Molecular Dimensions

Soluble Proteins

The LMB Crystallization Screen™HT-96 MD1–99

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.

MD1-99 is presented as 96 x 1 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 ≥ 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 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 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).

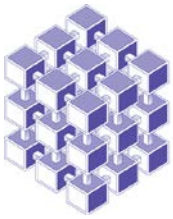
2. Gorrec, F. Protein crystallization screens developed at the MRC Laboratory of Molecular Biology, Drug Discov Today (2016). http://dx.doi.org/10.1016/j.drudis.2016.03.008

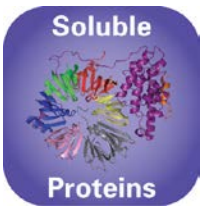
Re-Ordering details:

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.

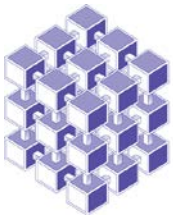
Limited Use and Restrictions: Products sold by Molecular Dimensions Ltd. or its affiliates or authorized distributors and information relating to same are intended for research use only in crystal growth and optimization of crystal growth following use of the product by the purchaser and are not to be used for any other purpose, which includes but is not limited to, unauthorized commercial uses, including resale or use in manufacture. The license to use The LMB Crystallization Screen specifically excludes any rights to use the product information for the manufacture of the product or derivatives thereof, or distribute, transfer, or otherwise provide access to such information to any third party for any purpose or use.

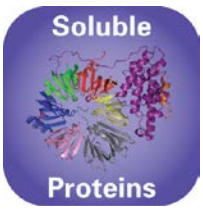




The LMB Crystallization Screen Conditions A1-D12 MD1–99

Well #	Conc	Units	Precipitant	Conc	Units	Buffer	pH	Conc	Units	Salt
A1	25	% v/v	1,4-Butanediol	0.1	M	Tris	8.0			
A2	30	% v/v	2-Propanol	0.1	M	Sodium cacodylate	4.6	0.1	M	Sodium citrate tribasic dihydrate
A3	9	% v/v	2-Propanol	0.1	M	MES	6.2	0.2	M	Calcium acetate hydrate
A4	15	% v/v	2-Propanol	0.2	M	Imidazole	7.6			
A5	4	M	Ammonium acetate	0.1	M	Bis-Tris propane	7.0			
A6	1.4	M	Ammonium phosphate monobasic	0.1	M	Tris	7.5			
A7	1.85	M	Ammonium sulfate	0.1	M	Sodium acetate	4.5	0.4	M	Potassium thiocyanate
A8	1.2	M	Ammonium sulfate	0.1	M	Ammonium acetate	5.5			
A9	1	M	Ammonium sulfate	0.1	M	Sodium citrate	5.5			
A10	2.5	M	Ammonium sulfate	0.1	M	MES	5.6	0.2	M	Sodium chloride
A11	1.2	M	Ammonium sulfate	0.1	M	MES	5.9			
A12	2	M	Ammonium sulfate	0.05	M	MES	6.0	5	mM	Magnesium acetate tetrahydrate
B1	1.6	M	Ammonium sulfate	0.1	M	MES	6.5			
B2	1.9	M	Ammonium sulfate	0.1	M	MES	6.5			
B3	1.95	M	Ammonium sulfate	0.1	M	Sodium citrate	6.5			
B4	1.7	M	Ammonium sulfate	0.1	M	Tris	8.0	0.2	M	Sodium chloride
B5	1	M	Ammonium sulfate	0.1	M	Tris	8.5			
	12	% v/v	Glycerol							
B6	1	M	Ammonium sulfate	0.1	M	CHES	9.5	0.2	M	Sodium chloride
	6	% v/v	Glycerol							
B7	38	% v/v	1,4-Dioxane							
B8	14	% v/v	Ethanol	0.1	M	ADA	6.0			
B9	18	% v/v	Ethanol	0.1	M	Bis-Tris propane	7.1			
B10	24	% v/v	Ethanol	0.1	M	HEPES	7.8	0.04	M	Magnesium chloride hexahydrate
B11	17.5	% v/v	Ethanol							
B12	1.3	M	Lithium chloride	0.1	M	HEPES	7.4			
C1	1.5	M	Lithium chloride/	0.1	M	BICINE	8.4			
	10	% w/v	PEG 6000							
C2	1.6	M	Lithium sulfate	0.4	M	Tris	7.5			
C3	1.6	M	Magnesium sulfate heptahydrate/	0.1	M	HEPES	7.2			
	6	% v/v	Glycerol							
C4	30	% v/v	MPD	0.1	M	Imidazole	7.0			
C5	70	% v/v	MPD	0.1	M	HEPES	7.5			
C6	18	% w/v	PEG 1000	0.1	M	Sodium/potassium phosphate	6.2	0.2	M	Sodium chloride
C7	9.5	% w/v	PEG 2000	0.1	M	Sodium acetate	4.6	1.5	mM	Magnesium chloride hexahydrate
C8	8	% w/v	PEG 2000	0.1	M	Imidazole	7.7	0.3	M	Calcium acetate hydrate
C9	26	% w/v	PEG 2000 MME	0.1	M	Bis-Tris	5.8			
C10	15	% w/v	PEG 2000 MME	0.1	M	Bis-Tris propane	6.9			
C11	8	% w/v	PEG 20,000/	0.1	M	Sodium acetate	4.5	0.25	M	Potassium bromide
	8	% v/v	PEG 550 MME							
C12	8	% w/v	PEG 20,000/	0.1	M	Sodium acetate	5.5	0.2	M	Potassium thiocyanate
	8	% v/v	PEG 550 MME							
D1	7.5	% w/v	PEG 20,000/	0.1	M	Tris	7.5	0.08	M	Sodium formate
	7.5	% v/v	PEG 550 MME							
D2	8	% w/v	PEG 20,000/	0.05	M	Tris	8.5	1.2	M	Sodium formate
	8	% v/v	PEG 550 MME							
D3	28	% v/v	PEG 300	0.1	M	Imidazole	7.0	0.07	M	Calcium acetate hydrate
D4	30	% v/v	PEG 300	0.1	M	Bis-Tris propane	7.0			
	15	% w/v	PEG 1000							
D5	26	% w/v	PEG 3000	0.1	M	CHES	9.2			
D6	21	% w/v	PEG 3350	0.1	M	MES	6.0	0.15	M	Sodium chloride
D7	15	% w/v	PEG 3350	0.1	M	MES	6.2			
D8	24	% w/v	PEG 3350	0.05	M	HEPES	6.8	0.15	M	Sodium chloride
	2	% v/v	PEG 400							
D9	27	% w/v	PEG 3350	0.1	M	Bis-Tris propane	7.0	0.2	M	Lithium sulfate
D10	12	% w/v	PEG 3350/	0.1	M	HEPES	7.5	5	mM	Cobalt(II) chloride hexahydrate/
								5	mM	Magnesium chloride hexahydrate
								5	mM	Nickel(II) chloride hexahydrate
D11	20	% w/v	PEG 3350	0.2	M	Tris	8.5			
D12	18	% w/v	PEG 3350/	0.1	M	CAPSO	9.0	17	% v/v	PEG 400
	4.8	% v/v	2-Propanol							





The LMB Crystallization Screen Conditions E1- H12 MD1–99

Well #	Conc	Units	Precipitant	Conc	Units	Buffer	pH	Conc	Units	Salt
E1	6	% w/v	PEG 3350					0.15	M	Sodium chloride/
								0.4	M	Potassium iodide
E2	18	% w/v	PEG 3350					0.2	M	Sodium acetate trihydrate
E3	22	% w/v	PEG 3350					0.2	M	Zinc acetate dihydrate
E4	26	% v/v	PEG 400	0.1	M	Sodium citrate	5.5	0.1	M	Magnesium chloride hexahydrate/
								0.1	M	Sodium chloride
E5	4	% v/v	PEG 400	0.1	M	Sodium citrate	5.6	0.1	M	Lithium sulfate
E6	10	% v/v	PEG 400	0.05	M	MES	6.0	0.1	M	Potassium chloride/
								2	mM	Magnesium chloride hexahydrate
E7	28	% v/v	PEG 400	0.1	M	MOPS	6.5	0.2	M	Sodium chloride
E8	25	% v/v	PEG 400/	0.07	M	MES	6.6	1.5	mM	Magnesium chloride hexahydrate
	4.5	% v/v	Ethanol							
E9	40	% v/v	PEG 400	0.1	M	Tris	8.4	0.2	M	Lithium sulfate
E10	3.5	% w/v	PEG 4000/	0.1	M	Sodium acetate	4.6			
	15	% v/v	Glycerol							
E11	28	% w/v	PEG 4000	0.1	M	Sodium citrate	5.2	0.2	M	Ammonium acetate
E12	20	% w/v	PEG 4000/	0.1	M	Sodium citrate	5.5			
	20	% v/v	2-Propanol							
F1	25	% w/v	PEG 4000	0.1	M	Sodium acetate	5.6	0.2	M	Ammonium sulfate
F2	16	% w/v	PEG 4000/	0.1	M	Sodium citrate	5.8	0.1	M	Ammonium sulfate
	20	% v/v	Glycerol							
F3	18	% w/v	PEG 4000	0.1	M	Sodium citrate	6.0	0.2	M	Ammonium acetate
F4	14	% w/v	PEG 4000	0.1	M	Sodium/potassium phosphate	6.2			
	6	% v/v	MPD							
F5	29	% w/v	PEG 4000	0.1	M	Sodium citrate	6.5	0.1	M	Magnesium acetate tetrahydrate
								0.1	M	Ammonium sulfate
F6	11	% w/v	PEG 4000	0.1	M	Tris	7.8	0.1	M	Magnesium chloride hexahydrate
F7	20	% w/v	PEG 4000	0.1	M	Tris	8.5	0.2	M	Magnesium chloride hexahydrate
F8	18	% w/v	PEG 4000	0.1	M	Tris	9.0	0.3	M	Sodium acetate trihydrate
F9	18	% w/v	PEG 5000 MME	0.1	M	MES	6.5	0.2	M	Ammonium sulfate
F10	20	% v/v	PEG 600	0.1	M	Sodium cacodylate	5.6	0.15	M	Potassium thiocyanate/
								0.2	M	Sodium chloride
F11	29	% w/v	PEG 6000	0.2	M	Sodium citrate	3.5			
F12	20	% w/v	PEG 6000	0.1	M	Sodium citrate	4.0	0.2	M	Lithium chloride
G1	12	% w/v	PEG 6000	0.1	M	Sodium citrate	5.6	0.1	M	Lithium sulfate
G2	3.5	% w/v	PEG 6000	0.1	M	Bis-Tris propane	7.1	0.1	M	Potassium chloride
G3	8	% w/v	PEG 8000	0.1	M	Sodium acetate	4.5	0.05	M	Magnesium chloride hexahydrate
G4	22	% w/v	PEG 8000	0.1	M	Sodium cacodylate	5.0	0.2	M	Sodium acetate trihydrate
G5	8	% w/v	PEG 8000	0.08	M	Potassium phosphate	5.6			
G6	11	% w/v	PEG 8000	0.1	M	MES	6.0	0.24	M	Ammonium sulfate
G7	11	% w/v	PEG 8000	0.1	M	Sodium cacodylate	6.2	0.4	M	Sodium chloride
G8	13	% w/v	PEG 8000	0.05	M	Sodium cacodylate	6.5	0.09	M	Ammonium sulfate
G9	20	% w/v	PEG 8000	0.1	M	MES	6.5	0.2	M	Magnesium acetate tetrahydrate
G10	10	% w/v	PEG 8000	0.1	M	HEPES	7.5			
	9	% v/v	Ethylene glycol							
G11	20	% w/v	PEG 8000	0.1	M	CAPS	9.0	0.2	M	Magnesium chloride hexahydrate
G12	20	% w/v	PEG 8000	0.1	M	CHES	9.5			
H1	1	M	Potassium phosphate monobasic	0.1	M	Sodium cacodylate	6.5			
	3	% v/v	2-Propanol							
H2	1.4	M	Sodium acetate trihydrate	0.1	M	Sodium cacodylate	6.5			
H3	0.5	M	Sodium bromide	0.1	M	Tris	7.5			
H4	2	M	Sodium chloride	0.1	M	Sodium citrate	4.0			
H5	3	M	Sodium chloride	0.1	M	Tris	7.5			
H6	1.5	M	Sodium citrate tribasic dihydrate	0.1	M	Sodium citrate	6.5			
H7	0.85	M	Sodium citrate tribasic dihydrate	0.1	M	Tris	8.0	0.1	M	Sodium chloride
H8	1.36	M	Sodium formate/	0.1	M	Tris	8.5			
	3	% w/v	PEG 35,000/							
	19	% v/v	Glycerol							
H9	0.45	M	Potassium sodium tartrate tetrahy	0.1	M	MES	6.3			
H10	0.9	M	Potassium sodium tartrate tetrahy	0.05	M	HEPES	7.4			
	20	% v/v	Glycerol							
H11				1.6	M	Sodium/potassium phosphate	6.0			
H12				1	M	Sodium citrate	6.2			