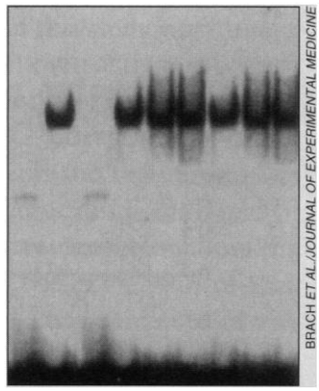
SCIENTIFIC MISCONDUCT

Panel Calls Falsification in German Case 'Unprecedented'

After a 4-month inquiry, a panel of scientists and legal experts asserted last week that two biomedical researchers had apparently manipulated or falsified data "to an unprecedented extent" in their research at universities and at a national research center in Germany from 1988 to 1996. The 12-member commission was headed by Wolfgang Gerok, a retired professor of internal medicine at Freiburg University. The panel said it had so far identified 37 publications that appear to include falsifications or indications of possible data manipulation, mainly involving alterations of digitized images such as autoradiograms. "This is an extremely serious matter," Gerok told *Science*. "For German science, at least, the extent of the falsifications appears to be unprecedented" in the postwar era.



BRACH ET AL./JOURNAL OF EXPERIMENTAL MEDICINE

Composite. Autoradiograph in paper co-authored by Brach and Herrmann in the *Journal of Experimental Medicine* (1 February 1995, p. 795) was allegedly compiled from several unrelated sources.

Gerok said that all of the questioned papers listed Friedhelm Herrmann, a hematologist and expert in genetic therapy now based at Ulm University, as a co-author. The other researcher under scrutiny, a co-author of some of the papers, is Lübeck University professor Marion Brach, a molecular medicine researcher formerly involved in a personal relationship with Herrmann. At the time *Science* went to press, the panel had not made public its full report; only a two-page statement was available. In that statement, the panel said it planned to continue, over the coming months, to scrutinize the researchers' entire list of publications—more than 300 in Herrmann's case. "So far, we have looked at only a small number of the publications," Gerok said. "We intend to look at all of them."

Both Brach and Herrmann have separately disputed the commission's findings. Brach, who submitted evidence to the commission at an early stage, has accused the panel of treating her unfairly and exaggerating her role in the falsifications cited. Herrmann, in a lengthy written submission mentioned in the commission's statement, denied that he had committed or known in advance about any data manipulation. Last month, Herrmann told *Science* that he was "primarily a clinician," who mainly set the direction for research groups he was responsible for (one of which involved Brach), and that he did not detect falsifications when he reviewed the papers.

While the panel has no power to impose sanctions against the two scientists, commission members said in their statement that they would make the full report available to German public prosecutors, state science ministries, and granting agencies. "Any sanctions are in the hands of the legal authorities and the granting agencies," said Gerok.

The two scientists—both of whom worked briefly at Harvard University in the 1980s—did their early research at the universities of Mainz and Freiburg. In 1992, they moved to Berlin, where Herrmann worked as a professor at the Free University and supervised a research team—including a group led by Brach—at the Max Delbrück Center for Molecular Medicine, a German national research center in Berlin. In 1996, Herrmann and Brach moved to Ulm; Brach left later to become a professor at Lübeck's medical school.

After former co-researchers reported their suspicions about data falsification earlier this year, Brach said she told investigators that she had manipulated data in two or three cases in 1993 and 1994 while under pressure from Herrmann. She admitted altering data in an autoradiogram included in a paper about transcription factors induced by a cytokine—tumor necrosis factor—in human fibroblasts, published in *The Journal of Experimental Medicine* in 1995.

The panel's statement alleged that Herrmann and Brach had either manipulated or "made up" data used in some tables and autoradiograms. For example, the report said, the same digitized illustrations were used in different publications, with only the descriptive captions altered. In addition to data falsifications, the panel said that Herrmann had made "false statements" about his publications on job applications.

Herrmann denies any wrongdoing, while Brach describes herself as a victim who was pressured to manipulate data. Aside from the two or three cases, Brach maintains that she did not falsify any other data. Herrmann has been temporarily suspended from Ulm University, pending the outcome of the inquiries, and some research grants to the scientists' labs have been frozen.

Meanwhile, a separate commission in Freiburg—headed by Albin Eser, director of the Max Planck Institute for International Criminal Law—issued a preliminary statement last week. This group said it had identified another 12 papers, co-authored by Herrmann and Brach during their work in Freiburg and Mainz from 1988 to 1993, that may include falsifications. However, the panel said it had not found evidence that other co-authors in Freiburg and Mainz had participated in any falsifications. This group plans to issue a detailed report later.

Gerok said one of the major questions his commission will address in the future is whether any of the other co-authors of the publications in question were aware of—or were parties to—any data manipulation. "It is clear that some co-authors were unaware," Gerok said. "But others may have had some knowledge."

The data-falsification scandal has shaken Germany's scientific community, spurring the main granting agency, the Deutsche Forschungsgemeinschaft (DFG) to establish a dozen-member international commission of respected scientists. They will discuss research standards and the procedures for scientific oversight, both in Germany and internationally (*Science*, 11 July, p. 172). At its first meeting on 17 September, the DFG panel will take up questions raised by the current German scandal, including: why supervising scientists with limited knowledge of the research involved are sometimes listed as co-authors on scientific papers; whether developments in some fields are making it difficult for peer reviews to verify the quality of new publications; and whether laboratory groups are under sufficient supervision.

Some German politicians say the scandal shows the need for a national oversight body such as the U.S. Office of Research Integrity, but leading German scientists say they would prefer science to police itself more effectively.

While Gerok said he sees no need for an overhaul of the current peer-review system in the wake of this scandal, he also has said that he supports the plans of the DFG international panel to look into wider issues. "We must take a very hard look at the standards for co-authorship," Gerok said. "There are now too many examples of co-authors who know too little about the actual laboratory research."

–Robert Koenig

Robert Koenig is a journalist based in Bern, Switzerland.