

AVAILABLE FOR **LICENSING & FURTHER DEVELOPMENT:**

Broad-spectrum antiviral therapeutics targeting sphingosine 1-phosphate (11UMC024)

Innovation

University of Missouri inventors have developed novel therapeutics for the prevention and treatment of viral infections in a variety of species spanning human and veterinary applications. In animal studies, treatments have demonstrated successful recovery of 50-60% of treated animals in response to otherwise fatal infections when treatments were administered orally, intraperitoneally, or intranasally. Issued patent covers multiple human and veterinary commercially relevant viruses.

Background

Negative-strand RNA viruses, including the Orthomyxoviridae, Paramyxoviridae, Rhabdoviridae, Filoviridae, Bornaviridae, and Bunyviridae families, represent major health threats to a variety of species including humans. Few antiviral therapeutics exist today, and those on the market are mostly highly pathogen-specific or have distinct disadvantages.

University of Missouri inventors have identified a host pathway used by numerous viruses to sensitize cells to infection, and have developed specific therapeutics to counter this sensitization, resulting in effective treatments and prevention of viral infection for a large number of clinically and commercially relevant viruses.

Applications

- Human viral therapy
- Veterinary viral therapy

Advantages

- Novel molecules for the prevention and treatment of a broad spectrum of viruses
- Applicable to a large diversity of species
- Animal data demonstrating efficacy through oral, intraperitoneal, and intranasal administration

Patent Status

- US Patent 9,687,477

Inventors

- Bumsuk Hahm
- Young-Jin Seo
- Stephen Alexander
- Vijayan Madhuvanathi

Publications

- Vijayan M, Seo YJ, Pritzl CJ, Squires SA, Alexander S, Hahm B. Sphingosine kinase 1 regulates measles virus replication. *Virology*. 2014 Feb;450-451:55-63
- Seo YJ, Pritzl CJ, Vijayan M, Bomb K, McClain ME, Alexander S, Hahm B. Sphingosine kinase 1 serves as a pro-viral factor by regulating viral RNA synthesis and nuclear export of viral ribonucleoprotein complex upon influenza virus infection. *PLoS One*. 2013 Aug 30;8(8)
- Seo YJ, Blake C, Alexander S, Hahm B. Sphingosine 1-phosphate-metabolizing enzymes control influenza virus propagation and viral cytopathogenicity. *J Virol*. 2010 Aug;84(16):8124-31