

## COMBATting FUTURE BIOLOGICAL THREATS – HOST-DIRECTED INTERVENTIONS TO EMERGING THREATS FOR RAPID RESPONSE

### Sudan Virus Persists In The Immune Privileged Organs Of Nonhuman Primate Survivors

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The 2022-2023 Sudan virus (SUDV) outbreak in Uganda underscores the need for better understanding of the pathogenesis and transmission of SUDV. It's well-known that Ebola virus persistence following the primary acute infection may cause a new chain of transmission from patients with apparent recovery and may lead to recrudescent disease. However, little is known about persistent infection of deadly Sudan virus (SUDV) which is one of four members within the genus *Orthoebolavirus* associated with disease in humans. Here we demonstrate SUDV persists in the eyes and testes of nonhuman primates (NHPs) that had survived acute infection of SUDV without therapeutic interferences. We identify that SUDV persists in the vitreous chamber and its immediately adjacent tissues and in the seminiferous tubules, which are the sites of immune privilege and sperm production, but not in organs typically affected during acute infection of NHP survivors. Specifically, SUDV primarily persists in the macrophages and Sertoli cells in the eyes and testes, respectively. The ocular and testicular SUDV persistence are accompanied by tissue damage, including inflammatory cell invasion. Our study suggests long-term follow-up efforts to reduce possible recrudescent diseases and reignition of outbreaks caused by viral persistence in survivors of SUDV infection.

The opinions, interpretations, conclusions, and recommendations presented are those of the author and are not necessarily endorsed by the U.S. Army. All studies described in this presentation were conducted under IACUC approved protocols in compliance with the Animal Welfare Act, PHS Policy, and other Federal statutes and regulations relating to animals and experiments involving animals. The facility where this research was conducted is accredited by the Association for Assessment and Accreditation of Laboratory Animal Care International and adheres to principles stated in the Guide for the Care and Use of Laboratory Animals, National Research Council, 2011.

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