Viral Protein

F5L - Vaccinia virus major membrane protein

Product specification

Acronym: F5L
Class: Receptor
Origin: Virus
Molecular weight: 36,7 kDa
Application: Screening & display technologies, vaccine development

Purity: >50%
Activity: To be tested
Length: Full Length
TMD: 1
Biological function: Viral replication

Product description

The major membrane protein F5L is a Variola virus protein required for the virus replication. The other potential functions of this protein are unknown.

Protein Source: F5L wild type protein:

Fig.1: AA sequence of F5L protein

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        10         20         30         40         50
MGTNTIRAFI ILYLLAVCGC VEYDVDNNVQ ICTCANVSHI NHTFWYYNNK
        60         70         80         90        100
VIALATEDRT SGYISSFIKR VNISLTCLNI SSLRYEDSGS YKGVSHLKDG
       110        120        130        140        150
VIVTTTMNIS VKANIIDLTG RVCYLTRNYC EVKIRCEIKS FALNGSITPL
       160        170        180        190        200
HMILGTLDRW KYLPFPTDDY RYVGELKRYI SGNPYPIESL ALEISATFNR
       210        220        230        240        250
FTIVKNNDDE FSCYLFSQNY SFHKMLNARH ICESEWEALN NNNDNSSSMP
       260        270        280        290        300
VSHNNRANDL SSMMSQLQND NDDNNDYSAP MNINNLIMIV LITMLSIIII
       310        320
IIVVIAIIAM YKRSKYSHID DN
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Affinity Tag: Histidine tag fused to the N-terminal end of the protein.

Production conditions: F5L is expressed in a cell-free expression system in the presence of lipid vesicles. 100 µg can be produced and qualified in about 1 week.

Quality analysis

Purity: Typically > 50% as determined by SDS-Page and Coomassie Blue staining.

Purification procedure: As standard, F5L proteoliposomes are purified on a sucrose gradient. Further purification steps can be added if required.

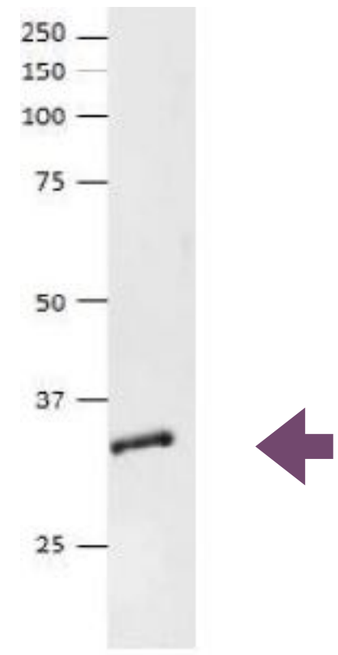

Fig.2: F5L Proteoliposome after purification (Western blot identification).

Western blot using anti-His-tag monoclonal antibody proved that the F5L receptor was expressed. As shown in Figure 2, a band about 35 kD was visualized. The molecular weight of F5L protein is lower than the calculated one (36.7 kDa). However, migration on sodium dodecyl sulfate-polyacrylamide gel electrophoresis (SDS-PAGE) that does not correlate with formula molecular weights, termed “gel shifting”, appears to be common for membrane proteins.

The presence of hairpins (helix-loop-helix) could be an explanation of this gel shift. The literature concerning membrane proteins mentions a differential solvation by SDS (replacing protein-detergent contacts with protein-protein contacts, implying that detergent binding and folding are intimately linked). The apparent MWs among this group deviate widely from formula MW with gel shifts (migration on PAGE that does not correspond to formula MW) ranging from -46% to + 48%.

Références :

– Proc. Natl. Acad. Sci., February 10, 2009, vol. 106
Detergent binding explains anomalous SDS-PAGE migration of membrane proteins.
– Proc. Natl. Acad. Sci. September 24, 2013, vol. 39
Acrylamide concentration determines the direction and magnitude of helical membrane protein gel shifts
– Analytical Biochemistry 434 (2013) 67–72
Correction factors for membrane protein molecular weight readouts on sodium dodecyl sulfate–polyacrylamide gel electrophoresis

Formulation

Buffer: Available in Tris 50mM, pH 7.5. Other buffers or customized formulation can be provided upon request.

Customized Hydrophobic matrix: Customized formulation with specific lipids like PEGylated or biotinylated lipids can be used upon request, as well as targeting molecules.

Storage/Stability: Store at +4°C for up to one week or several months at -80°C. Aliquot for storage. Do not freeze-thaw after aliquoting.

Use restrictions: For life science research use only.

Available sizes: 10µg, 50µg ,100 µg , 200 µg, 500 µg,bulk

Need a specific amount, a quote or any additional information?
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Synthelis

T : +33 (0)4 76 54 95 35
E: contact@synthelis.fr
www.synthelis.com