

Recombinant Hepatitis E Virus Capsid Protein (ORF2), mFc-tagged

Cat. No. HEP-245 **Lot. No.** (See product label)

SPECIFICATION

Product Overview

Recombinant HEV ORF2, amino acids 1-660 (Uniprot accession number Q68985.1) produced in HEK293 cells by transient transfection. A 15 amino acid glycine-serine linker followed by a mouse IgG2a Fc region (CH2-CH3) was added to the C-terminus of the protein. Hepatitis E ORF2 Fc protein was purified from culture supernatant using Protein G affinity chromatography followed by dialysis.

Tag mFc

Background

Hepatitis E virus (HEV) is a single-stranded positive-sense non-enveloped RNA virus and is a leading cause of acute hepatitis worldwide (Kamar, et al., 2017), infecting ~20 million people annually (Smith, et al., 2014). HEV is currently the only representative of the hepevirus genus, belonging to the family Hepeviridae. Four genotypes 1-4 of the Hepatitis E virus have been identified so far, with each genotype having a different geographical distribution. HEV genotype 1 and 2 are restricted to humans and are found in Africa and Asia, whereas genotype 3 is found worldwide and genotype 4 is found in China and Japan.

The viral RNA is ~7.2 kb in size with three partially overlapping open reading frames (Purcell & Emerson, 2001). ORF1 encodes non-structural proteins, ORF2 encodes the capsid protein (Tam & Smith, 1991) and ORF3 encodes a cytoskeleton-associated

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phosphoprotein (Zafrullah, et al., 1997). ORF2 is initially synthesized as a large glycoprotein precursor which is then cleaved into the mature viral capsid protein; it has also been implicated in viral replication, as it binds to the 5' end of the viral genome (Surjit, et al., 2004).

The main HEV immune epitopes, especially neutralizing epitopes, are located on the ORF2 protein (Zhou, et al., 2016). There are two potential N-glycosylation sites in the S domain, and one in the P domain within a region that forms a protruding spike from the shell, forming a cell-attachment and neutralizing antigenic site (Xu, et al., 2016; Zhang, et al., 2016).

HEV produces three forms of the ORF2 capsid protein; infectious/intracellular ORF2 (ORF2i), glycosylated ORF2 (ORF2g) and cleaved ORF2 (ORF2c). The ORF2i protein is associated with infectious particles, whereas the ORF2g and ORF2c proteins are secreted glycoproteins, not associated with infectious particles. ORF2g and ORF2c have been shown to be the most abundant antigens detected in sera from patients (Montpellier, et al., 2018; Qi, et al., 2015). Anti-HEV antigen (Ag)-specific enzyme-linked immunosorbent assay (ELISA) directed against the HEV capsid has proven to be a useful tool in discriminating chronic from acute HEV infection (Behrendt, et al., 2016). Hepatitis E ORF2 Fc protein is therefore a promising candidate antigen for diagnostic and vaccine development.

Purity	Greater than 95% purity
Formulation	DPBS pH7.4
Stability	At +4 centigrade: Not determined. At -80 centigrade: Not determined.
Freezing	Can be frozen, but avoid multiple freeze/thaw cycles.

Storage	Short Term Storage: +4 centigrade Long Term Storage: -80 centigrade
Concentration	1.2 mg/mL
Notes	This product is intended for research and manufacturing uses only. It is not a diagnostic device. The user assumes all responsibility for care, custody and control of the material, including its disposal, in accordance with all regulations.
Type	Recombinant
ClassID 1	Infectious Disease
GENE INFORMATION	
Synonyms	Hepatitis E Virus Capsid (ORF2)

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