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Scorn over claim of teleported DNA

12 January 2011 by [Andy Coghlan](#)

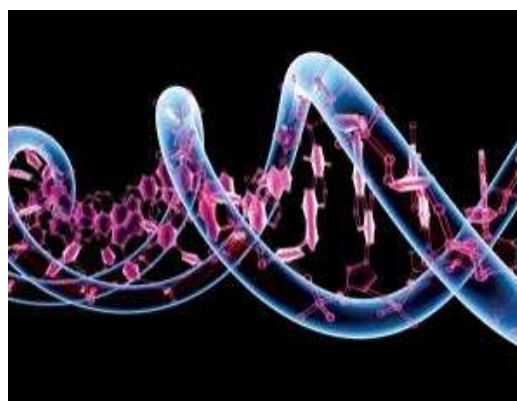
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Editorial: "Why we have to teleport disbelief"

A Nobel prizewinner is reporting that DNA can be generated from its teleported "quantum imprint"

A STORM of scepticism has greeted experimental results emerging from the lab of a Nobel laureate which, if confirmed, would shake the foundations of several fields of science. "If the results are correct," says theoretical chemist [Jeff Reimers](#) of the University of Sydney, Australia, "these would be the most significant experiments performed in the past 90 years, demanding re-evaluation of the whole conceptual framework of modern chemistry."



How could it leave its mark? (Image: Pasioka/SPL)

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Luc Montagnier, who shared the [Nobel prize for medicine in 2008](#) for his part in [establishing that HIV causes AIDS](#), says he has evidence that DNA can send spooky electromagnetic imprints of itself into distant cells and fluids. If that wasn't heretical enough, he also suggests that enzymes can mistake the ghostly imprints for real DNA, and faithfully copy them to produce the real thing. In effect this would amount to a kind of [quantum teleportation](#) of the DNA.

Many researchers contacted for comment by *New Scientist* reacted with disbelief. [Gary Schuster](#), who studies DNA conductance effects at Georgia Institute of Technology in Atlanta, compared it to "pathological science". Jacqueline Barton, who does similar work at the California Institute of Technology in Pasadena, was equally sceptical. "There aren't a lot of data given, and I don't buy the explanation," she says. One blogger has suggested [Montagnier should be awarded an IgNobel prize](#).

Yet the results can't be dismissed out of hand. "The experimental methods used appear comprehensive," says Reimers. So what have Montagnier and his team actually found?

Full details of the experiments are not yet available, but the basic set-up is as follows. Two adjacent but physically separate test tubes were placed within a copper coil and subjected to a very weak extremely low frequency electromagnetic field of 7 hertz. The apparatus was isolated from Earth's natural magnetic field to stop it interfering with the experiment. One tube contained a fragment of DNA around 100 bases long; the second tube contained pure water.

After 16 to 18 hours, both samples were independently subjected to the polymerase chain reaction (PCR), a method routinely used to amplify traces of DNA by using enzymes to make many copies of the original material. The gene fragment was apparently recovered from both tubes, even though one should have contained just water (see diagram).

DNA was only recovered if the original solution of DNA - whose concentration has not been revealed - had been subjected to several dilution cycles before being placed in the magnetic field. In each cycle it was diluted 10-fold, and "ghost" DNA was only recovered after between seven and 12 dilutions of

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the original. It was not found at the ultra-high dilutions used in homeopathy.

Physicists in Montagnier's team suggest that DNA emits low-frequency electromagnetic waves which imprint the structure of the molecule onto the water. This structure, they claim, is preserved and amplified through quantum coherence effects, and because it mimics the shape of the original DNA, the enzymes in the PCR process mistake it for DNA itself, and somehow use it as a template to make DNA matching that which "sent" the signal (arxiv.org/abs/1012.5166).

"The biological experiments do seem intriguing, and I wouldn't dismiss them," says Greg Scholes of the University of Toronto in Canada, who last year demonstrated that [quantum effects occur in plants](#). Yet according to Klaus Gerwert, who studies interactions between water and biomolecules at the Ruhr University in Bochum, Germany, "It is hard to understand how the information can be stored within water over a timescale longer than picoseconds."

It is hard to understand how the information can be stored in water for more than picoseconds

"The structure would be destroyed instantly," agrees [Felix Franks](#), a retired academic chemist in London who has studied water for many years. Franks was involved as a peer reviewer in the debunking of a controversial study in 1988 which claimed that water had a memory (see "[How 'ghost molecules' were exorcised](#)"). "Water has no 'memory'," he says now. "You can't make an imprint in it and recover it later."

Despite the scepticism over Montagnier's explanation, the consensus was that the results deserve to be investigated further. Montagnier's colleague, theoretical physicist Giuseppe Vitiello of the University of Salerno in Italy, is confident that the result is reliable. "I would exclude that it's contamination," he says. "It's very important that other groups repeat it."

In a paper last year (*Interdisciplinary Sciences: Computational Life Sciences*, DOI: [10.1007/s12539-009-0036-7](https://doi.org/10.1007/s12539-009-0036-7)), Montagnier described how he discovered the apparent ability of DNA fragments and entire bacteria both to produce weak electromagnetic fields and to "regenerate" themselves in previously uninfected cells. Montagnier strained a solution of the bacterium *Mycoplasma pirum* through a filter with pores small enough to prevent the bacteria penetrating. The filtered water emitted the same frequency of electromagnetic signal as the bacteria themselves. He says he has evidence that many species of bacteria and many viruses give out the electromagnetic signals, as do some diseased human cells.

Montagnier says that the full details of his latest experiments will not be disclosed until the paper is accepted for publication. "Surely you are aware that investigators do not reveal the detailed content of their experimental work before its first appearance in peer-reviewed journals," he says.

How 'ghost molecules' were exorcised

The latest findings by Luc Montagnier evoke long-discredited work by the French researcher Jacques Benveniste. In a paper in *Nature* (vol 333, p 816) in 1988 he claimed to show that water had a "memory", and that the activity of human antibodies was retained in solutions so dilute that they couldn't possibly contain any antibody molecules (*New Scientist*, 14 July 1988, p 39).

Faced with widespread scepticism over the paper, including from the chemist Felix Franks who had advised against publication, *Nature* recruited magician James Randi and chemist and "fraudbuster" Walter Stewart of the US National Institutes of Health in Bethesda, Maryland, to investigate Benveniste's methods. They found his result to be "a delusion", based on a flawed design. In 1991, Benveniste [repeated his experiment](#) under double-blind conditions, but not to the satisfaction of referees at *Nature* and *Science*. Two years later came the final indignity when he was suspended for [damaging the image of his institute](#). He died in October 2004.

That's not to say that quantum effects must be absent from biological systems. Quantum effects have been proposed in both [plants](#) and [birds](#). Montagnier and his colleagues are hoping that their paper won't suffer the same fate as Benveniste's.

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