

## 'Tamed' virus wipes out cancer cells safely

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Scientists have tamed a virus so that it attacks and destroys cancer cells but does not harm healthy cells, according to a paper published in *PLoS Pathogens*.

Scientists based at the University of Oxford modified a common virus - called an adenovirus - so that it could deliver vital genetic therapy to destroy tumours without poisoning the liver. The changes enabled the virus to keep its natural 'infectious' characteristics to replicate in - and kill - cancer cells in mice. But for the first time the virus was also recognised and destroyed by healthy mouse liver cells, so it was no longer toxic.

Adenoviruses have been used as cancer therapies in clinical trials in the UK but have not yet been licensed here. To date the viruses have always been converted to a weakened form so they don't cause organ damage. This is achieved by deleting parts of the viruses' genetic information. In this research the scientists have for the first time modified a virus so that it cannot replicate in the liver and cause liver damage, allowing the viruses to be used at full strength and to maximum effect.

Lead author, Professor Leonard Seymour, a Cancer Research UK scientist, based at the University of Oxford, said: "The approach we developed is easy to use and flexible. It may help in the development of future therapeutic viruses that are specific to certain disease sites. This modified virus was effective in these laboratory studies, but transfer of the technology to the clinic to be used with patients will require further work - and it will probably be at least two years before this can happen."

Modified naturally-occurring viruses have already had important uses in medicine including their use as vaccines, notably for measles, mumps, polio, influenza, and chicken pox. They have already been developed as potential cancer-killing therapies, in an approach called virotherapy.

Dr Lesley Walker, Cancer Research UK's director of cancer information, said: "Decades of research has already led to the development of new and exciting approaches to treating cancer in a more targeted and efficient way.

"The ability to produce viruses that can replicate in cells, but have any harmful characteristics removed so they are no longer lethal, should provide a new platform for development of improved cancer treatments - as well as better vaccines for a broad range of viral diseases."

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