked at the university and was a national hero in South Korea, had claimed his laboratory had carried out the first cloning of patient specific stem cells, producing no fewer than 11 lines. The inquiry found that the laboratory “does not possess patient-specific stem cell lines or any scientific basis for claiming to have created one.”

The Korean government has responded to the scandal by increasing its commitment to stem cell research, announcing a 10 year investment plan and committing \$454m to be distributed more widely. In November last year, CHA Medical Group, which had been untouched by the Hwang debacle, announced its plans to succeed Professor Hwang’s now defunct World Stem Cell Hub by building Korea’s largest stem cell institute

on land provided by the Korean government.⁸ The *BMJ* contacted Professor Kim while he was visiting Korea, where he says he now spends 10% of his time, working for the CHA organisation.

“Dr Cha,” he insisted, “was originally involved from the very conception of this idea and he coordinated the overall direction. I still think it’s an issue whether Dr Cha is really deserving first author but what I can say is he was very seriously involved with the design of this paper from the first.”

However, although Professor Kim admitted he had not spoken to his namesake, he appeared to credit Dr Kim with a larger role in the project than had been conceded so far by the CHA group: “As for Dr Kim, Dr Lee also involved his name as coauthor because she thought he deserved at least coauthorship because he analysed and wrote the original paper. He contributed in that manner but other than that in terms of experiments he didn’t do any.”

In America, the dispute over the paper is already causing problems for the CHA group. A research grant of \$2.6m, agreed on 15 March by the California Institute for Regenerative Medicine, a state agency established to fund stem cell research in the state’s universities and institutions,⁹ has been challenged publicly by a watchdog group, the Foundation for Taxpayers and Consumer Rights.¹⁰ In a letter dated 22 March, the foundation urges the president of the agency to investigate further before handing over the money to the CHA Regenerative Medicine Institute in Los Angeles.

John Simpson, the foundation’s stem cell project director, writes: “It is not clear what the institution’s affiliation is with its corporate parents CHA Medical, CHA Biotech and other corporate for-profit entities . . . Is CHA RMI truly a non-profit institution eligible for funding in this round of grants?”

It is, he says, “imperative that stem cell research funded by the state of California be conducted only by organisations demonstrating the highest ethical standards. Based on what is known so far, a thorough examination of the activities of CHA Regenerative Medicine Institute, its affiliates and leadership are in order before any funds are transferred.”

This is not the first time Dr Cha has been associated with controversy over a published paper. In September 2001 he was listed as

the lead of three authors on a report of a study, published in the *Journal of Reproductive Medicine*, that claimed intercessory prayer had doubled pregnancy rates among women being treated with in vitro fertilisation embryo transfer.¹¹

The paper attracted strong criticism that only intensified in May 2004 when Daniel Wirth, an advocate of alternative medicine and one of Dr Cha’s coauthors, pleaded guilty to an unrelated charge of business fraud and was sentenced to five years in prison.¹² In December the same year the third author, Rogerio Lobo, a fertility specialist at Columbia University, withdrew his name from the paper, admitting he had acted only as an adviser on the study.¹³ The *Journal of Reproductive Medicine* has not retracted the prayer paper. It remains in the literature with Dr Cha listed as joint author with Wirth. Professor Lobo, of the department of obstetrics and gynaecology at Columbia University School of Medicine, is now listed as one of the four members of the Advisory Board of the Cha Stem Cell Institute in Korea.⁵

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