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## Scientists win battle over Aids

By Andrew Veitch,  
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The end of the Aids nightmare for haemophiliacs may be in sight. Scientists today announce that they have engineered the gene that produces the blood clotting agent, Factor 8.

The first pure genetically-engineered product is due to be given to haemophiliacs in clinical trials next year. Unlimited supplies could be on the market within two years.

It means Britain's 4,500 haemophiliacs — and thousands more across the world — may not have to rely on factor 8 produced from blood with the attendant risks of both Aids and hepatitis. Details of the discovery by Dr Edward Tuddenham's team at the Royal Free Hospital, London, and three teams in the United States, are published in *Nature* today.

The magazine describes it as a technical triumph without parallel. Mr John Maddox, *Nature*'s editor, calls it a staggering exploit.

The scientists have isolated and cloned the entire Factor 8 gene. It turns out to be extraordinarily long — 180,000 base pairs of amino acids (the genetic building blocks), occupying 0.1 per cent of the X chromosome.

They isolated the gene from human white blood cells called T cells, and from liver cells. They inserted the cloned versions into monkey and hamster kidney cells and found that the cells secreted human Factor 8. Then they put the Factor 8 into blood plasma from a haemophiliac to see if it worked: it did — the plasma clotted.

Dr Tuddenham, head of the haemophilia centre at the Royal Free, said yesterday: "We

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hope to start giving it to haemophiliacs in clinical trials next year. It could be on the market in two years. I'm very pleased, but most haemophiliacs will have to live for at least two years with the present product."

The Haemophiliac Society's coordinator, Mr David Watters, said: "It's terrific news."

Two British haemophiliacs have died of Aids and a third is reported to have contracted the disease. All were given Factor 8 imported from the States. A third of haemophiliacs tested have been found to have antibodies to the Aids virus.

The pure, genetically engineered product will be marketed in the UK by Speywood Laboratories of Wrexham, the firm which financed Dr Tuddenham's work. Genentech, whose San Francisco scientists collaborated with Dr Tuddenham, and the Bayer subsidiary, Cutter, will market it in the States.

Professor George Brownlee of Oxford University, and Dr Charles Rizza, head of the Oxford haemophilia centre, write in a *Nature* commentary today: "One of the most exciting and ambitious goals of the biotechnology industry has been achieved."

They add a note of caution: "It is clear from previous experience with genetically-engineered products that we must anticipate some delay, perhaps three to five years, before a safe, effective and clinically tested product is on the market."