

ENZOVERA LIFE SCIENCES

Recombinant CSFV E2 Protein — User Manual

Cat. No. EV-PRO-005

1. Overview

Recombinant CSFV E2 Protein (EV-PRO-005) is the envelope glycoprotein E2 subunit derived from Classical Swine Fever Virus (CSFV), expressed in mammalian CHO cells. This product is engineered from the genomic sequence of field-prevalent CSFV strains with targeted mutations in the ectodomain region, ensuring complete coverage of all documented immunogenic epitopes. EV-PRO-005 exhibits high structural similarity to natural E2 glycoprotein and is supplied as a sterile, liquid solution at 4°C storage for research, diagnostic assay development, and veterinary immunology applications.

2. Mechanism of Action

The E2 protein is the primary immunogenic component of CSFV and the primary target of neutralizing antibody responses in infected or vaccinated animals. It contains multiple linear and conformational epitopes recognized by the adaptive immune system. Immunization with EV-PRO-005 promotes high-titer antibody production and sustained cellular immune responses, with immunized animals developing positive antibodies and extended immune protection lasting up to 6 months.

3. Applications

- Antigen in diagnostic assays for CSFV detection and serology (ELISA, lateral flow, immunochromatographic)
- Antibody production via animal immunization for polyclonal and monoclonal antibody generation
- Vaccine research and recombinant vaccine formulation
- Epitope mapping and B-cell/T-cell epitope identification
- Veterinary immunology research on swine immune response kinetics

4. Recommended Protocol

Step	Details	Application
1	Use as-is; no reconstitution required. Solution is sterile and ready for immediate use.	Direct use
2	For immunization: dilute in	Animal immunization

	PBS pH 7.4 or saline; dose 10–50 µg per animal with adjuvant.	
3	For ELISA coating: dilute to 1–10 µg/ml in 0.1 M carbonate pH 9.6; incubate 2–4 h at RT or overnight at 4°C.	Diagnostic assay
4	For antibody capture: 5–50 µg/ml in appropriate buffer. Avoid freeze–thaw cycles.	Assay development

5. Unit Definition / Activity Specification

Activity and purity expressed as protein concentration and % purity by SDS-PAGE and size-exclusion HPLC. Immunoreactivity confirmed by sandwich ELISA using anti-E2 reference antibodies (>80% vs. reference standard). Identity verified by LC-MS/MS peptide mapping (expected 41.18 kDa). Endotoxin <0.5 EU/mg. Sterility confirmed by 7-day culture assay.

6. Quality Control

Test / Parameter	Specification	Lot Result	Status
Appearance	Clear, colorless solution	Clear colorless	PASS
Protein Concentration	≥1.0 mg/ml	1.18 mg/ml	PASS
Purity (SDS-PAGE)	≥95%	96.2%	PASS
Identity (LC-MS/MS)	Confirmed E2 sequence (41.18 kDa)	Confirmed	PASS
Endotoxin (LAL)	<0.5 EU/mg	<0.2 EU/mg	PASS
Sterility (7-day culture)	No microbial growth	No growth	PASS
pH	7.0–7.4	7.2	PASS
Immunoreactivity (ELISA)	>80% vs. reference standard	>90%	PASS

7. Storage & Stability

- Storage temperature: 4°C (2–8°C)
- Stability: 1 year at 4°C from date of manufacture
- Formulation: Liquid solution in PBS-based buffer, pH 7.0–7.4
- Shipping: At 4°C with ice pack or refrigerated transport
- General: Avoid repeated freeze–thaw cycles (do not freeze). Protect from light. Upon receipt, divide into single-use aliquots if extended storage is anticipated.

8. Troubleshooting

Problem	Possible Cause	Suggested Action
Low antibody titer	Inadequate dose or poor adjuvant	Increase dose (30–50 µg); use proven adjuvants (alum, oil-in-water); confirm storage conditions.
Poor ELISA signal	Loss of conformational integrity (freeze–thaw, high temperature)	Confirm 4°C storage; prepare fresh dilutions; verify coating pH 9.6.
Precipitation in solution	Temperature stress or pH drift	Return to 4°C; confirm pH 7.0–7.4; centrifuge to remove particulates.

9. Safety Information

For Research Use Only. Handle according to standard laboratory safety guidelines. Refer to the accompanying SDS for full hazard information. Dispose in accordance with local, state, and federal regulations.

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