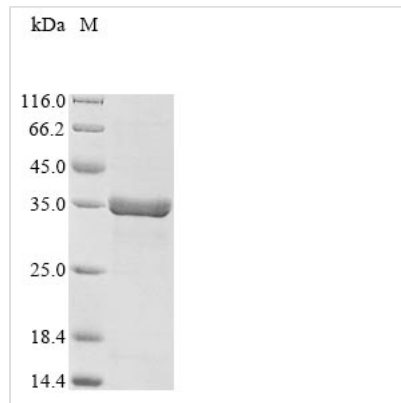




# Recombinant Campylobacter fetus S-layer protein (sapA), partial

<b>Product Code</b>	CSB-EP330493CYZ
<b>Abbreviation</b>	Recombinant Campylobacter fetus sapA protein, partial
<b>Storage</b>	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.
<b>Uniprot No.</b>	P35827
<b>Form</b>	Liquid or Lyophilized powder
<b>Storage Buffer</b>	If the delivery form is liquid, the default storage buffer is Tris/PBS-based buffer, 5%-50% glycerol. If the delivery form is lyophilized powder, the buffer before lyophilization is Tris/PBS-based buffer, 6% Trehalose.
<b>Product Type</b>	Recombinant Protein
<b>Immunogen Species</b>	Campylobacter fetus
<b>Purity</b>	Greater than 85% as determined by SDS-PAGE.
<b>Sequence</b>	MLNKTDVSMLEYITIMGMASEGDGNKYWLDYANNNSLGVSSLANIMLDSPGAA KFFGDSLLAGNEKDFVTKIYSIALGNTSDVDGINYWTKAITGGGEFTDSKGNVIS VASLSKGDIGAMINSMVNGGSAESKAIFEAKAAASDYFADATLVRDISGLDEG TTSKLISEINSASDLKVKSEIDALKSELPNPGSTYDLTEGNDNLKGTDLDDTFN GTTYVGNNGTNKSTLSAFDKIDGGAGRDTLNAIFTANNNAATAKLDQAEIDK
<b>Research Area</b>	Others
<b>Source</b>	E.coli
<b>Target Names</b>	sapA
<b>Expression Region</b>	1-268aa
<b>Notes</b>	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
<b>Tag Info</b>	N-terminal 10xHis-tagged and C-terminal Myc-tagged
<b>Mol. Weight</b>	33.0 kDa
<b>Protein Length</b>	partial
<b>Image</b>	



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

## Description

Synthesizing the recombinant *Campylobacter fetus* S-layer protein (sapA) generally involves integrating the DNA fragment that encodes the *Campylobacter fetus* sapA protein (1-268aa) into a plasmid along with the N-terminal 10xHis-tag and C-terminal Myc-tag gene, introducing the recombinant plasmid into *E. coli* cells, followed by the selection and culturing of positive *E. coli* cells, induction of protein expression, and subsequent cell lysis. The protein is purified through affinity purification, and SDS-PAGE analysis is conducted to confirm the presence of the protein and determine its purity. The protein's purity surpasses 85%.

Saposin A is a glycosphingolipid activator protein that is crucial in breaking down cerebroside sulfates within the lysosome [1]. It is derived from the proteolytic processing of domain 1 of its precursor protein, prosaposin [2]. Saposin A, along with other saposins like B, C, and D, acts at the lipid-water interface in lysosomes, facilitating the hydrolysis of membrane components by water-soluble exohydrolases [3]. Saposin A has tissue-specific effects on glycosphingolipid degradation, as observed in mutant mice studies [4]. Additionally, saposin A has been linked to neurological deficits and glycosphingolipid accumulation in cases of saposin B deficiency [5].

Saposin A is part of a family of saposins, each with distinct functions. Saposin B, for example, is involved in the activation of arylsulfatase A,  $\beta$ -galactosidase,  $\alpha$ -galactosidase, and neuraminidase [6]. On the other hand, saposin C acts as an activator of the lysosomal enzyme glucocerebrosidase, which hydrolyzes glucocerebroside into glucose and cerebroside [7]. The crystal structures of saposins A and C have been elucidated, showing compact monomeric structures with small hydrophobic cores [8][9].

### References:

- [1] V. Ahn, K. Faull, J. Whitelegge, A. Fluharty, & G. Privé, Crystal structure of saposin b reveals a dimeric shell for lipid binding, *Proceedings of the National Academy of Sciences*, vol. 100, no. 1, p. 38-43, 2002.  
<https://doi.org/10.1073/pnas.0136947100>
- [2] S. Morimoto, B. Martin, Y. Yamamoto, K. Kretz, J. O'Brien, & Y. Kishimoto, Saposin a: second cerebroside activator protein., *Proceedings of the National Academy of Sciences*, vol. 86, no. 9, p. 3389-3393, 1989.  
<https://doi.org/10.1073/pnas.86.9.3389>
- [3] R. Schultz-Heienbrok, N. Rimmel, R. Klingenstein, M. Rossocha, K.



Sandhoff, & T. Maier, Crystallization and preliminary characterization of three different crystal forms of human saposin c heterologously expressed in *Escherichia coli*, *Acta Crystallographica Section F Structural Biology and Crystallization Communications*, vol. 62, no. 2, p. 117-120, 2006.

<https://doi.org/10.1107/s1744309105043186>

[4] Y. Sun, M. Zamzow, H. Ran, W. Zhang, B. Quinn, S. Barnes et al., Tissue-specific effects of saposin a and saposin b on glycosphingolipid degradation in mutant mice, *Human Molecular Genetics*, vol. 22, no. 12, p. 2435-2450, 2013.

<https://doi.org/10.1093/hmg/ddt096>

[5] Y. Sun, D. Witte, H. Ran, M. Zamzow, S. Barnes, H. Chen et al., Neurological deficits and glycosphingolipid accumulation in saposin b deficient mice, *Human Molecular Genetics*, vol. 17, no. 15, p. 2345-2356, 2008.

<https://doi.org/10.1093/hmg/ddn135>

[6] M. Champagne, S. Lamontagne, & M. Potier, Binding of GM1 ganglioside to a synthetic peptide derived from the lysosomal sphingolipid activator protein saposin b, *FEBS Letters*, vol. 347, no. 2-3, p. 265-267, 1994.

[https://doi.org/10.1016/0014-5793\(94\)00536-2](https://doi.org/10.1016/0014-5793(94)00536-2)

[7] E. Alba, S. Weiler, & N. Tjandra, Solution structure of human saposin c: pH-dependent interaction with phospholipid vesicles, *Biochemistry*, vol. 42, no. 50, p. 14729-14740, 2003. <https://doi.org/10.1021/bi0301338>

[8] V. Ahn, P. Leyko, J. Alattia, L. Chen, & G. Privé, Crystal structures of saposins a and c, *Protein Science*, vol. 15, no. 8, p. 1849-1857, 2006.

<https://doi.org/10.1110/ps.062256606>

[9] K. Popovic and G. Privé, Structures of the human ceramide activator protein saposin d, *Acta Crystallographica Section D Biological Crystallography*, vol. 64, no. 5, p. 589-594, 2008. <https://doi.org/10.1107/s0907444908003120>

## 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.