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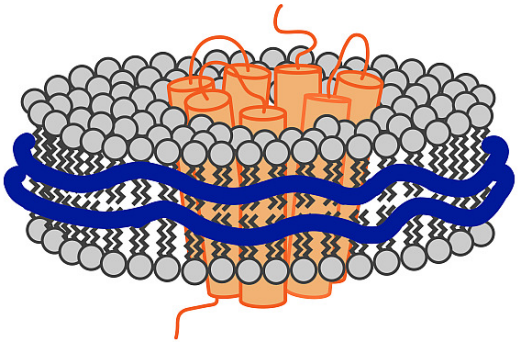
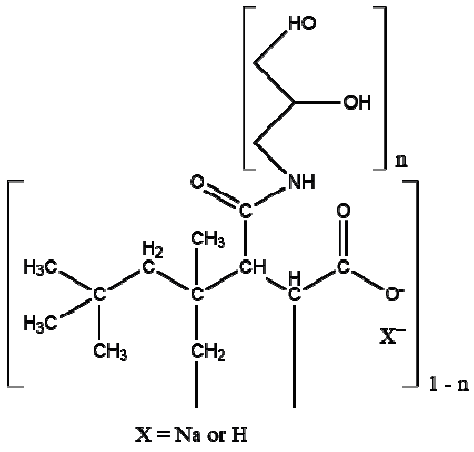
PureCube DIBMA Glycerol HEPES

Product	Catalog No.	Package size
DIBMA Glycerol HEPES (10x50 mg)	**18051**	**10x50 mg**
DIBMA Glycerol HEPES (1 g)	**18052**	**1 g**
DIBMA Glycerol HEPES (10 g)	**18071**	**10 g**
DIBMA Glycerol HEPES (5x10 g)	**18072**	**5x10 g**





X = Na or H

Product Description

The use of a diisobutylene/maleic acid copolymer for stabilization of membrane proteins was first described by Keller and coworkers (1, 2). These copolymers could provide bicelles with membrane proteins from native membranes in absence of detergents, by wrapping around a patch of a lipid bilayer to form a disc-like particle or nanodisc. The DIBMA HEPES based products contain the copolymer and a 50 mM HEPES buffer, adjusted to pH 7.5, so only dd water has to be added for direct application. The pH value has been selected being very effective for protein solubilization. DIBMA 10 from Cube Biotech is a highly purified copolymer (DIBMA) of diisobutylene and maleic acid, with a molecular weight (MW) of 10.000. After solubilization, the copolymer is in a 10% concentration, leading to high concentrations, when added to the membrane protein. Copolymers provide a hydrophobic surface facing the lipids, and a hydrophilic surface at the outside. This setup makes nanodiscs highly soluble in aqueous solutions and allows for the solubilization of membrane proteins in the absence of detergents. Functionalization of the carboxylic acid groups with 3-Amino-1,2-propandiol lead to a lowering of the molecule charge and a higher independence against pH changes, Ca^{2+} and Mg^{2+} ions.

The product can be used with phospholipids, such as dimyristoyl-glycero-phosphocholine (DMPC) or palmitoyl-oleoyl-phosphatidylcholine (POPC) in combination with sodium cholate.
The complex from DIBMA and membrane protein can be used with many biophysical assays, such as SDS-PAGE, SEC, Western Blot, UV/Vis spectroscopy, and many chromatographic procedures.

Reconstitution of copolymer solution

Cube DIBMA copolymers are delivered lyophilized from a solution containing 50 mM HEPES, pH 7.5. Each aliquot contains 50 mg protein. Adding 0.5 mL double distilled water will restore the original solution with a copolymer concentration of 10%. This stock can be diluted further as required by the different application protocols.

Technical details

Name: Diisobutylene Maleic Acid glycerol amide copolymer, sodium salt / DIBMA / in 50 mM HEPES, pH 7.5
Adsorbance (280 nm, 1% solution): > 0.3
MW: >13,000 g/mol
Solubility: >10% (H_2O)
Specific gravity: 1.1
pH (dissolved): 7.5 ± 0.1

Shipping & Storage

Shipment Temperature	Ambient temperature
Storage of lyophilized copolymer	-20°C for several years
Storage of dissolved copolymer	2-8°C for several days

Additional Information

For DIBMA protocols, please visit our webpage at: www.cube-biotech.com/protocols. For background information on nanodiscs and possible applications please see http://www.cube-biotech.com/background-tips-and-tricks/what-are-nanodiscs.

Cube Biotech also offers his-tagged and untagged MSP1D1, MSP1E3D1, MSP1D1ΔH5 and MSP2N2 his-tagged proteins,

For protein affinity purification, Cube Biotech offers dedicated agarose resins, magnetic beads and prepacked cartridges. Also available are a range of ultrapure detergents and buffers for extraction and purification of proteins.

See www.cube-biotech.com/products for details.

Literature references

1. A.O. Oluwole, B. Danielczak, A. Meister, J.O. Babalola, C. Vargas, S. Keller, Solubilization of membrane proteins into functional lipid-bilayer nanodiscs using a diisobutylene/maleic acid copolymer, Angew. Chem. Int. Ed. 56 (2017) 1919–1924.

2. A.O. Oluwole, J. Klingler, B. Danielczak, J.O. Babalola, C. Vargas, G. Pabst, S. Keller, Formation of lipid-bilayer nanodiscs by diisobutylene/maleic acid (DIBMA) Copolymer, Langmuir 33 (2017) 14378–14388

Proteins are our passion.