Miltenyi Biotec

Recombinant SARS-CoV-2 Spike-Prot B.1.1.7 (HEK)

Contents

1. Description
   - 1.1 Background information
   - 1.2 Applications

1. Description

Products Recombinant SARS-CoV-2 Spike-Prot B.1.1.7 (HEK) or Recombinant SARS-CoV-2 Spike-Prot B.1.1.7 (HEK)-Biotin.

Productname	Content	Order no.
Recombinant SARS-CoV-2 Spike-Prot B.1.1.7 (HEK)	10 µg	130-129-572
Recombinant SARS-CoV-2 Spike-Prot B.1.1.7 (HEK)	50 µg	130-129-561
Recombinant SARS-CoV-2 Spike-Prot B.1.1.7 (HEK)-Biotin	25 µg	130-129-570

Functional testing Functionality was tested in a flow assay by analyzing the binding of Recombinant SARS-CoV-2 Spike-Prot B.1.1.7 to ACE2-expressing cells.

Primary structure Recombinant SARS-CoV-2 Spike-Prot B.1.1.7 (HEK): Single glycosylated polypeptide chain (1227 amino acid residues) without N-terminal methionine. C-terminal His-tag and C-terminal AviTag™.

Recombinant SARS-CoV-2 Spike-Prot B.1.1.7 (HEK)-Biotin: Monobiotinylated, glycosylated polypeptide chain (1227 amino acid residues) without N-terminal methionine. C-terminal His-tag and C-terminal AviTag.

Molecular mass 135.6 kDa.

Source Produced in human embryonic kidney cells.

Product format Lyophilized from a filtered (0.2 µm) buffer solution.

Stabilizer Mannitol and trehalose.

Purity >95% as determined by SDS-PAGE analysis.

Endotoxin level Low endotoxin (<0.1 EU/µg protein) as determined by Limulus Amebocyte Lysate (LAL) assay.

Storage Lyophilized Recombinant SARS-CoV-2 Spike Prot B.1.1.7 should be stored at –20 °C. The expiration date is indicated on the vial label. Upon reconstitution aliquots should be stored at –20 °C or below. Avoid repeated freeze-thaw cycles.

Reconstitution It is recommended to reconstitute lyophilized Recombinant SARS-CoV-2 Spike Prot B.1.1.7 with deionized, sterile-filtered water to a final concentration of 0.02–0.25 mg/mL in a minimal volume of 200 µL.

1.1 Background information

The SARS-CoV-2 spike glycoprotein (S) mediates the entry of the virus into target cells via its interaction with the angiotensin-converting enzyme 2 (ACE2) receptor, thereby initiating the infection. It forms a homotrimeric structure on the surface of the SARS-CoV-2 virus and represents the major target for diagnostic and therapeutic agents. The ectodomain of the S glycoprotein comprises the N-terminal S1 subunit, including the receptor binding domain (RBD) and the C-terminal S2 subunit. The ectodomain spans from aa12 to aa1213 followed by a transmembrane helix beginning at aa1214–aa1234. The C-terminus of the native protein is formed by a cytoplasmic domain spanning aa1235–aa1273.
The SARS-CoV-2 mutant strain B.1.1.7 also known as Alpha variant or variant of concern (VOC 202012/01), was first identified in the United Kingdom in September 2020. Due to increased transmissibility it spread rapidly around the globe. The B.1.1.7 lineage (Alpha variant) differs from the wild type sequence by 23 amino acid mutations: 14 non-synonymous mutations, 3 deletions and 6 synonymous mutations. One of these mutations leads to an amino acid substitution (N501Y) in the RBD of the B.1.1.7 lineage (Alpha variant), which mainly contributes to the increased infectivity of B.1.1.7 as mutations in the RBD affect antibody recognition and ACE2 binding efficiency. The N501Y mutation also emerged independently in SARS-CoV-2 variants in the B.1.351 lineage (Beta variant) and P.1 linage (Gamma variant).
The Recombinant SARS-CoV-2 Spike-Prot B.1.1.7 (HEK) protein covers the ectodomain of the viral surface protein including amino acids V16 to K1211. It was engineered to contain the stabilizing proline substitutions at position K986P and V987P. The native sequence of the Furin cleavage site (RRAR at residues 682–685) was substituted by GSAS to further increase recombinant protein stability.
In addition, the SARS-CoV-2 Spike-Prot B.1.1.7 (HEK) protein contains the amino acid deletions Δ69, Δ70 and Δ144, as well as the amino acid substitutions N501Y, A570D, D614G, P681H, T716I, S982A, and D1118H. The protein is extended at its C-terminus with a His-tag and an AviTag. Recombinant SARS-CoV-2 Spike-Prot B.1.1.7 (HEK)-Biotin is specifically biotinylated at a single site, preserving full functionality of the protein.

1.2 Applications

The product can be used for a variety of applications, including:

- Analysis of SARS-CoV-2 immune responses
- Detection and characterization of SARS-CoV-2–specific antibodies
- Studying SARS-CoV-2 cell binding, infection, and viral life cycle

140-006-236.01

Miltenyi Biotec B.V. & Co. KG
Friedrich-Ebert-Straße 68, 51429 Bergisch Gladbach, Germany
Phone +49 2204 8306-0, Fax +49 2204 85197
macsde@miltenyi.com
www.miltenyibiotec.com

The optimal concentration for a specific application should be determined by a dose-response experiment.

Refer to **www.miltenyibiotec.com** for all data sheets and protocols. Miltenyi Biotec provides technical support worldwide. Visit www.miltenyibiotec.com for local Miltenyi Biotec Technical Support contact information.

Legal notices

Limited product warranty

Miltenyi Biotec B.V. & Co. KG and/or its affiliate(s) warrant this product to be free from material defects in workmanship and materials and to conform substantially with Miltenyi Biotec's published specifications for the product at the time of order, under normal use and conditions in accordance with its applicable documentation, for a period beginning on the date of delivery of the product by Miltenyi Biotec or its authorized distributor and ending on the expiration date of the product's applicable shelf life stated on the product label, packaging or documentation (as applicable) or, in the absence thereof, ONE (1) YEAR from date of delivery ("Product Warranty"). Miltenyi Biotec's Product Warranty is provided subject to the warranty terms as set forth in Miltenyi Biotec's General Terms and Conditions for the Sale of Products and Services available on Miltenyi Biotec's website at www.miltenyibiotec.com, as in effect at the time of order ("Product Warranty"). Additional terms may apply. BY USE OF THIS PRODUCT, THE CUSTOMER AGREES TO BE BOUND BY THESE TERMS.

THE CUSTOMER IS SOLELY RESPONSIBLE FOR DETERMINING IF A PRODUCT IS SUITABLE FOR CUSTOMER'S PARTICULAR PURPOSE AND APPLICATION METHODS.

Technical information

The technical information, data, protocols, and other statements provided by Miltenyi Biotec in this document are based on information, tests, or experience which Miltenyi Biotec believes to be reliable, but the accuracy or completeness of such information is not guaranteed. Such technical information and data are intended for persons with knowledge and technical skills sufficient to assess and apply their own informed judgment to the information. Miltenyi Biotec shall not be liable for any technical or editorial errors or omissions contained herein.

All information and specifications are subject to change without prior notice. Please contact Miltenyi Biotec Technical Support or visit www.miltenyibiotec.com for the most up-to-date information on Miltenyi Biotec products.

Licenses

This product and/or its use may be covered by one or more pending or issued patents and/or may have certain limitations. Certain uses may be excluded by separate terms and conditions. Please contact your local Miltenyi Biotec representative or visit Miltenyi Biotec's website at www.miltenyibiotec.com for more information.

The purchase of this product conveys to the customer the non-transferable right to use the purchased amount of the product in research conducted by the customer (whether the customer is an academic or for-profit entity). This product may not be further sold. Additional terms and conditions (including the terms of a Limited Use Label License) may apply.

CUSTOMER'S USE OF THIS PRODUCT MAY REQUIRE ADDITIONAL LICENSES DEPENDING ON THE SPECIFIC APPLICATION. THE CUSTOMER IS SOLELY RESPONSIBLE FOR DETERMINING FOR ITSELF WHETHER IT HAS ALL APPROPRIATE LICENSES IN PLACE. Miltenyi Biotec provides no warranty that customer's use of this product does not and will not infringe intellectual property rights owned by a third party. BY USE OF THIS PRODUCT, THE CUSTOMER AGREES TO BE BOUND BY THESE TERMS.

Trademarks

The Miltenyi Biotec logo is registered trademark or trademark of Miltenyi Biotec and/or its affiliates in various countries worldwide. All other trademarks mentioned in this publication are the property of their respective owners and are used for identification purposes only.

AviTag is a trademark of Avidity, LLC.

Copyright © 2021 Miltenyi Biotec and/or its affiliates. All rights reserved.

140-006-236.01

Unless otherwise specifically indicated, Miltenyi Biotec products and services are for research use only and not for diagnostic or therapeutic use.