



Synthelis®

## Ion Channel

Protein Catalog

**VDAC1 – Voltage-Dependent Anion Channel 1**

**# PL029**

### Product specification

**Acronym:** VDAC-1

**Origin species:** Human

**Protein reference :** P21796 (UniProtKB)  
L06132.1 (GenBank)

**Family:** Anion channel

**Expression system:** *E.coli* based CFPS

**Format:** Proteoliposomes

**Protein sequence:** Met1 - Ala283

**Tag :** 6xHis tag (N-ter)

**Cleavage site:** Factor Xa

**Product MW:** 30.7kDa

**Application:** Drug screening & discovery, antibody development, structural biology

### Product description

VDAC-1 (Voltage-Dependent Anion Channel) is a mitochondrial porin located in the outer mitochondrial membrane (OMM). This protein consists of a transmembrane  $\beta$ -barrel with a N-terminal  $\alpha$ -helix. VDAC is responsible for the exchange of adenine nucleotides,  $\text{Ca}^{2+}$  and other metabolites across the mitochondrial membrane. It also has binding sites for glycerol, hexokinase II, creatine kinase and Bcl-2 family members. VDAC plays a central role in the increase of mitochondrial membrane permeability as part of apoptosis.

### Recombinant protein sequence

**His tag – factor Xa cleavage site -**

MAVPPTYADLGKSARDVFTKGYGFGLIKLDLKTSENGLEFTSSGSANTETTKVTGSLETKYRWTEYGLTFTEKWNTDNTLGTEIT  
VEDQLARGLKLTFDSSFPNTGKKNAKIKTGYKREHINLGCDMDFDIAGPSIRGALVLGYEGWLAGYQMFETAKSRVTQSNEAVG  
YKTDEFQLHTNVNDGTEFGGSYQKVNKKLETAVNLAWTAGNSNTRFGIAAKYQIDPDACFSAKVNNSSLIGLGYTQTLKPGIKLT  
LSALLDGKNVNAGGHKLGLEFQA



## Quality analysis

**Purity:** > 75 % as determined by Coomassie Blue stained SDS-Page. Liposomes are directly incorporated into the Cell-Free reaction, thus, some impurities from the *E.coli* lysate might be present in the proteoliposomes.

A negative control (proteoliposomes without the protein of interest) can be provided (useful for screening, immunization...).

The purity can be improved by protein expression in detergent and relipidation after purification step(s).

**Purification procedure:** VDAC proteoliposomes are purified on a sucrose gradient.

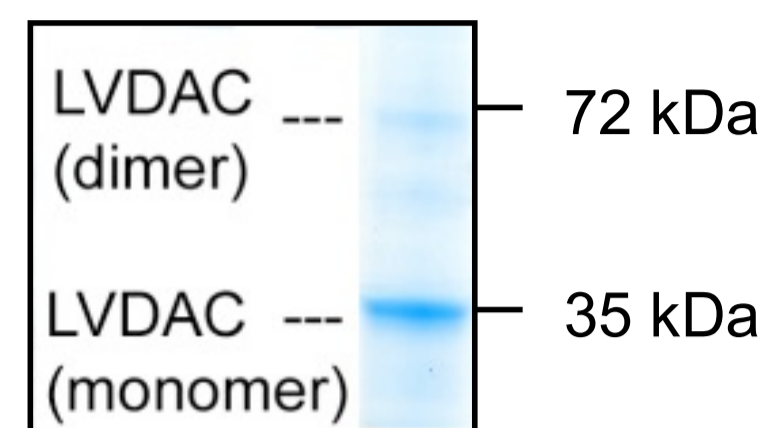
*NB : Migration of membrane proteins on SDS-PAGE can result in « gel shifting » due to the presence of hairpins (helix-loop-helix)<sup>1-3</sup>.*

References :

1 – Rath A., et al., Detergent binding explains anomalous SD-PAGE migration of membrane proteins PNAS, 2009 Feb 10, vol. 106

2 – Rath A., et al., Acrylamide concentration determines the direction and magnitude of helical membrane protein gel shifts, PNAS, 2013 Sep 24, 110(39)

3 – Rath A., et al., Correction factors for membrane protein molecular weight readouts on sodium dodecyl sulfate-polyacrilamide gel electrophoresis, Anal. Biochem., 2013 Mar 1, 434(1)



**Fig.1:** Identification of VDAC-1 in the proteoliposomes by Coomassie Blue stained SDS-PAGE.

## Formulation

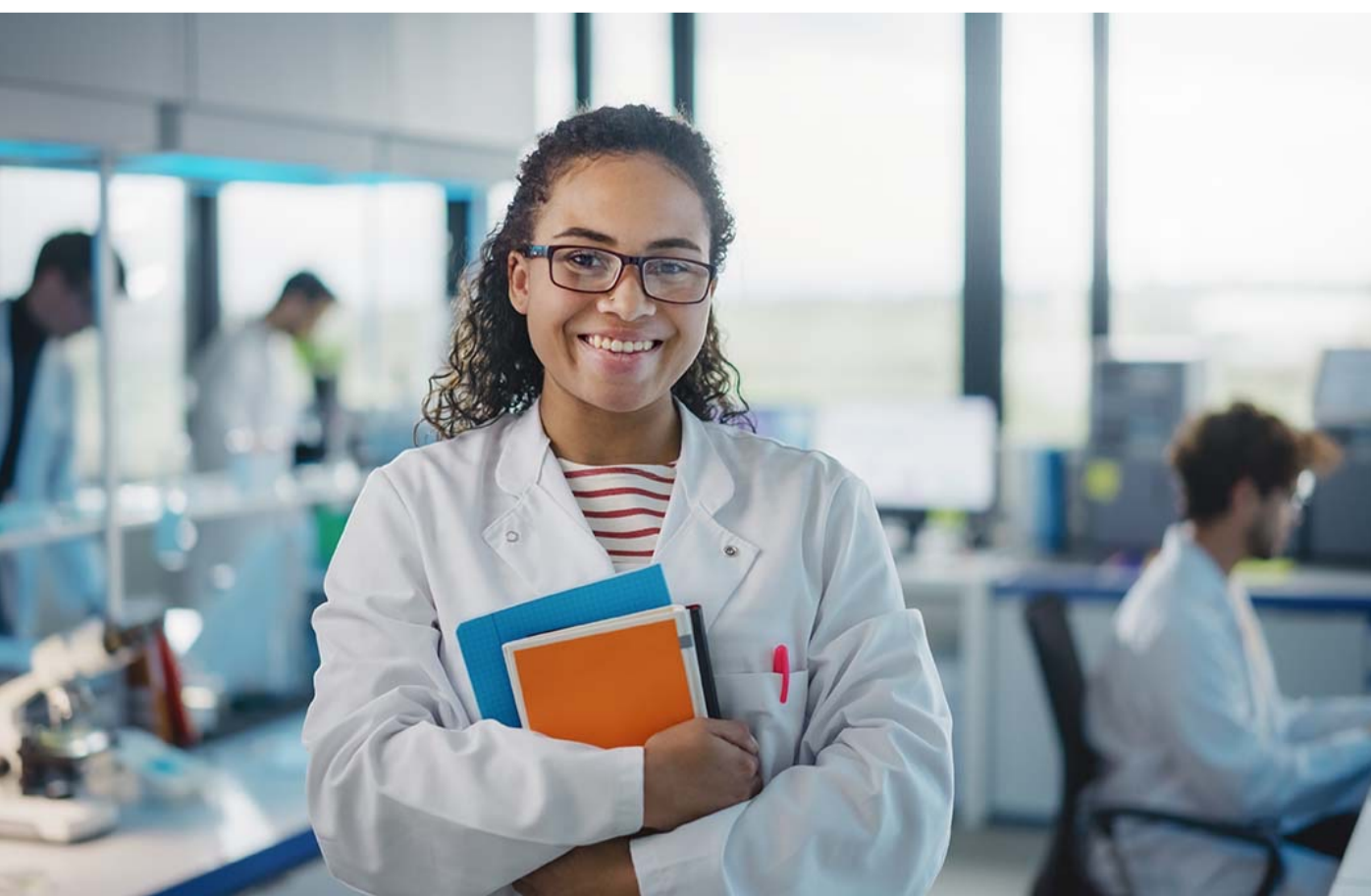
**Buffer:** Available in Hepes 50mM, pH 7.5, with cryoprotectants. Other buffers or customized formulation can be provided upon request.

**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:** 10 µg, 50 µg, 100 µg, customized quantity on request.



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