CEPI

Andes Virus Vaccine Landscape

Presented at the WHO Hantavirus CORC meeting 15 May 2026
William Dowling PhD

1

"New World" Hantavirus vaccine landscape per development stage

May 2026

	Hantaviridae	Preclinical	Phase I	Phase II	Phase III	Registration / introduction
	Viral vector	PHAC Ad5 N, Gn, Gc, Gn+Gc; PHAC/NIAID rVSV GPC; Oxford ChAdOx1; PHAC rVSV GPC; Uni Nevada pCMV Gn+Gc				
	RNA	UTMB mRNA GPC; UT/Albert Einstein/HDT Bio repRNA/LION GPC; Moderna/ USAMRIID GPC				
	DNA	Uni New Mexico DNA GPC +N; USAMRIID DNA GPC (HTNV,ANDV); USAMRIID DNA GPC (SNV, HTNV,ANDV, PUUV)	USAMRIID DNA GPC			
	Protein-based	Albert Einstein Nanoparticle Gn				

Andes (ANDV)
Sin Nombre (SNV)
Multivalent

Yellow Font = published protection data in Andes Hamster model
Red Font = unpublished report (press release or personal communication)

2

Focused landscape analysis | Vaccines

- No clinical grade vaccine material currently available for any of the candidates described
- Most of the vaccines have been assessed after 2 or more doses, except for rAD5 and rVSV vectored vaccines, which were protective after a singe dose
- Analysis included New World hantaviruses only

Full protection in the Andes virus lethal hamster model has only been reported with new world hantavirus vaccine constructs

CEPI

3

Antibody standard for Andes virus

- CEPI has funded the development of multiple WHO International Antibody standards, including SARS-CoV2, Nipah virus, Rift Valley Fever Virus, CCHFV, Marburg virus, Sudan virus, and Lassa Virus.
- WHO International Standards (IS) are established by the Expert Committee on Biological Standardization with an assigned International Unit (IU). IS serve as the primary standard for the calibration of national and other secondary standards.
- CEPI is sourcing convalescent samples from persons who have recovered from Andes virus infection

4

References – Andes Vaccines

- Custer et al 2003 Active and passive vaccination against hantavirus pulmonary syndrome with Andes virus M genome segment-based DNA vaccine **J Virol.** 2003 Sep;77(18):9894-905. doi: 10.1128/jvi.77.18.9894-9905.2003
- Brocato et al 2021 Small animal jet injection technique results in enhanced immunogenicity of hantavirus DNA vaccines **Vaccine**. 2021 Feb 12;39(7):1101-1110 doi: 10.1016/j.vaccine.2021.01.002. Epub 2021 Jan 19
- Paulsen et al 2024 Safety and Immunogenicity of an Andes Virus DNA Vaccine by Needle-Free Injection: A Randomized, Controlled Phase 1 Study **J Infect Dis** 2024 Jan 12;229(1):30-38. doi: 10.1093/infdis/jiad235.
- Safronetz et al 2009 Adenovirus vectors expressing hantavirus proteins protect hamsters against lethal challenge with andes virus **J Virol.** 2009 Jul;83(14):7285-95. doi: 10.1128/JVI.00373-09. Epub 2009 Apr 29.
- Warner et al 2019 Vesicular Stomatitis Virus-Based Vaccines Provide Cross-Protection against Andes and Sin Nombre Viruses **Viruses** . 2019 Jul 13;11(7):645. doi: 10.3390/v11070645
- Kuzmin et al 2024 Comparison of uridine and N1-methylpseudouridine mRNA platforms in development of an Andes virus vaccine **Nat Commun.** 2024 Jul 30;15:6421. doi: 10.1038/s41467-024-50774-3
- Ramos et al 2025 Hantavirus GnH Nanoparticle Immunogen Elicits a Cross-Neutralizing Antibody Response in Mice **ACS Infect Dis.** 2025 Oct 12;11(11):3061−3070. doi: 10.1021/acsinfecdis.5c00415
- Guo et al 2026 High resolution in situ structures of hantavirus glycoprotein tetramers **Cell.** 2026 Feb 27;189(9):2731−2747.e15. doi: 10.1016/j.cell.2026.01.030

5

References – Sin Nombre vaccines

- Bharadwaj *et al.*, 2002 Genetic vaccines protect against Sin Nombre hantavirus challenge in the deer mouse (Peromyscus maniculatus) **J Gen Virol**. 2002 Jul;83(Pt 7):1745-1751.doi: 10.1099/0022-1317-83-7-1745.
- Warner et al 2019 Vesicular Stomatitis Virus-Based Vaccines Provide Cross-Protection against Andes and Sin Nombre Viruses **Viruses** . 2019 Jul 13;11(7):645. doi: 10.3390/v11070645
- Warner et al 2020 Oral Vaccination With Recombinant Vesicular Stomatitis Virus Expressing Sin Nombre Virus Glycoprotein Prevents Sin Nombre Virus Transmission in Deer Mice **Front Cell Infect Microbiol.** 2020 Jul 8:10:333. doi: 10.3389/fcimb.2020.00333. eCollection 2020
- Rizvanov et al 2003 Generation of a Recombinant Cytomegalovirus for Expression of a Hantavirus Glycoprotein**; J. Virol.** Nov. 2003, 77:12203−12210. DOI: 10.1128/JVI.77.22.12203−12210.2003

6

References – Multivalent vaccines

- Hooper et al 2006 Hantaan/Andes virus DNA vaccine elicits a broadly cross-reactive neutralizing antibody response in nonhuman primates **Virology** Volume 347, Issue 1, 30 March 2006, Pages 208-216
- Hooper et al 2013 A novel Sin Nombre virus DNA vaccine and its inclusion in a candidate pan-hantavirus vaccine against hantavirus pulmonary syndrome (HPS) and hemorrhagic fever with renal syndrome (HFRS) **Vaccine**. 2013 September 13; 31(40): 4314–4321. doi:10.1016/j.vaccine.2013.07.025

7