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[Antiviral Res.](#) 2023 Aug;216:105658. doi: 10.1016/j.antiviral.2023.105658. Epub 2023 Jun 23.

Late remdesivir treatment initiation partially protects African green monkeys from lethal Nipah virus infection

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PMID: 37356729 PMCID: [PMC10529221](#) DOI: [10.1016/j.antiviral.2023.105658](#)

Abstract

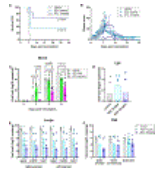
Remdesivir is a nucleotide prodrug with preclinical efficacy against lethal Nipah virus infection in African green monkeys when administered 1 day post inoculation (dpi) (Lo et al., 2019). Here, we determined whether remdesivir treatment was still effective when treatment administration initiation was delayed until 3 dpi. Three groups of six African green monkeys were inoculated with a lethal dose of Nipah virus, genotype Bangladesh. On 3 dpi, one group received a loading dose of 10 mg/kg of remdesivir followed by daily dosing with 5 mg/kg for 11 days, one group received 10 mg/kg on 12 consecutive days, and the remaining group received an equivalent volume of vehicle solution. Remdesivir treatment initiation on 3 dpi provided partial protection from severe Nipah virus disease that was dose dependent, with 67% of animals in the high dose group surviving the challenge. However, remdesivir treatment did not prevent clinical disease, and surviving animals showed histologic lesions in the brain. Thus, early administration seems critical for effective remdesivir treatment during Nipah virus infection.

Keywords: Antiviral; Nipah virus; Nonhuman primate; Nucleotide analog; Remdesivir.

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