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## Development of a vaccine candidate against crimean-congo haemorrhagic fever (CCHF) virus

Dowall SD, Buttigieg KR, Findlay-Wilson S, Miloszezewska A, Rayner E, Graham VA, Carroll MW and Hewson R  
Public Health England, UK

Crimean-Congo Haemorrhagic Fever (CCHF) is a severe tick-borne disease, endemic in many countries in Africa, the Middle East, Eastern Europe and Asia. Between 15-70% of reported cases are fatal. There is no approved vaccine available and preclinical protection in vivo by an experimental vaccine has not been demonstrated previously. PHE scientists have developed a recombinant candidate vaccine expressing the CCHF virus glycoproteins in an attenuated poxvirus vector, Modified Vaccinia virus Ankara. Cellular and humoral immunogenicity was confirmed in two mouse strains, including type I interferon receptor knockout mice, which are susceptible to CCHF disease. This vaccine protected all recipient animals from lethal disease in a challenge model adapted to represent infection via a tick bite. Histopathology and viral load analysis of protected animals confirmed that they had been exposed to challenge virus, even though they did not exhibit clinical signs. This is the first demonstration of efficacy of a CCHF vaccine.

### Biography

Dowall SD joined the research division of Public Health England (PHE) starting in the HIV vaccine research group that used the SIV model in rhesus macaques. During 2004, he transferred these skills to a group set up to establish the non-human primate model of TB. With a keen interest in virology and in vivo modelling, Stuart moved to the Virology and Pathogenesis research group in 2009. Within this group he has established immunological assays with viruses, and has undertaken work at Containment Level 4, primarily with Ebola and Crimean-Congo Haemorrhagic Fever (CCHF) viruses. He is Project Team Leader for multiple projects within the group studying arboviruses, haemorrhagic fever viruses and vaccines/therapeutic interventions against these pathogens.