

## JBSolution Detergent Test Kit contains 27 different detergents

### Introduction

Membrane proteins are solubilized from their natural environment and transferred to detergent micelles. This procedure is crucial to purify membrane proteins.

There are numerous chemically diverse detergents. Our **JBSolution Detergent Test Kit** allows to screen a wide range of detergents in order to find suitable ones that solubilize the protein of interest without interfering with its structure or function.

The most important parameter of each detergent is its critical micellar concentration (CMC). Below this concentration detergent molecules are present as monomers and thus are not able to solubilize membrane proteins. The applied detergent concentration should be above the CMC.

### How to use the JBSolution Detergent Test Kit

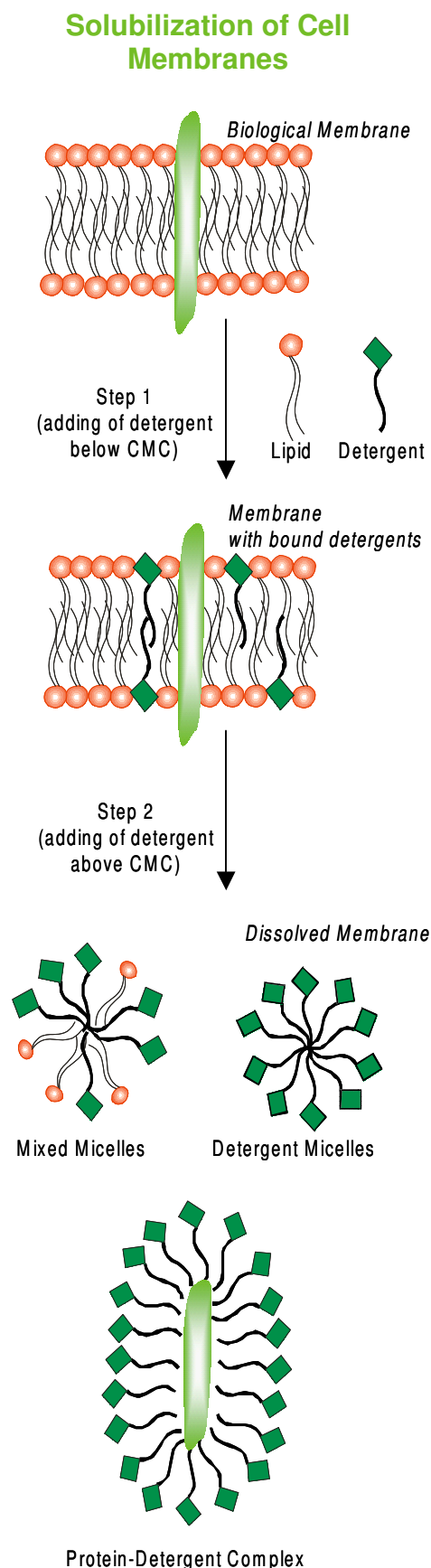
The **JBSolution Detergent Test Kit** is designed to optimize solubilization of membrane proteins. Compounds assembled in the kit range from ionic and non-ionic to zwitter-ionic detergents. These detergents have non-denaturing as well as denaturing properties. The arrangement is based on years of experience. The Kit contains 4 ml stock solutions of 27 detergents with a concentration of 4 %\* and 3 buffers at 1 M concentration (Tris-HCl, NaHEPES, NaPB), each at two different pH-values (7.5 and 8.0).

\*except Sulfobetaine SB16, concentration 2.5 % (w/v)

All solutions are sterile filtered.

### Store at room temperature!

1. Choose the appropriate buffer to dissolve your protein and dilute to the desired concentration. You might start with 20 mM Tris-HCl pH 7,5. Take into account that adding detergent solution will decrease buffer concentration.
2. Choose the detergent and look up the CMC in table 1. Add the corresponding amount of the detergent stock solution to the diluted buffer so that the CMC is at least reached.
3. To stabilize the protein you can further add 1 mM DTT and 5 mM EDTA.



**table1**

Detergent	Molecular Mass (g/mol)	Concentration (equals stock solution)	Critical Micellar Concentration (CMC)
<b>Non-ionic detergents</b>			
Brij <sup>®</sup> 35	1199.76 g/mol	33.3 mM	0.09 mM
Deoxy-BIGCHAP	862.1 g/mol	46.4 mM	1.1 – 1.4 mM
HECAMEG	335.39 g/mol	119.3 mM	19.5 mM
MEGA-8	321.42 g/mol	124.5 mM	58 mM
MEGA-9	335.5 g/mol	119.2 mM	19 – 25 mM
MEGA-10	349.5 g/mol	117.6 mM	6 – 7 mM
n-Octyl- $\beta$ -D-glucopyranoside	292.38 g/mol	136.8 mM	25 – 30 mM
Pluronic F-68	~ 8300 g/mol	4.8 mM	0.006 mM
Sucrose monolaurate	524.60 g/mol	76.3 mM	0.4 mM
Triton <sup>®</sup> X-100	~ 625 g/mol	64.0 mM	0.2 – 0.9 mM
Triton <sup>®</sup> X-114	~527 g/mol	75.9 mM	0.35 mM
Tween <sup>®</sup> 20	~ 1228 g/mol	32.6 mM	0.059 mM
Tween <sup>®</sup> 80	~ 1310 g/mol	30.5 mM	0.012 mM
Nonidet P40	603.3 g/mol	66.3 mM	0.05 – 0.30 mM
<b>Anionic detergents</b>			
N-Lauroylsarcosin-sodium salt	293.4 g/mol	136.0 mM	13.7 mM
Lithiumdodecyl sulfate	272.3 g/mol	147.0 mM	8.7 mM
Sodium cholate	430.6 g/mol	92.9 mM	14 mM
Sodium deoxycholate	414.6 g/mol	96.5 mM	10 mM
SDS (Sodiumdodecylsulfate)	288.4 g/mol	138.7 mM	7 – 10 mM
<b>Cationic detergents</b>			
Cetylpyridinium chloride	358.0 g/mol	111.7 mM	0.12 mM
Cetyltrimethylammonium bromide	364.5 g/mol	109.8 mM	1 mM
<b>Zwitterionic detergents</b>			
CHAPS	614.9 g/mol	65.1 mM	6 – 10 mM
CHAPSO	630.9 g/mol	63.4 mM	8 mM
Sulfobetaine SB10	307.6 g/mol	130.2 mM	25 – 40 mM
Sulfobetaine SB12	335.6 g/mol	119.3 mM	2 – 4 mM
Sulfobetaine SB14	363.6 g/mol	110.0 mM	0.2 mM
Sulfobetaine SB16	391.6 g/mol	51.1 mM	0.01 – 0.06 mM