

DO FRAGMENTS OF ENDOGENOUS RETROVIRUSES EXIST IN HUMAN GENOME TOO?

Relevant for: Science & Technology | Topic: Biotechnology, Genetics & Health related developments

Previous studies have shown that fragments of ancient viral DNA — called endogenous retroviruses — in the genomes of mice, chickens, cats and sheep provide immunity against modern viruses that originate outside the body by blocking them from entering host cells.

Now a study (*Science*) conducted with human cells in culture in the lab has found that the antiviral effect of endogenous retroviruses likely also exists for humans. The research is important because further inquiry could uncover a pool of natural antiviral proteins that lead to treatments without autoimmune side effects. The work reveals the possibility of a genome defence system that has not been characterised, but could be quite extensive.

Endogenous retroviruses account for about 8% of the human genome — at least four times the amount of DNA that make up the genes that code for proteins. Retroviruses introduce their RNA into a host cell, which is converted to DNA and integrated into the host's genome. The cell then follows the genetic instructions and makes more virus. Typically, retroviruses infect cells that don't pass from one generation to the next, but some infect germ cells, such as an egg or sperm, which opens the door for retroviral DNA to pass from parent to offspring.

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