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Gene silencing can be mediated by short interfering RNAs (siRNAs), which suppress the activity of particular genes at certain places or times. In plants this process has an antiviral defense role but in animal cells its specific function has been unclear. Separate papers in the 27 June Nature, show that siRNAs can inhibit HIV-1 replication and confer intracellular antiviral immunity against poliovirus in human cells (*Nature* 2002, DOI:10.1038/nature008796).

Jean-Marc Jacque and colleagues at University of Massachusetts Medical School, Worcester, Massachusetts, used synthetic or plasmid-derived siRNAs in cell cultures and observed that siRNAs targeted to various regions of the HIV-1 genome can inhibit HIV-1 replication in human cell lines and primary lymphocytes. The siRNAs interrupted early events in the HIV replication cycle by directing the specific degradation of genomic HIV-1 RNA. This prevented subsequent synthesis of viral reverse-transcription intermediates and establishment of the provirus.

In the second paper, Leonid Gitlin and colleagues at University of California, San Francisco, showed that pre-treatment of human and mouse cells with siRNAs complimentary to the poliovirus genome markedly reduced the titre of virus progeny and promoted clearance of the virus from most of the infected cells. In addition they demonstrated that protection results from direct targeting of the viral genome by siRNA and is not attributable to classical antisense mechanisms or to interferon and its effectors (*Nature* 2002, DOI:10.1038/nature00873).

The authors suggest that siRNAs (currently the focus of a patent furore) elicit specific intracellular antiviral resistance that may provide a therapeutic strategy against human viruses.

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