

## Influenza A H5N1 (A/chicken/Ghana/AVL-763\_21VIR7050-39/2021) Hemagglutinin/HA1 Protein

### General Information

|                       |  |
|-----------------------|--|
| Synonyms:             | Harvey rat sarcoma viral oncogene homolog  |
| Protein Construction: | A DNA sequence encoding the Influenza A virus ((A/chicken/Ghana/AVL-763_21VIR7050-39/2021) (H5N1)) hemagglutinin (translated amino acids of EPI2415855) (Met1-Arg345), termed as HA1, was expressed with a polyhistidine tag at the C-terminus. Predicted N terminal: Asp 17 |
| Species:              | H5N1   |
| Expression Host:      | Baculovirus Insect Cells   |
| Molecular Weight:     | 38.73 kDa (predicted); 44.57 kDa (reducing conditions)   |

### QC Testing

|                      |  |
|----------------------|--|
| Biological Activity: | Measured by its ability to agglutinate guinea pig red blood cells. HA titer is 0.1-0.8 µg/mL for 1% GRBC.  |
| Purity:              | ≥ 95 % as determined by SDS-PAGE.  |
| Endotoxin:           | < 1.0 EU/µg of the protein as determined by the LAL method.  |
| Formulation:         | Lyophilized from a solution filtered through a 0.22 µm filter, containing 20 mM Tris, 300 mM NaCl, 10% Glycerol, pH 7.5. Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization. |

### Preparation and Storage

#### Reconstitution:

A Certificate of Analysis (CoA) containing reconstitution instructions is included with the products. Please refer to the CoA for detailed information.

#### Stability & Storage:

It is recommended to store recombinant proteins at -20°C to -80°C for future use. Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

Actual storage temperature shall be subject to the COA.

#### Shipping:

In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

### Protein Background

The influenza viral Hemagglutinin (HA) protein is a homotrimer with a receptor binding pocket on the globular head of each monomer. HA has at least 18 different antigens. These subtypes are named H1 through H18. HA has two functions. Firstly, it allows the recognition of target vertebrate cells, accomplished through the binding to

these cells' sialic acid-containing receptors. Secondly, once bound it facilitates the entry of the viral genome into the target cells by causing the fusion of the host endosomal membrane with the viral membrane. The influenza virus Hemagglutinin (HA) protein is translated in cells as a single protein, HA, or hemagglutinin precursor protein. For viral activation, hemagglutinin precursor protein (HA) must be cleaved by a trypsin-like serine endoprotease at a specific site, normally coded for by a single basic amino acid (usually arginine) between the HA1 and HA2 domains of the protein. After cleavage, the two disulfide-bonded protein domains produce the mature form of the protein subunits as a prerequisite for the conformational change necessary for fusion and hence viral infectivity.

### Reference

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