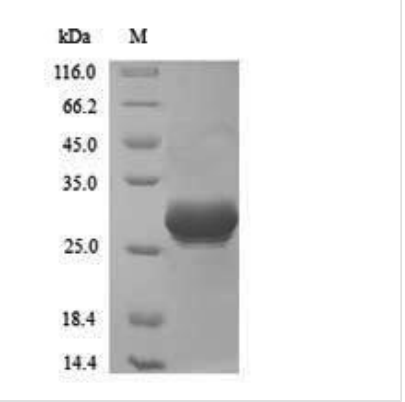
Recombinant Vaccinia virus Complement control protein C3 (VACWR025)

Product Code	CSB-YP302389VAI
Relevance	Serves to protect the virus against complement attack by inhibiting both classical and alternative pathways of complement activation. Binds C3b and C4b.
Abbreviation	Recombinant Vaccinia virus VACWR025 protein
Storage	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.
Uniprot No.	P68638
Alias	28 kDa protein Secretory protein 35 Short name: Protein C3 VCP
Product Type	Recombinant Protein
Immunogen Species	Vaccinia virus (strain Western Reserve) (VACV) (Vaccinia virus (strain WR))
Purity	Greater than 90% as determined by SDS-PAGE.
Sequence	CCTIPSRPINMKFKNSVETDANANYNIGDTIEYLCLPGYRKQKMGPIYAKCTGT GWTLFNQCIKRRCPSPRDIDNGQLDIGGVDFGSSITYSCNSGYHLIGESKSYC ELGSTGSMVWNPEAPICESVKCQSPPSISNGRHNGYEDFYTDGSVVTYSCNS GYSLIGNSGVLCSGGEWSDPPTCQIVKCPHPTISNGYLSSGFKRSYSYNDNVD FKCKYGYKLSGSSSSTCSPGNTWKPELPKCVR
Research Area	Microbiology
Source	Yeast
Target Names	VACWR025
Protein Names	Recommended name: Complement control proteinAlternative name(s): 28 kDa protein Secretory protein 35 Short name= Protein C3 VCP
Expression Region	20-263aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	N-terminal 6xHis-tagged
Mol. Weight	28.6kDa
Protein Length	Full Length of Mature Protein
Image	



(Tris-Glycine gel) Discontinuous SDS-PAGE (reduced) with 5% enrichment gel and 15% separation gel.

Description

Recombinant Vaccinia virus Complement control protein C3 (VACWR025) is produced in yeast and contains the complete mature protein sequence from amino acids 20 to 263. The protein carries an N-terminal 6xHis tag, which makes purification and detection more straightforward. SDS-PAGE analysis shows the protein achieves greater than 90% purity, suggesting consistent quality for experimental work. This product is designed for research use only.

The Vaccinia virus Complement control protein C3 appears to play a key role in dampening host immune responses. It seems to contribute to the virus's strategy for avoiding immune detection by blocking parts of the complement system—a critical component of our innate immune defenses. Studying how this protein works and what it interacts with may be essential for understanding viral disease mechanisms and immune system dynamics.

Potential Applications

Note: The applications listed below are based on what we know about this protein's biological functions, published research, and experience from experts in the field. However, we haven't fully tested all of these applications ourselves yet. We'd recommend running some preliminary tests first to make sure they work for your specific research goals.

1. Complement System Interaction Studies

This recombinant protein could prove useful for examining how viruses evade immune responses through laboratory-based complement binding experiments. The N-terminal 6xHis tag allows for protein purification and attachment to surfaces in techniques like surface plasmon resonance or ELISA studies when characterizing interactions with human complement proteins. Scientists might investigate how vaccinia virus alters host complement activation during infection. The high purity level (>90%) appears suitable for precise biochemical studies of complement regulatory activity.

2. Antiviral Drug Screening Platform

The purified protein may serve as a target in large-scale screening experiments designed to find small molecules that interfere with viral complement evasion. The His-tag makes protein capture simpler in plate-based assays when testing

chemical libraries. Researchers could develop biochemical tests that measure protein-complement interactions and hunt for compounds that restore normal complement activity. This strategy might help advance our understanding of viral disease mechanisms while identifying promising antiviral targets.

3. Antibody Development and Characterization

The recombinant protein can function as an immunogen or antigen for creating research antibodies directed against vaccinia virus complement control proteins. The His-tag allows for relatively simple purification and measurement in immunization procedures or ELISA-based antibody testing. Scientists could generate specific antibodies for examining viral protein production, cellular location, and activity in infected cells. These antibodies would likely become valuable research tools for studying vaccinia virus behavior and complement system interactions.

4. Protein Structure-Function Analysis

The purified recombinant protein may be valuable in biophysical experiments aimed at understanding the structural characteristics of vaccinia virus complement control regions. Researchers could apply techniques like circular dichroism spectroscopy, dynamic light scattering, or analytical ultracentrifugation to examine protein folding and stability. The high purity level supports thorough biochemical analysis, including mass spectrometry and controlled proteolysis experiments. These studies might reveal important details about the molecular mechanisms behind viral complement regulation.

Reconstitution	We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Please reconstitute protein in deionized sterile water to a concentration of 0.1-1.0 mg/mL.We recommend to add 5-50% of glycerol (final concentration) and aliquot for long-term storage at -20°C/-80°C. Our default final concentration of glycerol is 50%. Customers could use it as reference.
Shelf Life	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.