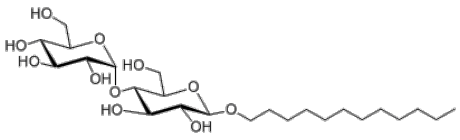
Membrane Protein Consumables

Improve your membrane protein purification workflow with Calibre Scientific's range of membrane protein consumables. Molecular Dimensions, Anatrace and Protein Ark provide everything needed to purify, formulate and study the structure/function of Membrane Proteins.

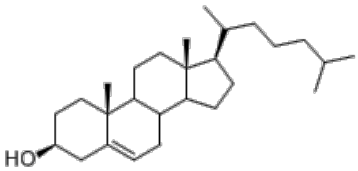
Detergents

Anatrace has been the gold standard for detergents used in membrane protein work since they launched the first commercially available version of DDM more than 30 years ago.

DDM is still the #1 detergent in structural biology and the first one scientists use in their initial screening experiments.



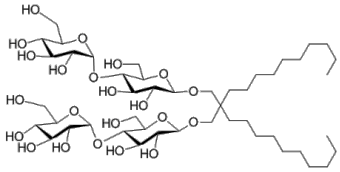
Cholesteryl Hemisuccinate (CHS) is needed for stabilization of eukaryotic membrane proteins that need cholesterol-rich emvironments; it is frequently used in mixtures with **DDM** or **LMNG**. Anatrace offers pre-made **DDM-CHS** and **LMNG-CHS** mixes that save preparation time and offer robust reproducibility.



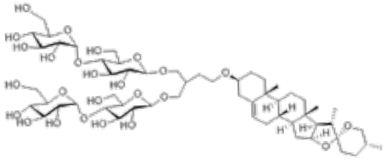
NG Class detergents (such as **LMNG**) are an alternative to conventional derivatives like **DDM**, **DM** and **OG**, giving unique benefits such as:

- Lower CMC values
- Increased protein stability after dilution below CMC value
- Being the "silver bullet" for elusive targets like GPCRs.

These novel detergents can improve protein stability and crystallizability relative to more common molecules.



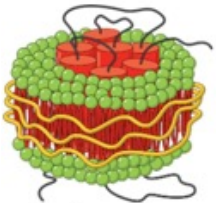
GDN is a synthetic substitute for digitonin. It offers several benefits over the plant-derived digitonin: high batch-to-batch consistency, cost-efficiency and no toxicity problem.
In ~70% of cases, membrane proteins solubilized and purified in maltoside detergents are transferred to a different amphipathic environment, and GDN is often the detergent of choice.

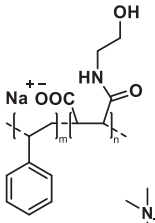


Styrene Maleic Acid (SMA)

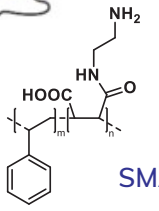
Anatrace offers next-generation polymer derivatives of **styrene maleic acid (SMA)**, which show increased stability towards higher concentrations of divalent cations (up to 200 mM Ca^{2+} or Mg^{2+}) and allow for various sizes of lipid nanodiscs to be utilized by changing the lipid-to-polymer ratio.

The resulting polymers have been shown to form nanodiscs with synthetic lipids and directly solubilize membrane proteins from membranes. These new polymers are a great alternative to detergents, which often interfere with the structure and function of membrane proteins and may cause denaturing.

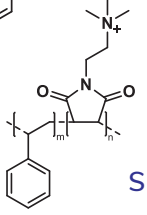




SMA EA



SMA ED



SMA QA

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Membrane Protein Consumables

Chromatography Resins

Protein Ark offers a wide range of affinity chromatography resins for the purification of membrane proteins. The resins are available as loose beads ideal for batch binding purification, or pre-packed, suitable for use with the AKTA and Bio-Rad systems.

- Ni-NTA / Ni-IDA / Ni-Advance
- Co-NTA / Co-IDA
- Glutathione

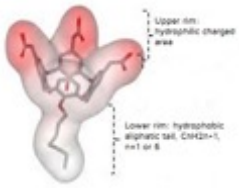
Protein Purity is key for downstream analyses of all proteins, including membrane proteins (e.g., structural biology). Protein Ark, provides **size exclusion columns** for the final purification step.

X-spinner 2.5 Ultrafiltration Concentrator

The holy grail in ultrafiltration (UF) is to eliminate sample fouling and to enhance recovery and purity of target protein during the concentration or buffer exchange step. Protein Ark has introduced a 2.5 ml non-stick UF concentrator to provide the highest possible protein recoveries. This is due to 2 factors: the low protein binding CTA membrane and critically, the design of the **X-spinner** which ensures that UF is in opposite direction to the centrifugal force. The contra design also ensures that the filter does not clog. This is the first centrifugal concentrator designed with membrane proteins as a key application.

Calixar C2B Additive Kit

Calixar™'s **C2B** additive kit provides a range of novel, patented surfactants that can aid membrane protein purification. This exciting new kit provides two varieties of stabilizing surfactants: Calixarenes and fluorinated poly(tris) and bis-glucose surfactants.

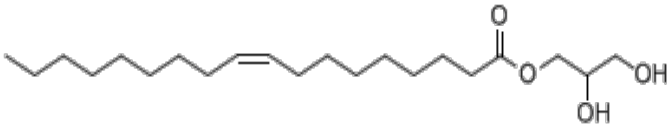


Membrane Protein Crystallization Screens

In the Newstead group we typically use **MemGold** and **MemGold2** and now include both **MemTrans** and **MemChannel** as standard to try and increase the chance of success" Dr. Joanne Parker, University of Oxford, MemGold screen family co-developer.

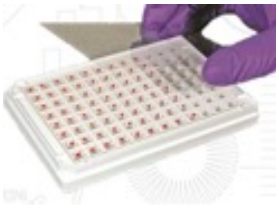
Monoolein

Monoolein is the most commonly used lipid for the reconstitution of the LCP. Mixing **monoolein** with **cholesterol** in a 10:1 ratio has proven invaluable for the crystallization of GPCR proteins. **Anatrace** offers the individual components as well as the pre-mixed solution, offering robust reproducibility



Laminex Plates – Lipidic Cubic Phase (LCP)

Laminex offers considerable advantages for viewing and imaging LCP crystal growth experiments since the experiment is sandwiched between planar surfaces. The optical path creates no aberrations when using lipidic cubic phases.



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