

The LMB Crystallization Screen™ MD1–98

A 96 condition sparse matrix screen based on optimised and published conditions from the LMB-MRC, Cambridge UK.

Suitable for soluble proteins and their complexes.

MD1-98 is presented as 96 x 10 mL conditions.

Features of The LMB Crystallization Screen:

- A brand new set of the most successful conditions for soluble proteins from the LMB-MRC, Cambridge, UK.
- 96 non-redundant conditions.
- Suitable for soluble proteins and their complexes.
- Suitable for large complexes (100-200kDa).

Introduction

An analysis was performed of published conditions for crystal growth that resulted in protein structures at the LMB-MRC, Cambridge, UK between 2002-2009 [1]. In total, more than four million individual crystallization experiments (~ 2800 samples) were setup following standard procedures with the vapour-diffusion technique and an initial screen containing 1440 conditions. The average weight of the crystallized proteins was 37kDa, including large complexes of 100- 200 kDa. Amongst 106 optimized conditions published during that period, 96 non-redundant conditions were selected to formulate **The LMB Crystallization Screen** [2].

Polyethylene glycols (PEGs) were found to be the most successful precipitants, especially those with high molecular weight (MW \geq 1000 Da; 46% of published conditions), followed by common salts (ammonium sulfate/phosphate, sodium citrate, other) and small volatiles (ethanol, MPD, other) [2].

Formulation Notes:

The LMB Crystallization Screen reagents are formulated using ultrapure water (>18.0 M Ω) and are sterile-filtered using 0.22 μ m 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 LMB Crystallization 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

A Safety Datasheet for this product can be obtained from our website.

References

1. Gorrec, F. The current approach to initial crystallization screening is under-sampled, *J Appl Cryst* (2013).
2. Gorrec, F. Protein crystallization screens developed at the MRC Laboratory of Molecular Biology, *Drug Discov Today* (2016).
<http://dx.doi.org/10.1016/j.drudis.2016.03.008>



Re-Ordering details:

Catalogue Description

Pack size

Catalogue Code

The LMB Crystallization Screen

96 x 10 mL

MD1-98

The LMB Crystallization Screen HT-96

96 x 1 mL

MD1-99

Single Reagents

The LMB Crystallization Screen

100 mL

MDSR-98-tube number

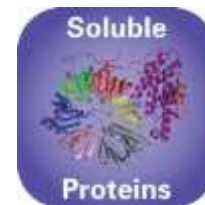
The LMB Crystallization Screen HT-96

100 mL

MDSR-99-well number

The LMB Crystallization Screen has been designed and developed by Fabrice GORREC, in collaboration with the scientists at the Medical Research Council Laboratory of Molecular Biology (LMB) at Cambridge and is manufactured exclusively under license by Molecular Dimensions Limited.

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The LMB Crystallization Screen Tubes 1-48 (Box 1) MD1-98

Tube #	Conc Units	Precipitant	Conc Units	Buffer	pH	Conc Units	Salt
1-1	25 % v/v	1,4-Butanediol	0.1 M	Tris	8.0		
1-2	30 % v/v	2-Propanol	0.1 M	Sodium cacodylate	4.6	0.1 M	Sodium citrate tribasic dihydrate
1-3	9 % v/v	2-Propanol	0.1 M	MES	6.2	0.2 M	Calcium acetate hydrate
1-4	15 % v/v	2-Propanol	0.2 M	Imidazole	7.6		
1-5	4 M	Ammonium acetate	0.1 M	Bis-Tris propane	7.0		
1-6	1.4 M	Ammonium phosphate monobasic	0.1 M	Tris	7.5		
1-7	1.85 M	Ammonium sulfate	0.1 M	Sodium acetate	4.5	0.4 M	Potassium thiocyanate
1-8	1.2 M	Ammonium sulfate	0.1 M	Ammonium acetate	5.5		
1-9	1 M	Ammonium sulfate	0.1 M	Sodium citrate	5.5		
1-10	2.5 M	Ammonium sulfate	0.1 M	MES	5.6	0.2 M	Sodium chloride
1-11	1.2 M	Ammonium sulfate	0.1 M	MES	5.9		
1-12	2 M	Ammonium sulfate	0.05 M	MES	6.0	5 mM	Magnesium acetate tetrahydrate
1-13	1.6 M	Ammonium sulfate	0.1 M	MES	6.5		
1-14	1.9 M	Ammonium sulfate	0.1 M	MES	6.5		
1-15	1.95 M	Ammonium sulfate	0.1 M	Sodium citrate	6.5		
1-16	1.7 M	Ammonium sulfate	0.1 M	Tris	8.0	0.2 M	Sodium chloride
1-17	1 M	Ammonium sulfate/ 12 % v/v Glycerol	0.1 M	Tris	8.5		
1-18	1 M	Ammonium sulfate/ 6 % v/v Glycerol	0.1 M	CHES	9.5	0.2 M	Sodium chloride
1-19	38 % v/v	1,4-Dioxane					
1-20	14 % v/v	Ethanol	0.1 M	ADA	6.0		
1-21	18 % v/v	Ethanol	0.1 M	Bis-Tris propane	7.1		
1-22	24 % v/v	Ethanol	0.1 M	HEPES	7.8	0.04 M	Magnesium chloride hexahydrate
1-23	17.5 % v/v	Ethanol					
1-24	1.3 M	Lithium chloride	0.1 M	HEPES	7.4		
1-25	1.5 M	Lithium chloride/ 10 % w/v PEG 6000	0.1 M	BICINE	8.4		
1-26	1.6 M	Lithium sulfate	0.4 M	Tris	7.5		
1-27	1.6 M	Magnesium sulfate heptahydrate/ 6 % v/v Glycerol	0.1 M	HEPES	7.2		
1-28	30 % v/v	MPD	0.1 M	Imidazole	7.0		
1-29	70 % v/v	MPD	0.1 M	HEPES	7.5		
1-30	18 % w/v	PEG 1000	0.1 M	Sodium/potassium phosphate	6.2	0.2 M	Sodium chloride
1-31	9.5 % w/v	PEG 2000	0.1 M	Sodium acetate	4.6	1.5 mM	Magnesium chloride hexahydrate
1-32	8 % w/v	PEG 2000	0.1 M	Imidazole	7.7	0.3 M	Calcium acetate hydrate
1-33	26 % w/v	PEG 2000 MME	0.1 M	Bis-Tris	5.8		
1-34	15 % w/v	PEG 2000 MME	0.1 M	Bis-Tris propane	6.9		
1-35	8 % w/v	PEG 20,000/ 8 % v/v PEG 550 MME	0.1 M	Sodium acetate	4.5	0.25 M	Potassium bromide
1-36	8 % w/v	PEG 20,000/ 8 % v/v PEG 550 MME	0.1 M	Sodium acetate	5.5	0.2 M	Potassium thiocyanate
1-37	7.5 % w/v	PEG 20,000/ 7.5 % v/v PEG 550 MME	0.1 M	Tris	7.5	0.08 M	Sodium formate
1-38	8 % w/v	PEG 20,000/ 8 % v/v PEG 550 MME	0.05 M	Tris	8.5	1.2 M	Sodium formate
1-39	28 % v/v	PEG 300	0.1 M	Imidazole	7.0	0.07 M	Calcium acetate hydrate
1-40	30 % v/v	PEG 300 15 % w/v PEG 1000	0.1 M	Bis-Tris propane	7.0		
1-41	26 % w/v	PEG 3000	0.1 M	CHES	9.2		
1-42	21 % w/v	PEG 3350	0.1 M	MES	6.0	0.15 M	Sodium chloride
1-43	15 % w/v	PEG 3350	0.1 M	MES	6.2		
1-44	24 % w/v	PEG 3350 2 % v/v PEG 400	0.05 M	HEPES	6.8	0.15 M	Sodium chloride
1-45	27 % w/v	PEG 3350	0.1 M	Bis-Tris propane	7.0	0.2 M	Lithium sulfate
1-46	12 % w/v	PEG 3350/	0.1 M	HEPES	7.5	5 mM 5 mM 5 mM	Cobalt(II) chloride hexahydrate/ Magnesium chloride hexahydrate/ Nickel(II) chloride hexahydrate
1-47	20 % w/v	PEG 3350	0.2 M	Tris	8.5		
1-48	18 % w/v	PEG 3350/ 4.8 % v/v 2-Propanol	0.1 M	CAPSO	9.0	17 % v/v	PEG 400



The LMB Crystallization Screen Tubes 1-48 (Box 2) MD1-98

Tube #	Conc Units	Precipitant	Conc Units	Buffer	pH	Conc Units	Salt
2-1	6 % w/v	PEG 3350				0.15 M	Sodium chloride/ 0.4 M Potassium iodide
2-2	18 % w/v	PEG 3350				0.2 M	Sodium acetate trihydrate
2-3	22 % w/v	PEG 3350				0.2 M	Zinc acetate dihydrate
2-4	26 % v/v	PEG 400	0.1 M	Sodium citrate	5.5	0.1 M	Magnesium chloride hexahydrate/ 0.1 M Sodium chloride
2-5	4 % v/v	PEG 400	0.1 M	Sodium citrate	5.6	0.1 M	Lithium sulfate
2-6	10 % v/v	PEG 400	0.05 M	MES	6.0	0.1 M	Potassium chloride/ 2 mM Magnesium chloride hexahydrate
2-7	28 % v/v	PEG 400	0.1 M	MOPS	6.5	0.2 M	Sodium chloride
2-8	25 % v/v	PEG 400/ 4.5 % v/v Ethanol	0.07 M	MES	6.6	1.5 mM	Magnesium chloride hexahydrate
2-9	40 % v/v	PEG 400	0.1 M	Tris	8.4	0.2 M	Lithium sulfate
2-10	3.5 % w/v	PEG 4000/ 15 % v/v Glycerol	0.1 M	Sodium acetate	4.6		
2-11	28 % w/v	PEG 4000	0.1 M	Sodium citrate	5.2	0.2 M	Ammonium acetate
2-12	20 % w/v	PEG 4000/ 20 % v/v 2-Propanol	0.1 M	Sodium citrate	5.5		
2-13	25 % w/v	PEG 4000	0.1 M	Sodium acetate	5.6	0.2 M	Ammonium sulfate
2-14	16 % w/v	PEG 4000/ 20 % v/v Glycerol	0.1 M	Sodium citrate	5.8	0.1 M	Ammonium sulfate
2-15	18 % w/v	PEG 4000	0.1 M	Sodium citrate	6.0	0.2 M	Ammonium acetate
2-16	14 % w/v	PEG 4000 6 % v/v MPD	0.1 M	Sodium/potassium phosphate	6.2		
2-17	29 % w/v	PEG 4000	0.1 M	Sodium citrate	6.5	0.1 M	Magnesium acetate tetrahydrate/ 0.1 M Ammonium sulfate
2-18	11 % w/v	PEG 4000	0.1 M	Tris	7.8	0.1 M	Magnesium chloride hexahydrate
2-19	20 % w/v	PEG 4000	0.1 M	Tris	8.5	0.2 M	Magnesium chloride hexahydrate
2-20	18 % w/v	PEG 4000	0.1 M	Tris	9.0	0.3 M	Sodium acetate trihydrate
2-21	18 % w/v	PEG 5000 MME	0.1 M	MES	6.5	0.2 M	Ammonium sulfate
2-22	20 % v/v	PEG 600	0.1 M	Sodium cacodylate	5.6	0.15 M	Potassium thiocyanate/ 0.2 M Sodium chloride
2-23	29 % w/v	PEG 6000	0.2 M	Sodium citrate	3.5		
2-24	20 % w/v	PEG 6000	0.1 M	Sodium citrate	4.0	0.2 M	Lithium chloride
2-25	12 % w/v	PEG 6000	0.1 M	Sodium citrate	5.6	0.1 M	Lithium sulfate
2-26	3.5 % w/v	PEG 6000	0.1 M	Bis-Tris propane	7.1	0.1 M	Potassium chloride
2-27	8 % w/v	PEG 8000	0.1 M	Sodium acetate	4.5	0.05 M	Magnesium chloride hexahydrate
2-28	22 % w/v	PEG 8000	0.1 M	Sodium cacodylate	5.0	0.2 M	Sodium acetate trihydrate
2-29	8 % w/v	PEG 8000	0.08 M	Potassium phosphate	5.6		
2-30	11 % w/v	PEG 8000	0.1 M	MES	6.0	0.24 M	Ammonium sulfate
2-31	11 % w/v	PEG 8000	0.1 M	Sodium cacodylate	6.2	0.4 M	Sodium chloride
2-32	13 % w/v	PEG 8000	0.05 M	Sodium cacodylate	6.5	0.09 M	Ammonium sulfate
2-33	20 % w/v	PEG 8000	0.1 M	MES	6.5	0.2 M	Magnesium acetate tetrahydrate
2-34	10 % w/v	PEG 8000/ 9 % v/v Ethylene glycol	0.1 M	HEPES	7.5		
2-35	20 % w/v	PEG 8000	0.1 M	CAPS	9.0	0.2 M	Magnesium chloride hexahydrate
2-36	20 % w/v	PEG 8000	0.1 M	CHES	9.5		
2-37	1 M	Potassium phosphate monobasic/ 3 % v/v 2-Propanol	0.1 M	Sodium cacodylate	6.5		
2-38	1.4 M	Sodium acetate trihydrate	0.1 M	Sodium cacodylate	6.5		
2-39	0.5 M	Sodium bromide	0.1 M	Tris	7.5		
2-40	2 M	Sodium chloride	0.1 M	Sodium citrate	4.0		
2-41	3 M	Sodium chloride	0.1 M	Tris	7.5		
2-42	1.5 M	Sodium citrate tribasic dihydrate	0.1 M	Sodium citrate	6.5		
2-43	0.85 M	Sodium citrate tribasic dihydrate	0.1 M	Tris	8.0	0.1 M	Sodium chloride
2-44	1.36 M	Sodium formate/ 3 % w/v PEG 35,000	0.1 M	Tris	8.5	19 % v/v	Glycerol
2-45	0.45 M	Potassium sodium tartrate tetrahydrate	0.1 M	MES	6.3		
2-46	0.9 M	Potassium sodium tartrate tetrahydrate/ 20 % v/v Glycerol	0.05 M	HEPES	7.4		
2-47			1.6 M	Sodium/potassium phosphate	6.0		
2-48			1 M	Sodium citrate	6.2		