Molecular Dimensions

Soluble Proteins

Membrane Proteins

# The PGA Screen™ HT-96 / FX-96 MD1-51 / MD1-51-FX

**A novel precipitant and a totally new crystallization space to explore.**

A revolutionary new systematic screen from the York Structural Biology Laboratory (YSBL) based on the poly-γ-glutamic acid (PGA) polymer. A screen suitable for both soluble and membrane protein crystallization.

MD1-51 is presented as 96 × 1 mL conditions / MD1-51-FX is presented as 96 x 100 µL conditions

**Features of The PGA Screen™:**

- A stand-alone new protein precipitant.
- Easy mixing properties with other PEGS.
- Suitable for soluble and membrane protein crystallization.
- Non-toxic and non-denaturing.
- Compatible with liquid—handling robots.

## Introduction

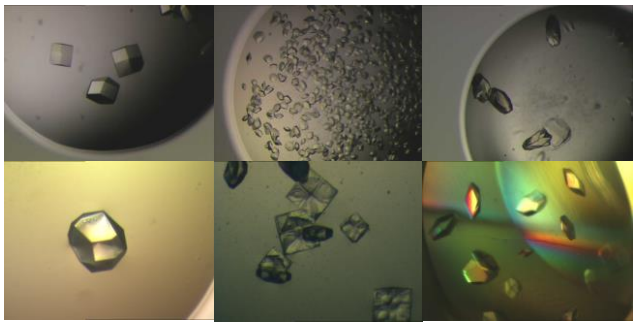
PGA polymers were tested and developed to extend the chemical palette of organic precipitants in macromolecule crystallization. Although the chemical modifications of PGA are not trivial and cost-effective, the original PGAs have been found to be useful in crystallization of globular and membrane proteins without any special treatment.

PGAs present at least two new aspects in protein crystallization; they extend the range of existing PEG-based polymers into (a) new-chemistry type of polymers that exploit poly-amino acids, and (b) widen-up the range of molecular weight of polymer precipitants into regions over 1MDa.

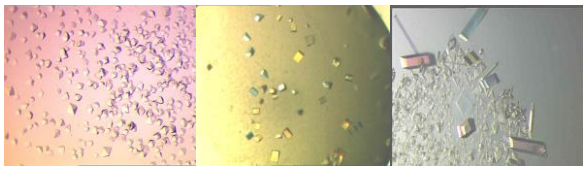
The high nucleation-precipitation potential of PGAs enables their use at very low concentrations and in combination with classical precipitants, scales down the amount of precipitants necessary for crystal appearance and growth. This feature of PGAs makes them especially useful in applications for labile, easily precipitating proteins.

Although they can be employed for all type/classes of proteins, current experience resulting from work in the YSBL suggests that PGA should be especially effective for crystallization of membrane proteins. Therefore, the PGA-based screens are recommended as targeted screens with membrane proteins as the main/primary subjects of their applicability.

The large range of screens currently available are all based on the same set of precipitants; PEGs, MPDs etc. The PGA Screen™ represents a revolutionary new systematic screen based on PGA-LM (200-400kDa low molecular weight polymer).



**Examples of lysozyme crystals grown from a variety of PGA-LM conditions.**

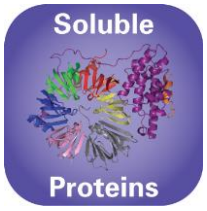


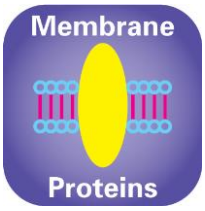
***Examples of membrane protein crystals grown from a variety of PGA-LM conditions.***

**pH control**

One of the most important parameters in the crystallization process is pH. The starting pH depends upon prior knowledge of each protein's properties, such as purification characteristics, isoelectric point, solubility/stability, pH-aggregation dependence estimated by dynamic light scattering (DLS) and previous crystallization experience with related proteins.

For example, the sodium cacodylate buffer at pH 6.5 covers a broad plateau of pKa values of individual amino acids and provides additional protection against potential specific protein aggregation caused by free –SH groups.




The PGA Screen™ (and also the Clear Strategy™ Screens MD1-14 and MD1-15) have shown that the rational use of pH can accelerate successful crystallogenesis through the minimum number of trials.

**N.B.** Final pH may vary from that specified on the datasheet. PGA is a polyanionic polymer with chelating properties; therefore it is advisable to be mindful of the buffer concentrations of any key ions required by your protein. We DO NOT believe it will strip metals bound to the protein

**Formulation Notes**

**The PGA Screen™** reagents are formulated using ultrapure water (>18.0 MΩ) and are sterile-filtered using 0.22 μm filters. No preservatives are added.

Final pH may vary from that specified on the datasheet. Molecular Dimensions will be happy to discuss the precise formulation of individual reagents.

Individual reagents and stock solutions for optimization are available from Molecular Dimensions.

Enquiries regarding **The PGA Screen™** formulation, interpretation of results or optimization strategies are welcome. Please e-mail, fax or phone your query to Molecular Dimensions.

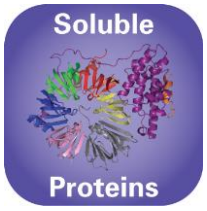
Contact and product details can be found at www.moleculardimensions.com

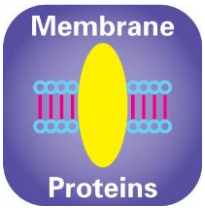
*This product is manufactured under an exclusive licence from York Structural Biology Laboratory, University of York, UK.*

**References**

TC Hu, J Korczynska, DK Smith, AM Brzozowski - Acta Crystallographica Section D: Biological Crystallography, 2008. D64, 957-963.

Molecular Dimensions

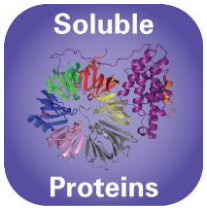


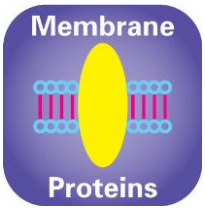




# The PGA Screen™ HT-96 / FX-96 Conditions A1-D12 MD1-51 / MD1-51-FX

| Well # | Conc. | Salt 1 | Conc. | Salt 2 | Conc. | Buffer | pH | Conc. | Precipitant | Conc. | Precipitant2 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A1 | 0.3 M | Potassium bromide | | | 0.1 M | Sodium acetate | 5.0 | 8 % w/v | γ-PGA (Na+ form, LM) | | |
| A2 | 0.2 M | Magnesium chloride | | | 0.1 M | Sodium acetate | 5.0 | 8 % w/v | γ-PGA (Na+ form, LM) | | |
| A3 | 0.3 M | Sodium malonate dibasic monohydrate | | | 0.1 M | Sodium acetate | 5.0 | 8 % w/v | γ-PGA (Na+ form, LM) | | |
| A4 | 0.6 M | Sodium formate | | | 0.1 M | Sodium acetate | 5.0 | 8 % w/v | γ-PGA (Na+ form, LM) | | |
| A5 | 1 M | Ammonium formate | | | 0.1 M | Sodium acetate | 5.0 | 8 % w/v | γ-PGA (Na+ form, LM) | | |
| A6 | 0.2 M | Potassium thiocyanate | | | 0.1 M | Sodium acetate | 5.0 | 8 % w/v | γ-PGA (Na+ form, LM) | | |
| A7 | 0.2 M | L-Proline | | | 0.1 M | Sodium acetate | 5.0 | 8 % w/v | γ-PGA (Na+ form, LM) | | |
| A8 | 0.2 M | L-Arginine | | | 0.1 M | Sodium acetate | 5.0 | 8 % w/v | γ-PGA (Na+ form, LM) | | |
| A9 | | | | | 0.1 M | Sodium acetate | 5.0 | 5 % w/v | γ-PGA (Na+ form, LM) | 30 % v/v | PEG 400 |
| A10 | | | | | 0.1 M | Sodium acetate | 5.0 | 5 % w/v | γ-PGA (Na+ form, LM) | 30 % v/v | PEG 500 MME |
| A11 | | | | | 0.1 M | Sodium acetate | 5.0 | 5 % w/v | γ-PGA (Na+ form, LM) | 30 % v/v | MPD |
| A12 | | | | | 0.1 M | Sodium acetate | 5.0 | 5 % w/v | γ-PGA (Na+ form, LM) | 20 % w/v | PEG 2000 MME |
| B1 | | | | | 0.1 M | Sodium acetate | 5.0 | 5 % w/v | γ-PGA (Na+ form, LM) | 20 % w/v | PEG 3350 |
| B2 | | | | | 0.1 M | Sodium acetate | 5.0 | 5 % w/v | γ-PGA (Na+ form, LM) | 15 % w/v | PEG 4000 |
| B3 | | | | | 0.1 M | Sodium acetate | 5.0 | 5 % w/v | γ-PGA (Na+ form, LM) | 12 % w/v | PEG 8000 |
| B4 | | | | | 0.1 M | Sodium acetate | 5.0 | 5 % w/v | γ-PGA (Na+ form, LM) | 8 % w/v | PEG 20000 |
| B5 | 0.2 M | Potassium bromide | 0.2 M | Potassium thiocyanate | 0.1 M | Sodium acetate | 5.0 | 3 % w/v | γ-PGA (Na+ form, LM) | 30 % v/v | PEG 400 |
| B6 | 0.2 M | Potassium bromide | 0.2 M | Potassium thiocyanate | 0.1 M | Sodium acetate | 5.0 | 3 % w/v | γ-PGA (Na+ form, LM) | 20 % v/v | PEG 500 MME |
| B7 | 0.2 M | Potassium bromide | 0.2 M | Potassium thiocyanate | 0.1 M | Sodium acetate | 5.0 | 3 % w/v | γ-PGA (Na+ form, LM) | 20 % v/v | MPD |
| B8 | 0.2 M | Potassium bromide | 0.2 M | Potassium thiocyanate | 0.1 M | Sodium acetate | 5.0 | 3 % w/v | γ-PGA (Na+ form, LM) | 10 % w/v | PEG 2000 MME |
| B9 | 0.2 M | Potassium bromide | 0.2 M | Potassium thiocyanate | 0.1 M | Sodium acetate | 5.0 | 3 % w/v | γ-PGA (Na+ form, LM) | 5 % w/v | PEG 3350 |
| B10 | 0.2 M | Potassium bromide | 0.2 M | Potassium thiocyanate | 0.1 M | Sodium acetate | 5.0 | 3 % w/v | γ-PGA (Na+ form, LM) | 5 % w/v | PEG 4000 |
| B11 | 0.2 M | Potassium bromide | 0.2 M | Potassium thiocyanate | 0.1 M | Sodium acetate | 5.0 | 3 % w/v | γ-PGA (Na+ form, LM) | 5 % w/v | PEG 8000 |
| B12 | 0.2 M | Potassium bromide | 0.2 M | Potassium thiocyanate | 0.1 M | Sodium acetate | 5.0 | 3 % w/v | γ-PGA (Na+ form, LM) | 3 % w/v | PEG 20000 |
| C1 | 0.1 M | Ammonium sulfate | 0.3 M | Sodium formate | 0.1 M | Sodium acetate | 5.0 | 3 % w/v | γ-PGA (Na+ form, LM) | 30 % v/v | PEG 400 |
| C2 | 0.1 M | Ammonium sulfate | 0.3 M | Sodium formate | 0.1 M | Sodium acetate | 5.0 | 3 % w/v | γ-PGA (Na+ form, LM) | 20 % v/v | PEG 500 MME |
| C3 | 0.1 M | Ammonium sulfate | 0.3 M | Sodium formate | 0.1 M | Sodium acetate | 5.0 | 3 % w/v | γ-PGA (Na+ form, LM) | 20 % v/v | MPD |
| C4 | 0.1 M | Ammonium sulfate | 0.3 M | Sodium formate | 0.1 M | Sodium acetate | 5.0 | 3 % w/v | γ-PGA (Na+ form, LM) | 10 % w/v | PEG 2000 MME |
| C5 | 0.1 M | Ammonium sulfate | 0.3 M | Sodium formate | 0.1 M | Sodium acetate | 5.0 | 3 % w/v | γ-PGA (Na+ form, LM) | 5 % w/v | PEG 3350 |
| C6 | 0.1 M | Ammonium sulfate | 0.3 M | Sodium formate | 0.1 M | Sodium acetate | 5.0 | 3 % w/v | γ-PGA (Na+ form, LM) | 5 % w/v | PEG 4000 |
| C7 | 0.1 M | Ammonium sulfate | 0.3 M | Sodium formate | 0.1 M | Sodium acetate | 5.0 | 3 % w/v | γ-PGA (Na+ form, LM) | 5 % w/v | PEG 8000 |
| C8 | 0.1 M | Ammonium sulfate | 0.3 M | Sodium formate | 0.1 M | Sodium acetate | 5.0 | 3 % w/v | γ-PGA (Na+ form, LM) | 3 % w/v | PEG 20000 |
| C9 | 0.3 M | Potassium Bromide | | | 0.1 M | Sodium cacodylate | 6.5 | 8 % w/v | γ-PGA (Na+ form, LM) | | |
| C10 | 0.2 M | Magnesium chloride | | | 0.1 M | Sodium cacodylate | 6.5 | 8 % w/v | γ-PGA (Na+ form, LM) | | |
| C11 | 0.3 M | Sodium malonate dibasic monohydrate | | | 0.1 M | Sodium cacodylate | 6.5 | 8 % w/v | γ-PGA (Na+ form, LM) | | |
| C12 | 0.6 M | Sodium formate | | | 0.1 M | Sodium cacodylate | 6.5 | 8 % w/v | γ-PGA (Na+ form, LM) | | |
| D1 | 1 M | Ammonium formate | | | 0.1 M | Sodium cacodylate | 6.5 | 8 % w/v | γ-PGA (Na+ form, LM) | | |
| D2 | 0.2 M | Potassium thiocyanate | | | 0.1 M | Sodium cacodylate | 6.5 | 8 % w/v | γ-PGA (Na+ form, LM) | | |
| D3 | 0.2 M | L-Proline | | | 0.1 M | Sodium cacodylate | 6.5 | 8 % w/v | γ-PGA (Na+ form, LM) | | |
| D4 | 0.2 M | L-Arginine | | | 0.1 M | Sodium cacodylate | 6.5 | 8 % w/v | γ-PGA (Na+ form, LM) | | |
| D5 | | | | | 0.1 M | Sodium cacodylate | 6.5 | 5 % w/v | γ-PGA (Na+ form, LM) | 30 % v/v | PEG 400 |
| D6 | | | | | 0.1 M | Sodium cacodylate | 6.5 | 5 % w/v | γ-PGA (Na+ form, LM) | 30 % v/v | PEG 500 MME |
| D7 | | | | | 0.1 M | Sodium cacodylate | 6.5 | 5 % w/v | γ-PGA (Na+ form, LM) | 30 % v/v | MPD |
| D8 | | | | | 0.1 M | Sodium cacodylate | 6.5 | 5 % w/v | γ-PGA (Na+ form, LM) | 20 % w/v | PEG 2000 MME |
| D9 | | | | | 0.1 M | Sodium cacodylate | 6.5 | 5 % w/v | γ-PGA (Na+ form, LM) | 20 % w/v | PEG 3350 |
| D10 | | | | | 0.1 M | Sodium cacodylate | 6.5 | 5 % w/v | γ-PGA (Na+ form, LM) | 15 % w/v | PEG 4000 |
| D11 | | | | | 0.1 M | Sodium cacodylate | 6.5 | 5 % w/v | γ-PGA (Na+ form, LM) | 12 % w/v | PEG 8000 |
| D12 | | | | | 0.1 M | Sodium cacodylate | 6.5 | 5 % w/v | γ-PGA (Na+ form, LM) | 8 % w/v | PEG 20000 |

Molecular Dimensions




## The PGA Screen™ HT-96 / FX-96 Conditions E1-H12 MD1-51 / MD1-51-FX

| Well # | Conc. | Salt 1 | Conc. | Salt 2 | Conc. | Buffer | pH | Conc. | Precipitant | Conc. | Precipitant2 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| E1 | 0.2 M | Potassium bromide | 0.2 M | Potassium thiocyanate | 0.1 M | Sodium cacodylate | 6.5 | 3 % w/v | γ-PGA (Na+ form, LM) | 30 % v/v | PEG 400 |
| E2 | 0.2 M | Potassium bromide | 0.2 M | Potassium thiocyanate | 0.1 M | Sodium cacodylate | 6.5 | 3 % w/v | γ-PGA (Na+ form, LM) | 20 % v/v | PEG 500 MME |
| E3 | 0.2 M | Potassium bromide | 0.2 M | Potassium thiocyanate | 0.1 M | Sodium cacodylate | 6.5 | 3 % w/v | γ-PGA (Na+ form, LM) | 20 % v/v | MPD |
| E4 | 0.2 M | Potassium bromide | 0.2 M | Potassium thiocyanate | 0.1 M | Sodium cacodylate | 6.5 | 3 % w/v | γ-PGA (Na+ form, LM) | 10 % w/v | PEG 2000 MME |
| E5 | 0.2 M | Potassium bromide | 0.2 M | Potassium thiocyanate | 0.1 M | Sodium cacodylate | 6.5 | 3 % w/v | γ-PGA (Na+ form, LM) | 5 % w/v | PEG 3350 |
| E6 | 0.2 M | Potassium bromide | 0.2 M | Potassium thiocyanate | 0.1 M | Sodium cacodylate | 6.5 | 3 % w/v | γ-PGA (Na+ form, LM) | 5 % w/v | PEG 4000 |
| E7 | 0.2 M | Potassium bromide | 0.2 M | Potassium thiocyanate | 0.1 M | Sodium cacodylate | 6.5 | 3 % w/v | γ-PGA (Na+ form, LM) | 5 % w/v | PEG 8000 |
| E8 | 0.2 M | Potassium bromide | 0.2 M | Potassium thiocyanate | 0.1 M | Sodium cacodylate | 6.5 | 3 % w/v | γ-PGA (Na+ form, LM) | 3 % w/v | PEG 20000 |
| E9 | 0.1 M | Ammonium sulfate | 0.3 M | Sodium formate | 0.1 M | Sodium cacodylate | 6.5 | 3 % w/v | γ-PGA (Na+ form, LM) | 30 % v/v | PEG 400 |
| E10 | 0.1 M | Ammonium sulfate | 0.3 M | Sodium formate | 0.1 M | Sodium cacodylate | 6.5 | 3 % w/v | γ-PGA (Na+ form, LM) | 20 % v/v | PEG 500 MME |
| E11 | 0.1 M | Ammonium sulfate | 0.3 M | Sodium formate | 0.1 M | Sodium cacodylate | 6.5 | 3 % w/v | γ-PGA (Na+ form, LM) | 20 % v/v | MPD |
| E12 | 0.1 M | Ammonium sulfate | 0.3 M | Sodium formate | 0.1 M | Sodium cacodylate | 6.5 | 3 % w/v | γ-PGA (Na+ form, LM) | 10 % w/v | PEG 2000 MME |
| F1 | 0.1 M | Ammonium sulfate | 0.3 M | Sodium formate | 0.1 M | Sodium cacodylate | 6.5 | 3 % w/v | γ-PGA (Na+ form, LM) | 5 % w/v | PEG 3350 |
| F2 | 0.1 M | Ammonium sulfate | 0.3 M | Sodium formate | 0.1 M | Sodium cacodylate | 6.5 | 3 % w/v | γ-PGA (Na+ form, LM) | 5 % w/v | PEG 4000 |
| F3 | 0.1 M | Ammonium sulfate | 0.3 M | Sodium formate | 0.1 M | Sodium cacodylate | 6.5 | 3 % w/v | γ-PGA (Na+ form, LM) | 5 % w/v | PEG 8000 |
| F4 | 0.1 M | Ammonium sulfate | 0.3 M | Sodium formate | 0.1 M | Sodium cacodylate | 6.5 | 3 % w/v | γ-PGA (Na+ form, LM) | 3 % w/v | PEG 20000 |
| F5 | 0.3 M | Potassium bromide | | | 0.1 M | Tris | 7.8 | 8 % w/v | γ-PGA (Na+ form, LM) | | |
| F6 | 0.2 M | Magnesium chloride | | | 0.1 M | Tris | 7.8 | 8 % w/v | γ-PGA (Na+ form, LM) | | |
| F7 | 0.3 M | Sodium malonate dibasic monohydrate | | | 0.1 M | Tris | 7.8 | 8 % w/v | γ-PGA (Na+ form, LM) | | |
| F8 | 0.6 M | Sodium formate | | | 0.1 M | Tris | 7.8 | 8 % w/v | γ-PGA (Na+ form, LM) | | |
| F9 | 1 M | Ammonium formate | | | 0.1 M | Tris | 7.8 | 8 % w/v | γ-PGA (Na+ form, LM) | | |
| F10 | 0.2 M | Potassium thiocyanate | | | 0.1 M | Tris | 7.8 | 8 % w/v | γ-PGA (Na+ form, LM) | | |
| F11 | 0.2 M | L-Proline | | | 0.1 M | Tris | 7.8 | 8 % w/v | γ-PGA (Na+ form, LM) | | |
| F12 | 0.2 M | L-Arginine | | | 0.1 M | Tris | 7.8 | 8 % w/v | γ-PGA (Na+ form, LM) | | |
| G1 | | | | | 0.1 M | Tris | 7.8 | 5 % w/v | γ-PGA (Na+ form, LM) | 30 % v/v | PEG 400 |
| G2 | | | | | 0.1 M | Tris | 7.8 | 5 % w/v | γ-PGA (Na+ form, LM) | 30 % v/v | PEG 500 MME |
| G3 | | | | | 0.1 M | Tris | 7.8 | 5 % w/v | γ-PGA (Na+ form, LM) | 30 % v/v | MPD |
| G4 | | | | | 0.1 M | Tris | 7.8 | 5 % w/v | γ-PGA (Na+ form, LM) | 20 % w/v | PEG 2000 MME |
| G5 | | | | | 0.1 M | Tris | 7.8 | 5 % w/v | γ-PGA (Na+ form, LM) | 20 % w/v | PEG 3350 |
| G6 | | | | | 0.1 M | Tris | 7.8 | 5 % w/v | γ-PGA (Na+ form, LM) | 15 % w/v | PEG 4000 |
| G7 | | | | | 0.1 M | Tris | 7.8 | 5 % w/v | γ-PGA (Na+ form, LM) | 12 % w/v | PEG 8000 |
| G8 | | | | | 0.1 M | Tris | 7.8 | 5 % w/v | γ-PGA (Na+ form, LM) | 8 % w/v | PEG 20000 |
| G9 | 0.2 M | Potassium bromide | 0.2 M | Potassium thiocyanate | 0.1 M | Tris | 7.8 | 3 % w/v | γ-PGA (Na+ form, LM) | 30 % v/v | PEG 400 |
| G10 | 0.2 M | Potassium bromide | 0.2 M | Potassium thiocyanate | 0.1 M | Tris | 7.8 | 3 % w/v | γ-PGA (Na+ form, LM) | 20 % v/v | PEG 500 MME |
| G11 | 0.2 M | Potassium bromide | 0.2 M | Potassium thiocyanate | 0.1 M | Tris | 7.8 | 3 % w/v | γ-PGA (Na+ form, LM) | 20 % v/v | MPD |
| G12 | 0.2 M | Potassium bromide | 0.2 M | Potassium thiocyanate | 0.1 M | Tris | 7.8 | 3 % w/v | γ-PGA (Na+ form, LM) | 10 % w/v | PEG 2000 MME |
| H1 | 0.2 M | Potassium bromide | 0.2 M | Potassium thiocyanate | 0.1 M | Tris | 7.8 | 3 % w/v | γ-PGA (Na+ form, LM) | 5 % w/v | PEG 3350 |
| H2 | 0.2 M | Potassium bromide | 0.2 M | Potassium thiocyanate | 0.1 M | Tris | 7.8 | 3 % w/v | γ-PGA (Na+ form, LM) | 5 % w/v | PEG 4000 |
| H3 | 0.2 M | Potassium bromide | 0.2 M | Potassium thiocyanate | 0.1 M | Tris | 7.8 | 3 % w/v | γ-PGA (Na+ form, LM) | 5 % w/v | PEG 8000 |
| H4 | 0.2 M | Potassium bromide | 0.2 M | Potassium thiocyanate | 0.1 M | Tris | 7.8 | 3 % w/v | γ-PGA (Na+ form, LM) | 3 % w/v | PEG 20000 |
| H5 | 0.1 M | Ammonium sulfate | 0.3 M | Sodium formate | 0.1 M | Tris | 7.8 | 3 % w/v | γ-PGA (Na+ form, LM) | 30 % v/v | PEG 400 |
| H6 | 0.1 M | Ammonium sulfate | 0.3 M | Sodium formate | 0.1 M | Tris | 7.8 | 3 % w/v | γ-PGA (Na+ form, LM) | 20 % v/v | PEG 500 MME |
| H7 | 0.1 M | Ammonium sulfate | 0.3 M | Sodium formate | 0.1 M | Tris | 7.8 | 3 % w/v | γ-PGA (Na+ form, LM) | 20 % v/v | MPD |
| H8 | 0.1 M | Ammonium sulfate | 0.3 M | Sodium formate | 0.1 M | Tris | 7.8 | 3 % w/v | γ-PGA (Na+ form, LM) | 10 % w/v | PEG 2000 MME |
| H9 | 0.1 M | Ammonium sulfate | 0.3 M | Sodium formate | 0.1 M | Tris | 7.8 | 3 % w/v | γ-PGA (Na+ form, LM) | 5 % w/v | PEG 3350 |
| H10 | 0.1 M | Ammonium sulfate | 0.3 M | Sodium formate | 0.1 M | Tris | 7.8 | 3 % w/v | γ-PGA (Na+ form, LM) | 5 % w/v | PEG 4000 |
| H11 | 0.1 M | Ammonium sulfate | 0.3 M | Sodium formate | 0.1 M | Tris | 7.8 | 3 % w/v | γ-PGA (Na+ form, LM) | 5 % w/v | PEG 8000 |
| H12 | 0.1 M | Ammonium sulfate | 0.3 M | Sodium formate | 0.1 M | Tris | 7.8 | 3 % w/v | γ-PGA (Na+ form, LM) | 3 % w/v | PEG 20000 |

**Abbreviations:**
**γ-PGA (Na+ form, LM)**, poly-γ-glutamic acid low molecular weight polymer, **PEG,** polyethylene glycol; **MME**, monomethyl ether; **MPD**, 2-methyl-2,4-pentanediol, Hexylene glycol; **Tris**; 2-Amino-2-(hydroxymethyl)propane-1,3-diol.

Molecular Dimensions

Soluble Proteins

Membrane Proteins

Manufacturer's safety data sheets are available from our website or by scanning the QR code here:

## Re-Ordering details:

| Catalogue Description | Pack size | Catalogue Code |
|---|---|---|
| The PGA Screen™ | 96 x 10 mL | MD1-50 |
| The PGA Screen™ HT-96 | 96 x 1 mL | MD1-51 |
| The PGA Screen™ FX-96 | 96 x 100 µL | MD1-51-FX |
| **Eco Screens** | | |
| The PGA Eco Screen™ | 96 x 10 mL | MD1-50-ECO |
| The PGA Screen™ HT-96 Eco Screen | 96 x 1 mL | MD1-51-ECO |
| **Single Reagents** | | |
| The PGA Screen™ single reagents | 100 mL | MDSR-50-tube number |
| The PGA Screen™ HT-96 single reagents | 100 mL | MDSR-51-well number |

For The PGA Screen™ stock solutions please visit the Optimization section on our website.
Eco Screens contain no cacodylate, dioxane or azide.