

Gene transfer therapy could replace vaccines, treat HIV

A team of scientists has announced what could prove to be an enormous step forward in the fight against [H.I.V.](#)

Scientists at Scripps Research Institute said they had developed an artificial antibody that, once in the blood, [grabbed hold of the virus and inactivated it](#). The molecule can eliminate H.I.V. from infected monkeys and protect them from future infections.

But this treatment is not a vaccine, not in any ordinary sense. By delivering synthetic genes into the muscles of the monkeys, the scientists are essentially re-engineering the animals to resist disease. Researchers are testing this novel approach not just against H.I.V., but also Ebola, [malaria](#), [influenza](#) and [hepatitis](#).

“The sky’s the limit,” said Michael Farzan, an immunologist at Scripps and lead author of the new study.

Farzan and other scientists are increasingly hopeful that this technique may be able to provide long-term protection against diseases for which vaccines have failed. The first human trial based on this strategy — called immunoprophylaxis by gene transfer, or I.G.T. — is underway, and several new ones are planned.

“It could revolutionize the way we immunize against public health threats in the future,” said Dr. Gary J. Nabel, the chief scientific officer of Sanofi, a pharmaceutical company that produces a wide range of vaccines.

Whether I.G.T. will succeed is still an open question. Researchers still need to gauge its safety and effectiveness in humans. And the prospect of genetically engineering people to resist [infectious diseases](#) may raise concerns among patients.

“The reality is we are touching third rails, and so it’s going to take some explanation,” said Dr. David Baltimore, a [Nobel Prize](#) recipient and virologist at Caltech who is testing I.G.T. against a number of diseases.

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