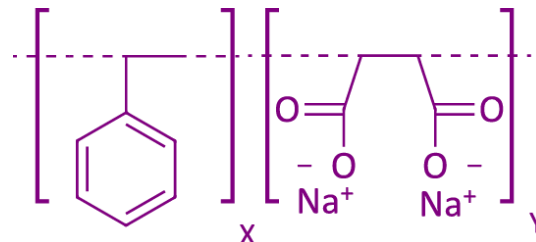
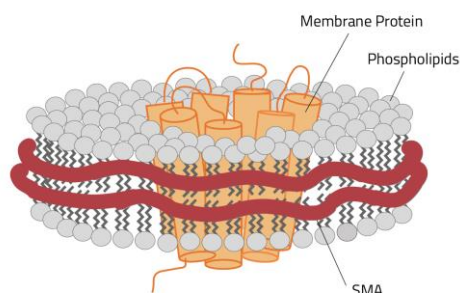


## SMALP 140



Product	Catalog No.	Package size
SMALP 140 (10x50 mg)	18220	10x50 mg
SMALP 140 (1 g)	18221	1 g
SMALP 140 (10 g)	18222	10 g



### Product Description

The use of a styrene/maleic acid copolymer for stabilization of membrane proteins was first described by Knowles and coworkers (1). 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 SMALP 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. SMALP 140 from Cube Biotech is a highly purified copolymer (SMA) of styrene and maleic acid, with a molecular weight (Mw) of 5.000. After solubilization, the copolymer is in a concentration from 1.5 to 6.0%, 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. The product can be used with phospholipids, such as dimyristoyl-glycero-phosphocholine (DMPC) or palmitoyl-oleoyl-phosphatidyl-choline (POPC) in combination with sodium cholate.

The complex from SMA 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 SMA 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: Styrene Maleic Acid copolymer, sodium salt / SMA / SMALP 140 in 50 mM HEPES, pH 7.5

Adsorbance (280 nm, 1% solution): > 0.3

Mw: 5.000 g/mol

S:MA Ratio: 1.4:1

Solubility: >10% (H<sub>2</sub>O)

Color: Amber

Odor: Odorless

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 SMA protocols, please visit our webpage at: [www.cube-biotech.com/protocols](http://www.cube-biotech.com/protocols). Cube Biotech also offers his-tagged and untagged MSP1D1, MSP1E3D1, MSP1D1ΔH5 and MSP2N2 his-tagged proteins,

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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](http://www.cube-biotech.com/products) for details.

#### Literature references

1. Knowles, T. J., Finka, R., Smith, C., Lin, Y.-P., Dafforn, T., & Overduin, M. (2009). Membrane Proteins Solubilized Intact in Lipid Containing Nanoparticles Bounded by Styrene Maleic Acid Copolymer. *Journal of the American Chemical Society*, 131(22), 7484–7485. doi:10.1021/ja810046q .
2. Lee, S. C., Knowles, T. J., Postis, V. L. G., Jamshad, M., Parslow, R. A., Lin, Y., ... Dafforn, T. R. (2016). A method for detergent-free isolation of membrane proteins in their local lipid environment. *Nature Protocols*, 11(7), 1149–1162. doi:10.1038/nprot.2016.070

**Disclaimer:** Our products are intended for molecular biology applications. These products are not intended for the diagnosis, prevention, or treatment of a disease. SMALP 140 is a trademark of Polyscope.

#### Disclaimer

The use of styrene maleic anhydride copolymer (SMA) products for the manufacturing of styrene maleic acid copolymer - lipid particles (nanodiscs) (SMALP), and the use of SMALP, are covered by one or more of the following patents owned by Malvern Cosmeceutics Limited: US8623414, EP1890675, GB2426703, AU2006253886, JP5142898, IN261468, CN ZL200680018957.2, CA 2611144 and by the University of Birmingham US8754168.

The purchaser is licensed under those patents to use the SMA; for the manufacture of SMALPs and to use SMALPs so manufactured for the purpose of research and development of proteins, including their production (including purification and solubilization), screening, testing, analysis, characterization (including structural analysis and characterization), including for the purpose of drug screening, but not for the purpose of delivery of agents to humans or other animals for therapeutic, diagnostic, prophylactic purposes, which uses are specifically prohibited.