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The 'Berlin Patient' used to be HIV positive but shows no trace of the virus after bone marrow transplant

Aids researchers believe the time may have come to think the unthinkable: a growing body of expert opinion believes a cure for HIV infection is no longer a scientific impossibility but a realistic goal that scientists could reach in the very near future.

A scientist who shared a Nobel prize for the discovery of human immunodeficiency virus (HIV) has now added her voice to those who believe it is possible to cure a viral infection that until now has been considered life-long, chronic and, although treatable, ultimately incurable.

Françoise Barré-Sinoussi, who first reported the discovery of the Aids virus in 1983 with her colleague Luc Montagnier of the Pasteur Institute in Paris, cited this week the case of the 'Berlin Patient', an American gay man called Timothy Brown who received a bone marrow transplant in 2007 while a student in Germany. The transplant was undertaken to treat a type of blood cancer but in the process it also apparently cured Mr Brown of his HIV infection.



Five years after his transplant, he continues to be free of HIV despite having given up his anti-viral drugs. It is still not clear to scientists why Mr Brown has managed to shrug off his chronic HIV infection so effectively.

For decades, a cure for Aids has been little more than a pipe dream because of the ability of the virus to integrate itself within the genetic material of infected patients. Once installed within a patient's DNA, the Aids virus could 'hide away' for years, even decades, from the body's immune defences.

As a result, scientists realised soon after HIV was discovered in the early 1980s that infected people would continue to be at risk of developing Aids throughout their life unless continuously treated with anti-viral drugs.

But Mr Brown's highly unusual case has given some scientists cause for optimism. In a comment article in this week's *Nature*, Professor Barré-Sinoussi and her colleague Professor Steven Deeks of the University of California, San Francisco, say that Mr Brown has been effectively cured of HIV – the first person in the world to fulfil the strict scientific definition of a cure.

Professor Barré-Sinoussi and Professor Deeks took part this week in the launch of a global scientific strategy document for Aids and HIV prior to the 2012 International Aids Conference which begins next week. The document will place 'cure research' centre stage, suggesting that instead of focusing almost exclusively on research into better anti-viral drugs and HIV vaccines, scientists should think about ways of curing patients outright.

THE INDEPENDENT TIMOTHY BROWN BEAT AIDS BUT HIS DOCTORS AREN'T CERTAIN HOW

Timothy Brown, the 'Berlin patient', was a student in the German capital in 1995 when he tested positive for HIV. He still remembers his reaction. 'I was terrified,' Mr Brown said.



A year later, however, it became possible to treat HIV with a combination of drugs. Mr Brown was prescribed triple combination therapy, which kept him from developing Aids.

However, in 2006 he was diagnosed with acute myeloid leukaemia. His doctor suggested a bone marrow transplant of stem cells to repopulate his white blood cells, the Tcells of the immune system. The doctor suggested a donor with a natural mutation to the CCR5 gene. This gene normally codes for a protein on the surface of T-cells that allows HIV to enter the cell. But the CCR5 mutation confers resistance to infection.

"I underwent total body irradiation to wipe out my body's immune system before receiving the transplant. I last took my HIV medications on the day of my stem cell transplant. I still have no trace of HIV in my body," Mr Brown said.

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