

MemGold2™ MD1-63

MemGold2™ - The latest innovation for crystallization of membrane proteins.
This screen targets all alpha helical types of Prokaryotic and Eukaryotic membrane proteins.

MD1-63 is a targeted sparse matrix presented as 96 x 10 mL conditions.

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.

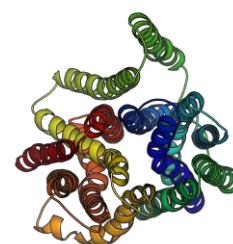
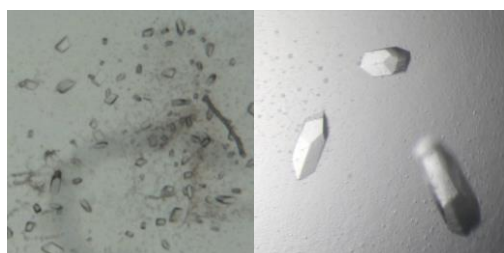
Individual reagents and stock solutions for optimization are available from Molecular Dimensions.

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

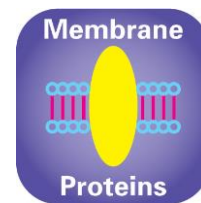
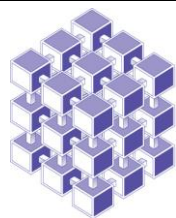
Contact and product details can be found at www.moleculardimensions.com

*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.



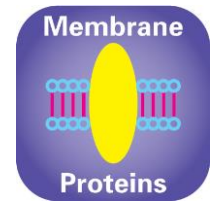
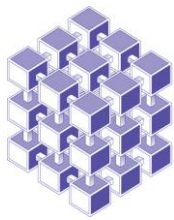
Examples of membrane protein crystals grown using MemGold2™ and the structure of a membrane transport protein (previously solved using MemGold™).



MemGold2™ Conditions 1-48 (Box 1)

MD1–63

Tube #	Conc.	Salt	Conc.	Buffer	pH	Conc.	Precipitant
1-1	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)					
1-2	0.1 M	Potassium acetate	0.02 M	Tris	7.0	44 % w/v	PEG 3000
	0.01 M	Potassium chloride					
1-3	0.08 M	Magnesium sulfate heptahydrate	0.02 M	MES	6.0	10 % w/v	PEG 1450
	0.02 M	Sodium chloride					
1-4	0.04 M	Magnesium sulfate heptahydrate	0.02 M	MES	6.5	8 % w/v	PEG 1450
	0.02 M	Sodium chloride					
1-5	0.05 M	Sodium sulfate	0.05 M	Tris	8.5	32 % v/v	PEG 400
	0.05 M	Lithium chloride					
1-6	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					
1-7	0.1 M	Sodium chloride	0.1 M	ADA	6.5	11.5 % w/v	PEG 4000
	0.1 M	Lithium sulfate					
1-8	0.1 M	Lithium chloride	0.1 M	Sodium acetate	4.5	30 % v/v	PEG 400
	0.1 M	Cadmium chloride hemi(pentahydrate)					
1-9	0.2 M	Ammonium sulfate	0.1 M	Sodium citrate	6.0	20 % w/v	PEG 2000
	0.1 M	Sodium chloride					
1-10	0.2 M	Lithium sulfate	0.1 M	HEPES	7.0	31 % v/v	PEG 400
	0.1 M	Sodium chloride					
1-11	0.2 M	Ammonium phosphate monobasic	0.1 M	Sodium citrate	4.5	32 % v/v	PEG 400
	0.1 M	Ammonium sulfate					
1-12	0.05 M	Sodium citrate tribasic dihydrate	0.08 M	Bis-Tris	6.0	14 % w/v	PEG 4000
	0.12 M	Potassium chloride					
1-13	0.1 M	Sodium chloride	0.01 M	MES	6.5	19 % w/v	PEG 1000
	0.15 M	Ammonium sulfate					
1-14	0.01 M	Nickel(II) sulfate hexahydrate	0.1 M	Sodium citrate	6.0	18 % w/v	PEG 2000 MME
1-15	0.02 M	Magnesium chloride hexahydrate	0.02 M	MES	6.0	3.5 % w/v	PEG 3350
1-16	0.02 M	Sodium chloride	0.05 M	MES	5.5	14 % v/v	PEG 350 MME
1-17	0.025 M	Magnesium chloride hexahydrate	0.02 M	MOPS	7.0	35 % v/v	PEG 500 MME
1-18	0.03 M	Magnesium chloride hexahydrate	0.1 M	MES	6.5	28 % v/v	PEG 400
1-19	0.04 M	Sodium chloride	0.04 M	Tris	8.0	25 % v/v	PEG 350 MME
1-20	0.04 M	Magnesium acetate tetrahydrate	0.1 M	MES	6.0	36 % v/v	MPD
1-21	0.05 M	Zinc acetate dihydrate	0.05 M	ADA	6.3	11 % w/v	PEG 8000
1-22	0.05 M	Magnesium acetate tetrahydrate	0.1 M	MES	6.5	26 % v/v	PEG 400
1-23	0.05 M	Magnesium acetate tetrahydrate	0.1 M	Glycine	9.5	32 % v/v	PEG 400
1-24	0.066 M	Sodium chloride	0.02 M	Tris	7.5	3 % w/v	PEG 4000
1-25	0.075 M	Magnesium chloride hexahydrate	0.1 M	Sodium cacodylate	6.5	30 % w/v	PEG 2000 MME
1-26	0.08 M	Magnesium acetate tetrahydrate	0.1 M	Sodium citrate	6.0	14 % w/v	PEG 5000 MME
1-27	0.01 M	Zinc acetate dihydrate	0.1 M	MES	6.0		
	1.5 M	Ammonium sulfate					
1-28	0.087 M	Ammonium sulfate	0.5 M	Tris	7.0	22 % v/v	PEG 250 DME
1-29	0.1 M	Magnesium chloride hexahydrate	0.1 M	Tris	7.5	13 % w/v	PEG 8000
1-30	0.1 M	Magnesium formate dihydrate	0.1 M	MOPS	7.0	17 % w/v	PEG 3350
1-31	0.1 M	Potassium chloride	0.1 M	Bis-Tris	6.0	18 % w/v	PEG 4000
1-32	0.1 M	Potassium chloride	0.1 M	Potassium phosphate	7.5	18 % v/v	PEG 200
1-33	0.1 M	Magnesium acetate tetrahydrate	0.1 M	MES	6.0	22 % w/v	PEG 4000
1-34	0.1 M	Calcium acetate hydrate	0.1 M	MES	6.0	22 % w/v	PEG 8000
1-35	0.1 M	Ammonium sulfate	0.1 M	HEPES	8.5	23 % w/v	PEG 3350
1-36	0.1 M	Potassium chloride	0.1 M	MES	6.0	32 % v/v	PEG 400
1-37	0.1 M	Sodium chloride	0.1 M	MES	6.5	36 % v/v	PEG 300
1-38	0.1 M	Sodium chloride	0.1 M	BICINE	9.0	45 % v/v	PEG 500 MME
1-39	0.15 M	Calcium chloride dihydrate	0.1 M	Glycine	9.0	35 % v/v	PEG 400
1-40	0.2 M	Ammonium sulfate	0.05 M	ADA	6.5	13 % w/v	PEG 4000
1-41	0.2 M	Choline chloride	0.1 M	Tris	7.5	14 % w/v	PEG 2000 MME
1-42	0.2 M	Sodium chloride	0.05 M	MOPS	7.0	19 % w/v	PEG 6000
1-43	0.05 M	Sodium chloride	0.05 M	MOPS	7.0	19 % w/v	PEG 6000
1-44	0.2 M	Magnesium formate dihydrate	0.05 M	Tris	8.0	19 % w/v	PEG 3350
1-45	0.2 M	Calcium chloride dihydrate	0.1 M	MES	5.0	20 % v/v	PEG 350 MME
1-46	0.2 M	Ammonium nitrate	0.05 M	HEPES	7.0	20 % w/v	PEG 3350
1-47	0.02 M	Lithium chloride	0.02 M	Glycine	10.0	33 % w/v	PEG 1000
	0.05 M	Magnesium chloride hexahydrate					
1-48	0.2 M	Calcium acetate hydrate	0.1 M	HEPES	7.0	24 % v/v	PEG 400

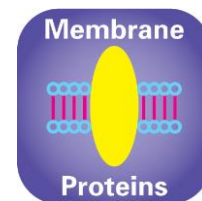
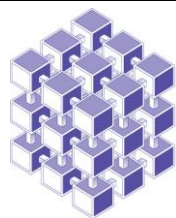


MemGold2™

Conditions 1-48 (Box 2)

MD1-63

Tube #	Conc.	Salt	Conc.	Buffer	pH	Conc.	Precipitant
2-1	0.2 M	Sodium acetate trihydrate	0.1 M	MES	6.5	28 % v/v	PEG 400
2-2	0.2 M	Sodium chloride	0.05 M	Calcium acetate	5.0	29 % v/v	PEG 400
2-3	0.2 M	Sodium chloride	0.1 M	HEPES	7.0	29 % v/v	PEG 400
2-4	0.2 M	Ammonium formate	0.1 M	Tris	7.0	31 % v/v	Pentaerythritole ethoxylate (15/4 EO/OH)
2-5	0.2 M	Ammonium sulfate	0.1 M	Tris	8.5	35 % w/v	PEG 3350
2-6	0.2 M	Calcium acetate hydrate	0.1 M	Sodium acetate	5.0	38 % v/v	PEG 400
2-7	0.2 M	Sodium chloride	0.1 M	MOPS	7.5	38 % v/v	PEG 400
2-8	2.0 M	Ammonium sulfate	0.1 M	Sodium cacodylate	6.5		
	0.2 M	Sodium chloride					
2-9	0.225 M	Ammonium sulfate	0.05 M	Sodium acetate	4.0	12 % w/v	PEG 4000
2-10	0.23 M	Sodium chloride	0.05 M	Sodium acetate	4.5	33 % v/v	PEG 400
2-11	0.25 M	Magnesium formate dihydrate	0.1 M	Sodium cacodylate	6.5	22 % w/v	PEG 3000
2-12	0.25 M	Magnesium chloride hexahydrate	0.1 M	Tris	8.5	40 % w/v	PEG 1000
2-13	0.3 M	Lithium sulfate	0.1 M	MES	6.5	25 % v/v	PEG 400
2-14	0.3 M	Ammonium formate	0.05 M	Tris	9.0	33 % v/v	PEG 500 MME
2-15	0.3 M	Barium chloride dihydrate	0.1 M	MES	6.0	34 % v/v	PEG 400
2-16	0.32 M	Lithium chloride	0.1 M	Sodium citrate	5.5	14 % w/v	PEG 4000
2-17	0.34 M	Ammonium sulfate	0.1 M	Sodium citrate	5.5	12 % w/v	PEG 4000
2-18	0.35 M	Lithium sulfate	0.1 M	Sodium acetate	4.0	11 % v/v	PEG 600
2-19	0.37 M	Potassium nitrate	0.1 M	MES	6.5	22 % v/v	PEG 400
2-20	0.4 M	Ammonium sulfate	0.1 M	MES	6.5	10 % w/v	PEG 3350
2-21	0.04 M	Magnesium chloride hexahydrate	0.1 M	HEPES	7.5	32 % v/v	PEG 400
	0.05 M	Sodium chloride					
2-22	0.4 M	Potassium chloride	0.05 M	HEPES	7.5	12 % v/v	PEG 400
2-23	0.4 M	Ammonium thiocyanate	0.1 M	Sodium acetate	4.5	15 % w/v	PEG 4000
2-24	0.4 M	Sodium thiocyanate	0.1 M	Sodium acetate	4.0	16 % w/v	PEG 4000
2-25	0.5 M	Potassium chloride	0.05 M	HEPES	6.5	20 % v/v	PEG 400
2-26	0.5 M	Magnesium chloride hexahydrate	0.05 M	Tris	7.5	21 % v/v	PEG 350 MME
2-27	0.8 M	Potassium formate	0.1 M	Sodium acetate	5.0	11 % w/v	PEG 4000
2-28			0.1 M	MOPS	7.0	9 % w/v	PEG 8000
2-29			0.1 M	MES	6.0	11 % w/v	PEG 20,000
2-30			0.1 M	MES	6.5	13 % v/v	PEG 400
2-31			0.1 M	ADA	5.5	14 % w/v	PEG 6000
2-32			0.05 M	Tris	7.5	17 % v/v	PEG 350 MME
2-33			0.07 M	Sodium citrate	4.5	22 % v/v	PEG 300
2-34			0.05 M	ADA	6.5	24 % v/v	PEG 400
2-35			0.1 M	Sodium cacodylate	6.5	24 % w/v	PEG 1500
2-36			0.1 M	HEPES	7.5	28 % v/v	PEG 600
2-37			0.05 M	Tris	8.5	28 % v/v	PEG 400
2-38			0.1 M	BICINE	9.0	30 % v/v	PEG 400
2-39			0.1 M	ADA	7.0	31 % v/v	PEG 600
2-40			0.1 M	Tris	8.5	32 % v/v	PEG 500 MME
2-41			0.1 M	HEPES	7.5	33 % v/v	PEG 400
2-42			0.18 M	Sodium citrate	4.0	34 % w/v	PEG 3350
2-43			0.1 M	Tris	8.5	44 % v/v	PEG 200
2-44			0.1 M	Tris	8.0	65 % v/v	MPD
2-45	2.75 M	Ammonium chloride	0.025 M	Bis-Tris	7.0		
2-46	2.8 M	Ammonium chloride	0.075 M	HEPES	7.5		
2-47	3.0 M	Ammonium sulfate	0.1 M	MES	5.5		
2-48			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™ Combo Value Pack (MemGold™ + MemGold2™)	2 x 96 x 10 mL	MD1-74
MemGold™ HT-96 Combo Value Pack (MemGold™ + MemGold2™)	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.