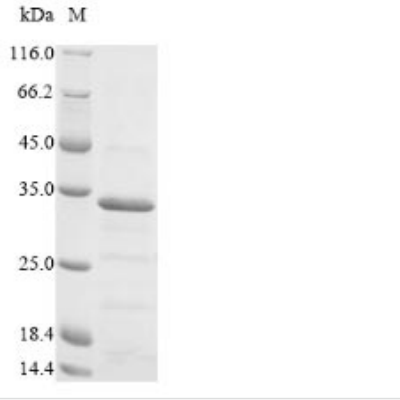
Recombinant Chicken anemia virus Apoptin (VP3)

Product Code	CSB-EP860325CID
Relevance	May act as transcriptional regulator. Induces apoptosis in infected cells. Element of infectious replication cycle.
Abbreviation	Recombinant Chicken anemia virus VP3 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.	Q99152
Product Type	Recombinant Protein
Immunogen Species	Chicken anemia virus (isolate Germany Cuxhaven-1) (CAV)
Purity	Greater than 90% as determined by SDS-PAGE.
Sequence	MNALQEDTPPGPSTVFRPPTSSRPLETPHCREIRIGIAGITITLSLCGCANARAP TLRSATADNSESTGFKNVPDLRTDQPKPPSKKRSCDPSEYRVSELKESLITTTP SRPRTAKRRIRL
Research Area	Others
Source	E.coli
Target Names	VP3
Protein Names	Recommended name: Apoptin
Expression Region	1-121aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	N-terminal 6xHis-SUMO-tagged
Mol. Weight	29.3kDa
Protein Length	Full Length
Image	



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

Description

Recombinant Chicken anemia virus Apoptin (VP3) is expressed in E. coli, covering the full-length expression region from 1-121 amino acids. The protein includes an N-terminal 6xHis-SUMO tag, which should make purification relatively straightforward. Purity appears to exceed 90% based on SDS-PAGE analysis, suggesting it may be suitable for most research applications. Endotoxin levels have been kept low to avoid interference with sensitive experimental conditions.

Apoptin, also known as VP3, comes from the Chicken anemia virus and seems to have an interesting property - it can trigger cell death in transformed and cancer cells while leaving normal cells largely unaffected. This selective behavior makes it potentially useful for investigating cellular pathways involved in programmed cell death, cell cycle control, and cancer biology. The protein might offer clues about new therapeutic strategies, though much remains to be understood about its mechanisms.

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. Protein-Protein Interaction Studies Using Pull-Down Assays

The N-terminal 6xHis-SUMO tag allows for nickel-affinity purification-based pull-down experiments to identify which cellular proteins interact with CAV VP3. Researchers can attach the recombinant protein to nickel-coated beads, then mix these with cell lysates from chicken cells or other relevant cell types. Any proteins that stick to VP3 can then be identified through mass spectrometry analysis, potentially mapping out VP3's interaction network. This method could be particularly helpful for figuring out why apoptin seems to target transformed cells differently than normal ones.

2. Antibody Development and Characterization

The purified recombinant VP3 protein works well as an immunogen for creating polyclonal or monoclonal antibodies against chicken anemia virus apoptin. The >90% purity level should be adequate for most immunization protocols in lab animals. Once generated, these antibodies can be tested for specificity through ELISA, Western blot, and immunofluorescence techniques using the same recombinant protein as a positive control. Such antibodies would likely prove valuable for detecting VP3 in infected cells or investigating viral disease mechanisms.

3. Biochemical Characterization and Biophysical Analysis

Researchers can use the recombinant VP3 protein for in-depth biochemical studies, including analyzing how the protein forms complexes with itself, its heat

stability, and how it responds to different pH conditions. Techniques like size exclusion chromatography and dynamic light scattering may reveal the protein's natural molecular weight and whether it tends to clump together under various buffer conditions. If more precise measurements are needed, the His-SUMO tag can be removed using SUMO protease treatment. These experiments could provide important basic information about apoptin's structure and what conditions it needs to remain stable.

4. Cell-Based Localization and Trafficking Studies

The recombinant protein can be introduced into cells through microinjection or electroporation to study where VP3 ends up inside different cell types. Using fluorescently tagged VP3 protein or detecting it with VP3-specific antibodies through immunofluorescence may reveal how the protein moves through cells and where it finally settles. Comparing results between transformed and normal cell lines might help explain the molecular reasons behind apoptin's selective toxicity. Time-course studies could track how VP3 moves and redistributes after cells take it up.

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.