NATURE | NEWS

Science expresses concern over controversial chemistry paper

'RNA nanoconstruction' has been the focus of a decade-long controversy.

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Update, 4 February: Science *published an 'editorial retraction' of the 2004 chemistry paper on 4 February, 2016. It stated that neither Feldheim nor Eaton agreed to the retraction, and that Gugliotti could not be reached for comment.*

A long-running battle over findings reported in a 2004 chemistry paper in *Science*[1] may finally be drawing to a close.

On 21 January, Marcia McNutt, the journal's editor-in-chief, published an 'editorial expression of concern' saying that *Science* would either retract or correct the paper, which described using RNA to assemble nanoparticles made of palladium.

The US National Science Foundation (NSF) funded the research, and in 2013 the agency's inspector-general recommended that it make a finding of research misconduct, alleging that the authors had falsified data in the paper. In a final report in 2015, the NSF concluded that the evidence did not support that misconduct charge.

The authors are chemists Daniel Feldheim and Bruce Eaton of the University of Colorado Boulder, who were at North Carolina State University (NCSU) in Raleigh at the time of the work, and former NCSU graduate student Lina Gugliotti. All three have been barred from receiving future NSF funding unless they take "specific actions to correct publications containing the misleading results".

"Of course I am disappointed with *Science*'s decision," Feldheim wrote to *Nature*. "Such measures were not requested by any governing or investigatory body and I do not believe it is in the best interest of the scientific community."

Crystal technique

The saga began when the paper described a method for using RNA sequences to grow tiny hexagonal crystals of palladium metal. The work hinted that RNA might have a role in producing inorganic materials in the environment. It has been cited more than 135 times.

But Stefan Franzen, another chemist at NCSU, soon raised questions about the work. In a series of publications, he challenged whether the team had really seen RNA-driven action[2] or stable palladium crystals[3]. Franzen filed a formal complaint to NCSU, which kicked off a series of investigations.

In the 2013 report, the NSF inspector-general found that the researchers had omitted experimental details and overstated the results, and recommended a finding of research misconduct. In 2015, the agency declined to make such a finding, but did issue a letter of reprimand and ban the authors from funding.

Feldheim says that he agrees with the NSF final report that a finding of misconduct was not warranted. McNutt says that *Science* is working with the authors to determine whether to run a retraction or correction.

The timeframe for that — or any final conclusion — remains unclear, frustrating Franzen.

"I am pretty cynical about the system," he says. "I would like to move on."

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Corrections

Corrected: An earlier version of this story wrongly ascribed wording from the 2013 NSF inspector-general report to the final 2015 NSF report.

References

1. Gugliotti, L. A., Feldheim, D. A., & Eaton, B. E. *Science* **304**, 850–852 (2004).

2. Franzen, S., Cerruti, M., Leonard, D. N. & Duscher, G. J. *Am. Chem. Soc.* **129**, 15340–15346 (2007).

3. Chung, S. *et al*. *Part. Part. Syst. Charact.* **30**, 280–286 (2013).