

## BR- Bacteriorhodopsin

### Product specification

**Acronym:** BR

**Class:** GPCR

**Origin:** Bacteria

**Molecular weight:** 28.25 kDa

**Application:** Screening & display technologies,  
Structural biology

**Purity:** >50%

**Activity:** To be tested

**Length:** Full Length

**TMD:** 7

**Biological function:** Light-driven proton pump

### Product description

The Bacteriorhodopsin is a transmembrane protein that acts as a light-driven proton pump in *Halobacterium salinarum*, converting light energy into a proton gradient. BR functions as a pump of protons from the cytoplasm to the extracellular space, in order to create a proton gradient. Afterwards, protons enter the cell, and the cell takes advantage of that by coupling to a reaction that synthesizes ATP. The energy required by BR is provided by green light. At the end of the process, the outcome is that the cell transformed energy from light into ATP, the energetic currency of the cell.

**Protein Source:** BR wild type protein

*Fig.1: AA sequence of BR protein*

10	20	30	40	50
MLELLPTAVE	GVSQAQITGR	PEWIWLALGT	ALMGLGTLYF	LVKGMGVSDP
60	70	80	90	100
DAKKFYAITT	LVPAIAFTMY	LSMLLGYGLT	MVPFGGEQNP	IYWARYADWL
110	120	130	140	150
FTTPLLLLDL	ALLVDADQGT	ILALVGADGI	MIGTGLVGL	TKVYSYRFW
160	170	180	190	200
WAISTAAMLY	ILYVLFPGFT	SKAESMRPEV	ASTFKVLRNV	TVLWSAYPV
210	220	230	240	250
VWLIGSEGAG	IVPLNIETLL	FMVLDVSAKV	GFGLILLRSR	AIFGEAEAPE
260				
PSAGDGAAAT	SD			

**Affinity Tag:** Histidine tag fused to the N-terminal end of the protein.

**Production conditions:** BR 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.



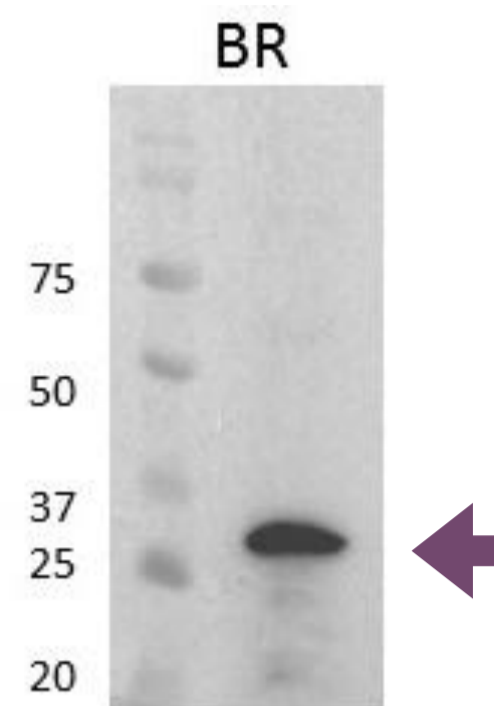
## Quality analysis

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

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

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



## Formulation

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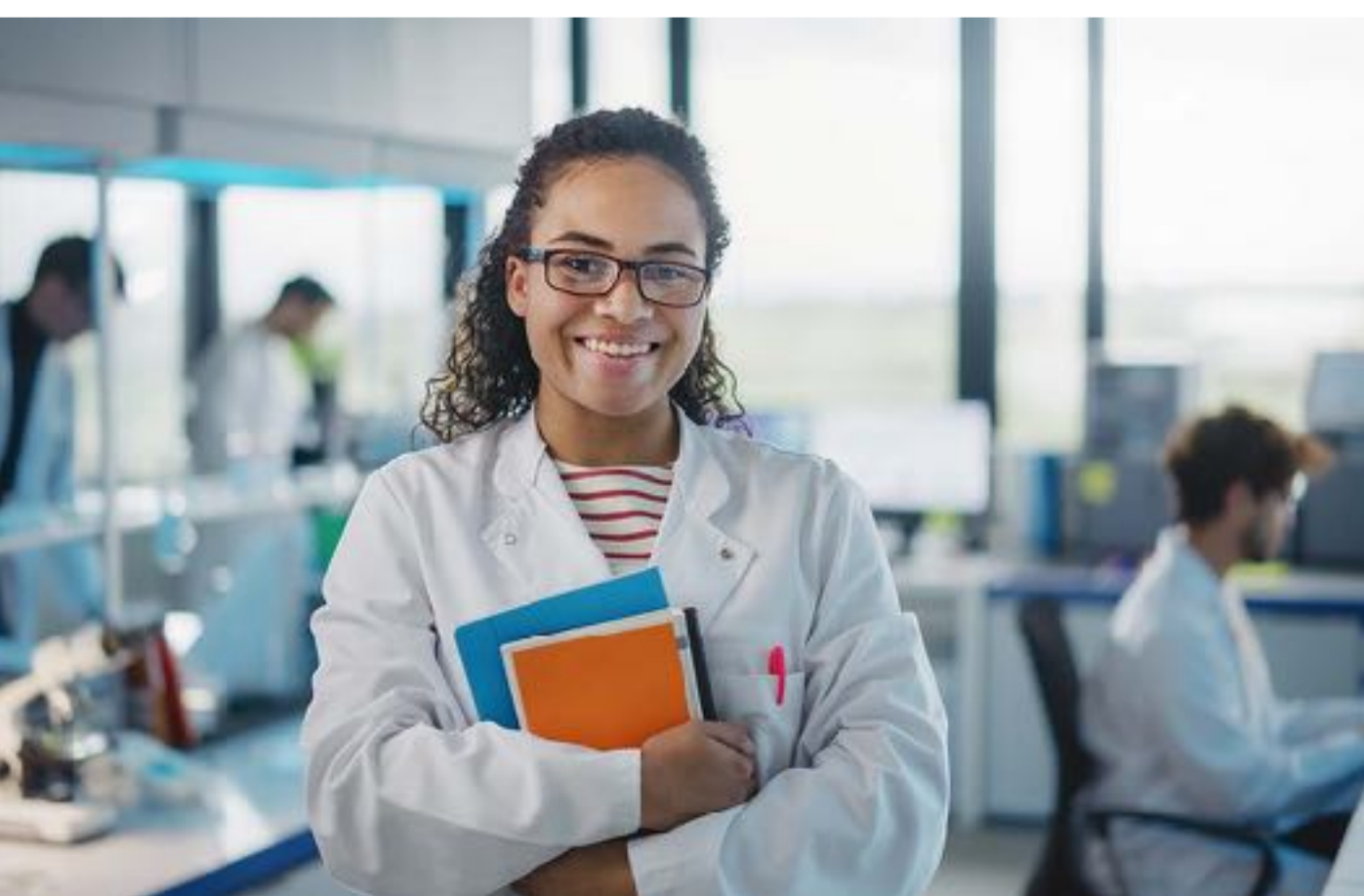
**Buffer:** Available in Tris 50mM, pH 7.5. Other buffers or customized formulation can be provided upon request.

**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:** 10 µg, 20 µg, 100 µg, 200 µg, 500 µg, bulk



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