

Breakthrough in the treatment of HIV—researchers develop prototype vaccine vector

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A team of scientists at Royal Holloway, led by Professor George Dickson, and as part of the UK HIV Vaccine Consortium, led by

Professor Jonathon Weber at Imperial College London, has developed a prototype HIV vaccine vector using a similar approach to that used for a vaccination for Ebola and Malaria.

According to the World Health Organisation, more than 35 million people are living with HIV/ AIDS or almost 1% of all adults aged 15-49. Over two million people are newly infected every year, and it is estimated that globally around £10 billion is spent each year on HIV treatment and care.

Although researchers have been working on developing a [vaccine](#) for 30 years, recent advances are helping to speed up their quest and by pooling their knowledge the scientists have made a giant leap forward with the current prototype which they hope can be taken through to human trials. The team's findings are published in the journal Vaccine.

Professor Dickson, from the School of Biological Sciences, at Royal Holloway, said: "Discovery of an effective vaccine against HIV is one of the greatest challenges in medical research. Our work makes a contribution to the growing and profound body of knowledge about the nature of protective immune responses required for an effective AIDS vaccine. But success will require multidisciplinary efforts like the UK HVC to take discoveries in the lab onwards through preclinical testing and manufacture, into early human trials."

Dr Shan Herath and Dr Anita Le Heron are key members of the Royal Holloway research team working on the verified prototype HIV vaccine vector project which was funded by the Wellcome Trust.

The team have engineered two HIV vaccine vector candidates based on Chimpanzee adenoviruses (chAd3 and chAd63). They have studied the immune responses to the vaccines to establish whether there could be immune responses to the HIV transgene. In addition to designing a

vaccine, the route of injection in muscle tissue has also been shown to be an important factor in assessing efficacy. The results suggest that chimpanzee adenoviruses are good vaccine candidates as viral vectors for HIV vaccines.

More information: S. Herath et al. Analysis of T cell responses to chimpanzee adenovirus vectors encoding HIV gag–pol–nef antigen, *Vaccine* (2015). [DOI: 10.1016/j.vaccine.2015.10.111](https://doi.org/10.1016/j.vaccine.2015.10.111)

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