MemGold2™ HT-96 MD1-64

MemGold2™ - The latest innovation for crystallization of membrane proteins.

This screen targets all alpha helical types of Prokaryotic and Eukaryotic membrane proteins.

MD1-64 is a targeted sparse matrix presented as a 96 x 1 mL deep-well block.

Features of MemGold2:

- A brand new set of 96 of the most recent alpha-helical membrane protein crystallization conditions.
- Particularly suited for Prokaryotic and Eukaryotic alpha-helical membrane proteins.
- A great addition to any membrane protein lab.
- Works with MemGold, MemStart, MemSys & MemPlus.
- Screening over a wider range of pH's (4 - 10).
- Addition of small MW PEGs.
- Can be used in conjunction with Lipidic Sponge Phase and/or Lipidic Cubic Phases.

Introduction:

In 2008 Molecular Dimensions released MemGold[(1)] - a rationalized sparse matrix type membrane protein crystallization screen. MemGold was based on the crystallization conditions for 121 alpha helical Membrane Proteins deposited in the PDB.

Since MemGold, the number of structures has more than doubled. In response to this, MemGold2[(2)] has been developed. MemGold2 includes a further 96 crystallization conditions from unique alpha helical Membrane Protein structures including channel and transporter structures, GPCRs and ATPases.

It is suitable for both Prokaryotic and Eukaryotic alpha helical membrane proteins.

Formulation Notes:

MemGold2 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.

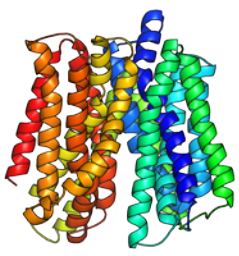
Enquiries regarding MemGold2 formulation, interpretation of results or optimization strategies are welcome. Please e-mail, fax or phone your query to Molecular Dimensions.

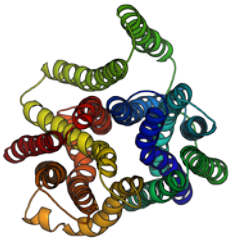
Contact and product details can be found at www.moleculardimensions.com

***References**:

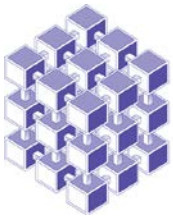
(1) Newstead, S., Ferrandon, S., and Iwata, *S. 'Rationalizing alpha-helical membrane protein crystallization'* Volume 17, Issue 3, pages 466–472, March 2008 - Protein Science, 2008 - Wiley Online Library.

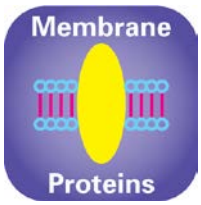
(2) Parker, J. and Newstead, S. '*Current trends in alpha helical membrane protein crystallization: an update'*, Protein Science, 2012, *21(9):1358-65.*





Examples of membrane protein crystals grown using MemGold2 and the structure of a membrane transport protein (previously solved using MemGold).





MemGold2 Conditions A1- D12 MD1–64

Well #	Conc.	Salt	Conc.	Buffer	pH	Conc.	Precipitant
A1	0.2 M	Magnesium chloride hexahydrate	0.1 M	Tris	7.5	14 % v/v	PEG 500 MME
	0.005 M	Cadmium chloride hemi(pentahydrate)					
A2	0.1 M	Potassium acetate	0.02 M	Tris	7.0	44 % w/v	PEG 3000
	0.01 M	Potassium chloride					
A3	0.08 M	Magnesium sulfate heptahydrate	0.02 M	MES	6.0	10 % w/v	PEG 1450
	0.02 M	Sodium chloride					
A4	0.04 M	Magnesium sulfate heptahydrate	0.02 M	MES	6.5	8 % w/v	PEG 1450
	0.02 M	Sodium chloride					
A5	0.05 M	Sodium sulfate	0.05 M	Tris	8.5	32 % v/v	PEG 400
	0.05 M	Lithium chloride					
A6	0.1 M	Sodium phosphate monobasic monohydrate	0.1 M	Bis-Tris propane	7.5	10 % w/v	PEG 3350
	0.1 M	Potassium phosphate dibasic					
A7	0.1 M	Sodium chloride	0.1 M	ADA	6.5	11.5 % w/v	PEG 4000
	0.1 M	Lithium sulfate					
A8	0.1 M	Lithium chloride	0.1 M	Sodium acetate	4.5	30 % v/v	PEG 400
	0.1 M	Cadmium chloride hemi(pentahydrate)					
A9	0.2 M	Ammonium sulfate	0.1 M	Sodium citrate	6.0	20 % w/v	PEG 2000
	0.1 M	Sodium chloride					
A10	0.2 M	Lithium sulfate	0.1 M	HEPES	7.0	31 % v/v	PEG 400
	0.1 M	Sodium chloride					
A11	0.2 M	Ammonium phosphate monobasic	0.1 M	Sodium citrate	4.5	32 % v/v	PEG 400
	0.1 M	Ammonium sulfate					
A12	0.05 M	Sodium citrate tribasic dihydrate	0.08 M	Bis-Tris	6.0	14 % w/v	PEG 4000
	0.12 M	Potassium chloride					
B1	0.1 M	Sodium chloride	0.01 M	MES	6.5	19 % w/v	PEG 1000
	0.15 M	Ammonium sulfate					
B2	0.01 M	Nickel(II) sulfate hexahydrate	0.1 M	Sodium citrate	6.0	18 % w/v	PEG 2000 MME
B3	0.02 M	Magnesium chloride hexahydrate	0.02 M	MES	6.0	3.5 % w/v	PEG 3350
B4	0.02 M	Sodium chloride	0.05 M	MES	5.5	14 % v/v	PEG 350 MME
B5	0.025 M	Magnesium chloride hexahydrate	0.02 M	MOPS	7.0	35 % v/v	PEG 500 MME
B6	0.03 M	Magnesium chloride hexahydrate	0.1 M	MES	6.5	28 % v/v	PEG 400
B7	0.04 M	Sodium chloride	0.04 M	Tris	8.0	25 % v/v	PEG 350 MME
B8	0.04 M	Magnesium acetate tetrahydrate	0.1 M	MES	6.0	36 % v/v	MPD
B9	0.05 M	Zinc acetate dihydrate	0.05 M	ADA	6.3	11 % w/v	PEG 8000
B10	0.05 M	Magnesium acetate tetrahydrate	0.1 M	MES	6.5	26 % v/v	PEG 400
B11	0.05 M	Magnesium acetate tetrahydrate	0.1 M	Glycine	9.5	32 % v/v	PEG 400
B12	0.066 M	Sodium chloride	0.02 M	Tris	7.5	3 % w/v	PEG 4000
C1	0.075 M	Magnesium chloride hexahydrate	0.1 M	Sodium cacodylate	6.5	30 % w/v	PEG 2000 MME
C2	0.08 M	Magnesium acetate tetrahydrate	0.1 M	Sodium citrate	6.0	14 % w/v	PEG 5000 MME
C3	0.01 M	Zinc acetate dihydrate	0.1 M	MES	6.0		
	1.5 M	Ammonium sulfate					
C4	0.087 M	Ammonium sulfate	0.5 M	Tris	7.0	22 % v/v	PEG 250 DME
C5	0.1 M	Magnesium chloride hexahydrate	0.1 M	Tris	7.5	13 % w/v	PEG 8000
C6	0.1 M	Magnesium formate dihydrate	0.1 M	MOPS	7.0	17 % w/v	PEG 3350
C7	0.1 M	Potassium chloride	0.1 M	Bis-Tris	6.0	18 % w/v	PEG 4000
C8	0.1 M	Potassium chloride	0.1 M	Potassium phosphate	7.5	18 % v/v	PEG 200
C9	0.1 M	Magnesium acetate tetrahydrate	0.1 M	MES	6.0	22 % w/v	PEG 4000
C10	0.1 M	Calcium acetate hydrate	0.1 M	MES	6.0	22 % w/v	PEG 8000
C11	0.1 M	Ammonium sulfate	0.1 M	HEPES	8.5	23 % w/v	PEG 3350
C12	0.1 M	Potassium chloride	0.1 M	MES	6.0	32 % v/v	PEG 400
D1	0.1 M	Sodium chloride	0.1 M	MES	6.5	36 % v/v	PEG 300
D2	0.1 M	Sodium chloride	0.1 M	BICINE	9.0	45 % v/v	PEG 500 MME
D3	0.15 M	Calcium chloride dihydrate	0.1 M	Glycine	9.0	35 % v/v	PEG 400
D4	0.2 M	Ammonium sulfate	0.05 M	ADA	6.5	13 % w/v	PEG 4000
D5	0.2 M	Choline chloride	0.1 M	Tris	7.5	14 % w/v	PEG 2000 MME
D6	0.2 M	Sodium chloride	0.05 M	MOPS	7.0	19 % w/v	PEG 6000
D7	0.05 M	Sodium chloride	0.05 M	MOPS	7.0	19 % w/v	PEG 6000
D8	0.2 M	Magnesium formate dihydrate	0.05 M	Tris	8.0	19 % w/v	PEG 3350
D9	0.2 M	Calcium chloride dihydrate	0.1 M	MES	5.0	20 % v/v	PEG 350 MME
D10	0.2 M	Ammonium nitrate	0.05 M	HEPES	7.0	20 % w/v	PEG 3350
D11	0.02 M	Lithium chloride	0.02 M	Glycine	10.0	33 % w/v	PEG 1000
	0.05 M	Magnesium chloride hexahydrate					
D12	0.2 M	Calcium acetate hydrate	0.1 M	HEPES	7.0	24 % v/v	PEG 400

Molecular Dimensions

Membrane Proteins

MemGold2 Conditions E1- H12 MD1–64

Well #	Conc.	Salt	Conc.	Buffer	pH	Conc.	Precipitant
E1	0.2 M	Sodium acetate trihydrate	0.1 M	MES	6.5	28 % v/v	PEG 400
E2	0.2 M	Sodium chloride	0.05 M	Calcium acetate	5.0	29 % v/v	PEG 400
E3	0.2 M	Sodium chloride	0.1 M	HEPES	7.0	29 % v/v	PEG 400
E4	0.2 M	Ammonium formate	0.1 M	Tris	7.0	31 % v/v	Pentaerythritole ethoxylate (15/4 EO/OH)
E5	0.2 M	Ammonium sulfate	0.1 M	Tris	8.5	35 % w/v	PEG 3350
E6	0.2 M	Calcium acetate hydrate	0.1 M	Sodium acetate	5.0	38 % v/v	PEG 400
E7	0.2 M	Sodium chloride	0.1 M	MOPS	7.5	38 % v/v	PEG 400
E8	2.0 M	Ammonium sulfate	0.1 M	Sodium cacodylate	6.5		
	0.2 M	Sodium chloride					
E9	0.225 M	Ammonium sulfate	0.05 M	Sodium acetate	4.0	12 % w/v	PEG 4000
E10	0.23 M	Sodium chloride	0.05 M	Sodium acetate	4.5	33 % v/v	PEG 400
E11	0.25 M	Magnesium formate dihydrate	0.1 M	Sodium cacodylate	6.5	22 % w/v	PEG 3000
E12	0.25 M	Magnesium chloride hexahydrate	0.1 M	Tris	8.5	40 % w/v	PEG 1000
F1	0.3 M	Lithium sulfate	0.1 M	MES	6.5	25 % v/v	PEG 400
F2	0.3 M	Ammonium formate	0.05 M	Tris	9.0	33 % v/v	PEG 500 MME
F3	0.3 M	Barium chloride dihydrate	0.1 M	MES	6.0	34 % v/v	PEG 400
F4	0.32 M	Lithium chloride	0.1 M	Sodium citrate	5.5	14 % w/v	PEG 4000
F5	0.34 M	Ammonium sulfate	0.1 M	Sodium citrate	5.5	12 % w/v	PEG 4000
F6	0.35 M	Lithium sulfate	0.1 M	Sodium acetate	4.0	11 % v/v	PEG 600
F7	0.37 M	Potassium nitrate	0.1 M	MES	6.5	22 % v/v	PEG 400
F8	0.4 M	Ammonium sulfate	0.1 M	MES	6.5	10 % w/v	PEG 3350
F9	0.04 M	Magnesium chloride hexahydrate	0.1 M	HEPES	7.5	32 % v/v	PEG 400
	0.05 M	Sodium chloride					
F10	0.4 M	Potassium chloride	0.05 M	HEPES	7.5	12 % v/v	PEG 400
F11	0.4 M	Ammonium thiocyanate	0.1 M	Sodium acetate	4.5	15 % w/v	PEG 4000
F12	0.4 M	Sodium thiocyanate	0.1 M	Sodium acetate	4.0	16 % w/v	PEG 4000
G1	0.5 M	Potassium chloride	0.05 M	HEPES	6.5	20 % v/v	PEG 400
G2	0.5 M	Magnesium chloride hexahydrate	0.05 M	Tris	7.5	21 % v/v	PEG 350 MME
G3	0.8 M	Potassium formate	0.1 M	Sodium acetate	5.0	11 % w/v	PEG 4000
G4			0.1 M	MOPS	7.0	9 % w/v	PEG 8000
G5			0.1 M	MES	6.0	11 % w/v	PEG 20,000
G6			0.1 M	MES	6.5	13 % v/v	PEG 400
G7			0.1 M	ADA	5.5	14 % w/v	PEG 6000
G8			0.05 M	Tris	7.5	17 % v/v	PEG 350 MME
G9			0.07 M	Sodium citrate	4.5	22 % v/v	PEG 300
G10			0.05 M	ADA	6.5	24 % v/v	PEG 400
G11			0.1 M	Sodium cacodylate	6.5	24 % w/v	PEG 1500
G12			0.1 M	HEPES	7.5	28 % v/v	PEG 600
H1			0.05 M	Tris	8.5	28 % v/v	PEG 400
H2			0.1 M	BICINE	9.0	30 % v/v	PEG 400
H3			0.1 M	ADA	7.0	31 % v/v	PEG 600
H4			0.1 M	Tris	8.5	32 % v/v	PEG 500 MME
H5			0.1 M	HEPES	7.5	33 % v/v	PEG 400
H6			0.18 M	Sodium citrate	4.0	34 % w/v	PEG 3350
H7			0.1 M	Tris	8.5	44 % v/v	PEG 200
H8			0.1 M	Tris	8.0	65 % v/v	MPD
H9	2.75 M	Ammonium chloride	0.025 M	Bis-Tris	7.0		
H10	2.8 M	Ammonium chloride	0.075 M	HEPES	7.5		
H11	3.0 M	Ammonium sulfate	0.1 M	MES	5.5		
H12			0.01 M	HEPES	7.5	3.25 M	1,6-Hexanediol

Abbreviations:
ADA; N-(2-Acetamido)iminodiacetic Acid, **BICINE**; N,N-Bis(2-hydroxyethyl)glycine, **Bis-Tris**; 2,2'-(Propane-1,3-diyldiimino)bis[2-(hydroxymethyl)propane-1,3-diol]. **CHES**; 2-(N-Cyclohexylamino)ethane sulfonic Acid, **HEPES**; N-(2-hydroxyethyl)-piperazine-N'-2-ethanesulfonic acid, **MES**; 2-(N-morpholino)ethanesulfonic acid, **MME**; Monomethylether, **MOPS**; 3-morpholinopropane-1-sulfonic acid, **PEG**; Polyethylene glycol, **PEG DME**; Poly(ethylene glycol) bis(carboxymethyl) ether, **Tricine**; N-[Tris(hydroxymethyl)methyl]glycine, **Tris**; 2-Amino-2-(hydroxymethyl)propane-1,3-diol.

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
MemGold2	96 x 10 mL	MD1-63
MemGold2 HT-96	96 x 1 mL	MD1-64
Eco screens		
MemGold2	96 x 10 mL	MD1-63-ECO
MemGold2 HT-96	96 x 1 mL	MD1-64-ECO
Green screens (contain fluorescent green dye- ideal for UV)		
MemGold2 Green screen	96 x 10 mL	MD1-63-GREEN
MemGold2 HT-96 Green screen	96 x 1 mL	MD1-64-GREEN
Combo Packs (MemGold + MemGold2)		
MemGold Combo Value Pack	2 x 96 x 10 mL	MD1-74
MemGold HT96 Combo Value Pack	2 x 96 x 1 mL	MD1-74-HT
Single Reagents		
MemGold2 single reagents	100 mL	MDSR-63-tube number
MemGold2 HT-96 single reagents	100 mL	MDSR-64-well number

For MemGold2 stock solutions please visit the Optimization section on our website.