Leinco Technologies, Inc.
excellence in early discovery research™

Anti-Rhinovirus C15, VP1

Recombinant Monoclonal Antibody

Product Information

Product No.:	R153
Clone:	30C12

Product Description

Specificity:
30C12 activity is directed against the VP1 capsid protein of rhinovirus C15.

Antigen Distribution:
Rhinovirus C15 (RV-C15) replicates in the endoplasmic reticulum of human airway epithelial cells. RV-C15 infects the ciliated cells of upper and lower airway epithelium.

Background:
Rhinovirus-C (RV-C): Pathogenesis and Clinical Impact
Human Rhinoviruses (HRV) are a genetically diverse group of pathogens responsible for over 40% of respiratory virus infections. While there are over 160 known genotypes, they are classified into three primary species: RV-A, RV-B, and RV-C.

The Unique Profile of RV-C
Among these, RV-C is particularly significant due to its association with severe clinical outcomes. With 55 identified genotypes, RV-C is a major driver of:

- Severe lower respiratory tract infections in pediatric populations.
- Exacerbations of underlying lung diseases such as asthma and cystic fibrosis.

Host Cell Entry & CDHR3 Tropism
Unlike RV-A and RV-B, which utilize ICAM-1 or LDLR for entry, RV-C uses Cadherin-related family member 3 (CDHR3) as its primary host receptor. This distinct mechanism dictates the virus's cellular tropism:

- Target Cells: Entry is restricted to ciliated cells of the upper and lower airway epithelium where CDHR3 is expressed.
- Genetic Susceptibility: The rs6967330 (C529Y) mutation in the CDHR3 gene leads to increased cell-surface expression of the receptor. Individuals with this allele are at a significantly higher risk for early-childhood asthma and severe RV-C infections.

Structure of the RV-C Capsid
The RV-C virion is a non-enveloped capsid assembled from 60 repeating biological protomers. Each protomer is composed of four structural proteins: VP1, VP2, VP3 and VP4.

Unlike other rhinovirus species, the RV-C capsid possesses a unique surface topography that complicates traditional vaccine development. Currently, no vaccines or broad-spectrum antiviral treatments are available for RV-C (As of 2026).

Products are for research use only. Not for use in diagnostic or therapeutic procedures.

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The 30C12 Monoclonal Antibody
The 30C12 antibody is a specialized murine monoclonal antibody developed to target the specific architecture of the RV-C capsid. The antibody was engineered to recognize the VP1 finger peptide sequence. This specific sequence is highly conserved and strategically exposed on the virion surface, making it an ideal target for:

- Viral Neutralization Studies: Investigating the inhibition of CDHR3-mediated uptake.
- Diagnostic Assays: Detecting RV-C genotypes across clinical samples.
- Structural Biology: Mapping the interactions between the VP1 finger and the host cell machinery.

Expression Host:
HEK-293 Cells

Format:
Purified No Carrier Protein

Formulation
This recombinant protein is aseptically packaged and formulated in 0.01 M phosphate buffered saline (PBS) pH 7.2 - 7.4, 150 mM NaCl with no carrier protein, potassium, calcium or preservatives added. Due to inherent biochemical properties of proteins, certain products may be prone to precipitation over time. Precipitation may be removed by aseptic centrifugation and/or filtration.

Purity
>90% monomer by analytical SEC and SDS-Page

Endotoxin
≤ 1.0 EU/mg as determined by the LAL method

Product Preparation
Leinco Technologies' recombinant antibodies are manufactured in an animal free facility using only *in vitro* protein free cell culture techniques and are purified by a multi-step process including the use of protein A or G to assure extremely low levels of endotoxins, leachable protein A or aggregates.

Applications
Applications and Recommended Usage (Quality Tested By Leinco):

Western Blot: Clone 30C12 is cited as a monoclonal antibody raised to the RV-C15 VP1 “finger” peptide and applied at 1:5000 in assays that detected virus captured from HeLa lysates expressing CDHR3 constructs.

Country of Origin
USA

References
1. Gagliardi TB, Goldstein ME, Song D, et al. PLoS Pathog. 18(1):e1010159. 2022. PMID: 34995322; PMCID: PMC8741012.
2. Liu Y, Hill MG, Klose T, et al. Proc Natl Acad Sci U S A. 113(32):8997-9002. 2016.
3. Watters K, Palmenberg AC. PLoS Pathog. 14(12):e1007477. 2018.

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