BioVendor - Laboratorní medicína a.s.
Karásek 1767/1
621 00 Brno-Řečkovice a Mokrá Hora

Date of issue: 20.08.2018

PRODUCT DATASHEET

Visinin-like protein 1 Human E. coli

Cat. No.: RD172119100
Type: Recombinant protein
Size: 0.1 mg
Source: E. coli
Species: Human

Description

Total 201 AA. MW: 23.4 kDa (calculated). N-terminal His-tag, 10 extra AA (highlighted). The AA sequence is identical to UniProtKB/Swiss-Prot entry P62760.

Other names

Visinin-Like Protein 1, Hippocalcin-like protein 3, HLP3, VILIP, VLP-1, VSNL1, VISL1

Introduction to the molecule

Visinin like protein 1 (VILIP-1, VLP-1 or VSNL-1) is a cytoplasmic protein of low molecular weight (approximately 22 kDa) consisting of 191 amino acid residues. It belongs to the visinin/recoverin subfamily of neuronal calcium sensor proteins involved in calcium-dependent signal transduction mechanisms in neurons. It is found primarily in the brain, in nerve cells, but it also has a peripheral distribution in liver, lung, kidney, spleen, pancreas and colon. When localized at the membrane, it modulates various cellular signal transduction pathways, including cyclic adenosine monophosphate (cAMP)- and cyclic guanosine monophosphate (cGMP)-signaling in neural cells, human embryonic kidney cells, the pancreatic β cell line MIN6, and various skin tumor cell lines. It contains four internal repeats of 36–38 amino-acids, each containing a potential EF-hand domain. Two of the four EF-hand Ca2+-binding motifs of VILIP-1 are able to bind either Ca2+ or Mg2+in a non-cooperative manner. Binding of Ca2+ leads to specific conformational changes in the protein and this may regulate the interaction of VILIP with intracellular target molecules. VILIP-1 has been identified as a potential biomarker for brain injury and several neurodegenerative diseases. VILIP-1-expressing cells appear to be vulnerable to neurotoxic insults. As a result, the protein is released into the cerebrospinal fluid (CSF), and can be used as a biomarker for stroke and Alzheimer's di-sease. The intracellular protein was detected in cerebrospinal fluid (CSF) of a rat model of stroke and in plasma of patients after stroke. VILIP-1 was detected in 44% of subjects with stroke, in samples taken 24 hours after onset of stroke, and in 8% of controls with no stroke. In Alzheimer's di-sease, CSF levels of VILIP-1 were significantly higher than in healthy individuals. Post mortem studies in the hippocampus of schizophrenia patients revealed increased expression of VILIP-1 in interneurons, while its expression in pyramidal neurons was downregulated. Expressions of VILIP-1 were also found in different types of cancer and in pancreatic α- and β-cells, being involved in the regulation of insulin secretion and insulin gene expression.

Research topic

Neural tissue markers, Oncology

Amino Acid sequence

MKHHHHHHAS MGKQNSKLAP EVMEDLVKST EFNEHELKQW YKGFLKDCPS GRLNLEEFQQ LYVKFFPYGD ASKFAQHAFR TFDKNGDGTI DFREFICALS ITSRGSFEQK LNWAFNMYDL DGDGKITRVE MLEIIEAIYK MVGTVIMMKM NEDGLTPEQR VDKIFSKMDK NKDDQITLDE FKEAAKSDPS IVLLLQCDIQ K

Purity

Purity as determined by densitometric image analysis: > 95%

Endotoxin

< 1.0 EU/ug

Formulation:

Filtered (0.4 µm) and lyophilized from 0.5 mg/ml in 20mM Tris buffer, 20mM NaCl, pH 7.5

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Reconstituion:
Add deionized water to prepare a working stock solution of approximately 0.5 mg/mL and let the lyophilized pellet dissolve completely. Product is not sterile! Please filter the product by an appropriate sterile filter before using it in the cell culture.

Shipping
At ambient temperature. Upon receipt, store the product at the temperature recommended below.

Storage, Stability/Shelf Life
Store the lyophilized protein at –80 °C. Lyophilized protein remains stable until the expiry date when stored at –80 °C. Aliquot reconstituted protein to avoid repeated freezing/thawing cycles and store at –80 °C for long term storage. Reconstituted protein can be stored at 4 °C for a week.

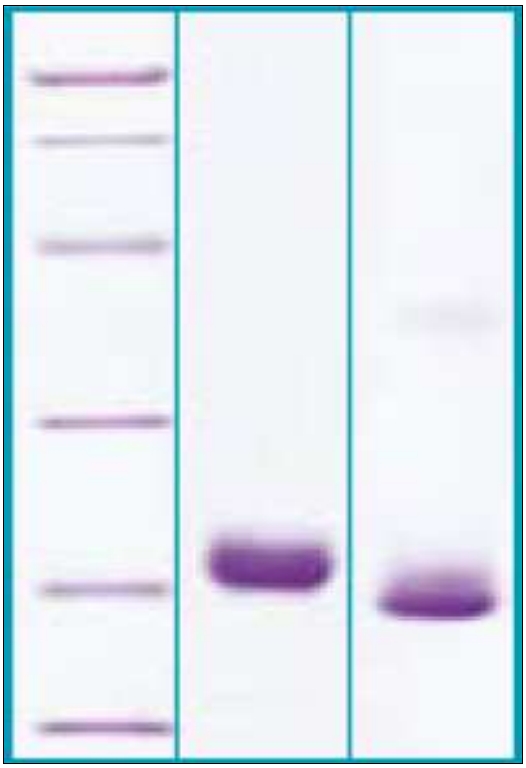
Quality control
BCA to determine quantity of the protein.

SDS PAGE to determine purity of the protein.

LAL to determine quantity of endotoxin.

Applications
Western blotting

Note
This product is intended for research use only.



12% SDS-PAGE separation of Human VILIP
1. M.W. marker – 14, 21, 31, 45, 66, 97 kDa
2. reduced and heated sample, 5µg/lane
3. non-reduced and non-heated sample, 5µg/lane

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