

## Ultrasolute™ Amphipol 18 Biotin



Product	Catalog No.	Package size
Ultrasolute™ Amphipol 18 Biotin (10x50mg)	19721	5 g
Ultrasolute™ Amphipol 18 Biotin (1g)	19722	1 g
Ultrasolute™ Amphipol 18 Biotin (10x1g)	19723	10 g
Ultrasolute™ Amphipol 18 Biotin (50g)	19724	50 g

### Product Description

The use of an Amphipol copolymer for stabilization of membrane proteins was first described by Zoonens 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 Amphipol 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.

Ultrasolute™ Amphipol 18 from Cube Biotech is a highly purified copolymer of cyclooctyl acrylamide and acrylic acid, with a molecular weight (Mw) of ~7.300. After dissolving, the copolymer is in a concentration from 1.0 to 5.0%, 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.

### Reconstitution of Copolymer Solution

Ultrasolute™ Amphipol 18 Biotin copolymers are delivered lyophilized from a solution containing 50 mM HEPES, pH7.5. each aliquot contains 50 mg of copolymer or 1 g respectively. Adding 0.5 ml double distilled water per 50 mg of polymer 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	Ultrasolute™ Amphipol 18 Biotin copolymer, sodium salt in 50 mM HEPES, pH 7.5
Solubility	>10% (H2O)
Color	white to light yellow
pH (dissolved)	7.5 ± 0.3
Adsorbance (280 nm, 1% solution)	> 0.1

### Shipping & Storage

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

### Literature References

1. Anaïs Marconnet, Baptiste Michon, Christel Le Bon, Fabrice Giusti, Christophe Tribet, and Manuela Zoonens\*; Solubilization and stabilization of membrane proteins by cycloalkane-modified amphiphilic polymers, *Biomacromolecules* 2020, 21, 8, 3459–3467
2. Anna J. Higgins, Alex J. Flynn, Anaïs Marconnet, Laura J. Musgrove, Vincent L. G. Postis, Jonathan D. Lippiat, Chun-wa Chung, Tom Ceska, Manuela Zoonens, Frank Sobott, and Stephen P. Muench, Cycloalkane-modified amphiphilic polymers provide direct extraction of membrane proteins for CryoEM analysis, *Communications Biology*, volume 4,

### Additional Information

For Ultrasolute™ Amphipol 18 Biotin ( protocols, please visit our corresponding product websites under: <https://cube-biotech.com/products/membrane-protein-stabilization/copolymer-nanodisc-products/ultrasolute-amphipol/>

### Disclaimer

The use of cyclooctyl acrylamide acrylic acid copolymer (Ultrasolute™ Amphipol) products for the manufacturing of cyclooctyl acrylamide acrylic acid copolymer - lipid particles (nanodiscs), and the use of Ultrasolute™ Amphipol, are covered by one or more of the following patent applications: AU2019391307, CN113366039, EP3891197 JP2022513711 US17298328, and CA3121693.

The purchaser is licensed under those patents to use the Ultrasolute™ Amphipol; for the manufacture of lipid particles and to use Ultrasolute™ Amphipol 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.