

NEWS IN FOCUS

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The University of Naples, where Italian police have been investigating allegations of research misconduct since 2012.

RESEARCH INTEGRITY

Researchers frustrated by Italian misconduct probe

Alfredo Fusco denies claims that his lab hired a photo studio to manipulate images.

BY ALISON ABBOTT

More than five years ago, Italian police began investigating allegations of research misconduct in papers by Alfredo Fusco, a prominent cancer scientist in Naples. Researchers frustrated by the case's slow progress have now told *Nature* that there is strong evidence that dozens of papers may contain manipulated data — and that a commercial photography studio was called in to cut and paste images. They say they are speaking

out about the magnitude of the allegations because of their increasing impatience with the slow pace of investigations by police and by academic authorities. The failure to resolve the affair is harming Italian science, they say.

Fusco, who works at the University of Naples, has been under investigation since 2012, when bioinformatician Enrico Bucci told police that several of Fusco's papers contained images of electrophoretic gels — used to separate molecules — in which sections seemed to have been cut and pasted to mimic the

presence or absence of particular molecules.

Since then, the catalogue of papers under suspicion has grown, and the Naples public prosecutor who is handling the case has told *Nature* that “it is clear that some images have been manipulated”. Stefania Buda says she still needs “some more months” to decide whether or not to launch criminal charges against Fusco.

Data manipulation would not in itself be a criminal offence, say experts close to the investigation; a criminal charge would revolve ▶

► around the alleged use of fraudulent data to acquire funding.

Perhaps the most unusual allegation is that a local photographic studio was regularly asked to alter scientific images before publication, say scientists at the University of Naples who do not wish to be identified. This claim was first reported in 2013 in an Italian newspaper, after a police raid on Fusco's labs in which computers and lab books were confiscated.

Meanwhile, Bucci, who now runs research-integrity consultancy Resis in Turin, Italy, has separately examined 380 papers co-authored by Fusco between 1985 and 2015, and says he now thinks that 95 of them contain manipulated figures.

Fusco denies all these allegations. "We have not intentionally manipulated any publication," he told *Nature* in an e-mail. Although ten of his papers have already been retracted, and ten corrected, any image alterations that may have occurred in his papers were "mistakes" made as figures were assembled, Fusco says. "I was not aware of it, since I do not participate in the assembling of the figures," he adds.

The drawn-out nature of the investigation is particularly worrying for the Italian Association of Cancer Research (AIRC) in Milan, a charity that had been funding Fusco but suspended its grant payments four years ago after hearing about the investigation. "This is an issue of great concern and embarrassment to us," says Federico Caligaris-Cappio, the AIRC's scientific director. "It's important that these allegations are fully aired and finally resolved, one way or the other — so we can get certainty."

Fusco previously held advisory positions with the AIRC, but as a result of the investigation he is now excluded from them. Since

2002, the AIRC has awarded him more than €4 million (US\$4.4 million) in grants and stipends. "Once we have an answer from the court on whether or not any of the allegations are correct, we will discuss whether we want to try to reclaim any part of this money," says Caligaris-Cappio.

NAPLES INVESTIGATION

Details of how the University of Naples has approached the affair also raise questions about Italian academia's oversight of misconduct allegations. Bucci says he went to police about Fusco's papers in 2012 because the university had no procedures for handling misconduct allegations.

After newspaper reports about the resulting police raid, the university did set up an internal investigation committee in 2013.

"It's important that these allegations are fully aired and finally resolved, one way or the other — so we can get certainty."

no evidence of misconduct. It adds that the papers could not in any case have influenced grant decisions.

But that report has been heavily criticized by an ethics committee of the Italian National Research Council (CNR), which the University of Naples asked to examine its investigation-committee procedures. In its own confidential report, which *Nature* has also seen, the CNR flags Di Lauro's apparent

conflict of interest — he co-authored seven papers with Fusco before 1999 and two after 2011. It also criticizes the committee's decision to analyse images with the naked eye, instead of using commonly available software. And the report decries the apparent downplaying of any consequences of the claimed data manipulation.

Di Lauro told *Nature* that he had disclosed his co-authorship to the internal committee, whose report indicates that members unanimously discounted it as a conflict of interest. He says the committee didn't use software to check the images so as to avoid unnecessary duplication of the ongoing police investigation.

Gaetano Manfredi, rector of the University of Naples since 2014, says that once the outcome of the criminal investigation is known, he will initiate a new independent investigation into possible scientific misconduct. In the meantime, the university has decided that Fusco's papers must be approved by his department head before submission, he says. And the university has set up a system for investigating misconduct allegations.

The entire saga "has been damaging for the scientific community and for the institutions in Italy", says Gerry Melino, a cell biologist who was involved in the investigation, and who has positions at the University of Leicester, UK, and the University of Rome Tor Vergata. Melino is editor-in-chief of two journals that have retracted Fusco's papers. He says that the long wait for the affair to be resolved is making life difficult for many in the research community, particularly Fusco's co-authors. "It is in the general public interest to see this sad episode concluded one way or another." ■

ARCHAEOLOGY

Dreams of the Stone Age dated in southern Africa breakthrough

Ancient rock-art research could piece together how peoples interacted there 5,700 years ago.

BY SARAH WILD

Scientists have directly dated Stone Age rock paintings in southern Africa reliably for the first time. Their work reveals that early hunter-gatherer peoples created art at three sites in the region, some 5,700 years ago (A. Bonneau *et al.* *Antiquity* **91**, 322–333; 2017). And the findings open the door for archaeologists and other researchers to date thousands more rock paintings in this part of

Africa — and so piece together the lives and development of ancient people there.

The study focused on paintings in present-day Botswana, South Africa and Lesotho created by the San people, whose direct descendants still live in the area. The San have been much studied, but many mysteries remain about how they lived, and how they interacted with other groups — such as early farmers.

"If we are able to date depictions of livestock and material goods associated with incoming

groups, we may be able to start unravelling the nature of interactions between groups in this early contact," says David Pearce, an archaeologist and director of the Rock Art Institute at the University of the Witwatersrand in Johannesburg, South Africa, and a co-author of the latest study.

Just under 2,000 years ago, Pearce says, pastoral and farming people independently arrived in South Africa, where they came into contact with hunter-gatherer groups such as