

Product # R131

Human Respiratory Syncytial Virus with Red Fluorescent Protein (RSV-RFP1)**Introduction**

Human respiratory syncytial virus (RSV) is an enveloped, nonsegmented, negative-sense, single-stranded RNA virus belonging to the Pneumovirus genus of the subfamily Pneumovirinae, the family Paramyxoviridae. RSV is the most common virus responsible for acute and severe lower airway disease in infants and young children worldwide. Despite the enormous burden of RSV disease, there is no efficacious vaccine or antiviral drug therapy yet available. The RSV genome (15.2 kb) contains 10 mRNAs encoding 11 proteins. The nucleocapsid (N) protein binds the negative-strand RNA genome and associates with the phosphoprotein (P), the large (L) polymerase protein, and the M2-1 protein to form the nucleocapsid. The matrix (M) protein is present between the nucleocapsid and the outer envelope and plays a structural role in virion assembly and budding. There are three envelope glycoproteins: the attachment glycoprotein (G), the fusion (F) protein, and the small hydrophobic (SH) protein. The genome also encodes two nonstructural proteins (NS1, NS2) which suppress the interferon response and M2-2 protein (the second product of the M2 gene) which governs the transition from transcription to replication of genomic RNA.

Description

Recombinant, red fluorescent protein (RFP)-expressing RSV (RSV-RFP1) was generated from the full-length RSV-GFP1 (Product# R121) plasmid, by replacing its first GFP gene with the wild-type Discosoma RFP gene from pDsRed (Clontech) (Ref). To accomplish this, the BstXI site within the RFP gene was disrupted by PCR mutagenesis, and this modified RFP gene was amplified by PCR with primers that added the gene start and NS1 untranslated region preceding the RFP gene and the L gene end following the RFP gene. RSV-RFP1 was rescued by cotransfecting HEp-2 cells with the antigenomic plasmid and N, P, M2-1, and L support plasmids and infecting them with a modified vaccinia virus, MVA-T7, expressing T7 RNA polymerase. The recovered virus replicated to near-parental RSV titers. RSV-RFP1 can be used in applications where GFP or other fluorescence is already present.

**REFERENCE**

Guerrero-Plata A, Casola A, Suarez G, Yu X, Spetch L, Peeples ME, Garofalo RP. Am J Respir Cell Mol Biol. 2006 Mar; 34(3):320-9. Erratum in: Am J Respir Cell Mol Biol. 2006 May; 34(5):643. PMID: 162843601

Specification

Parental Strain: A2 strain

Construction: RFP gene was inserted in front of NS1 gene (as the first gene).

Passage History: The isolate was plaque purified and propagated in HEp-2 cells.

Infectivity: Titer > 6.0 log₁₀ TCID₅₀ per mL. Infectious in humans.

Volume/Storage: 2 x 1.2 mL per cryovial. Store at -80°C.

Quality Testing: No bacteria, fungus, or mycoplasma detected. Endotoxin < 10 EU/mL.

Availability: Bulk quantity and custom orders are available. Contact info@viratree.com.