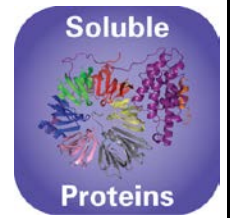


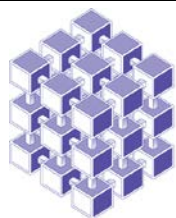
Molecular
Dimensions



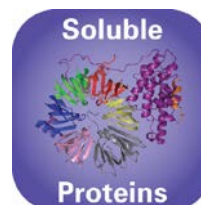
MD1-75-ECO

Super2 Combo Eco Screen
Value Pack

(MD1-29-ECO & MD1-37-ECO)



Molecular
Dimensions



PACT *premier*TM Eco Screen

MD1-29-ECO

PACT *premier* is a pH, Anion, Cation crystallization trial devised to test pH within a PEG/Ion screen environment.

MD1-29-ECO contains 96 x 10 mL cacodylate-free reagents.

Features of PACT *premier*

- A modern, comprehensive PEG/ion screen - the most effective systematic screen available to date.
-
- This 96-well screen is really 3 screens in one:
 - 24-well pH/PEG screen
 - 24-well cation/PEG screen
 - 48-well anion/PEG screen
- Cacodylate replaced with MES.

Rationale for a new PEG/Ion screen

The first step in crystallization is often to reach for a commercially available “sparse matrix” kit, and hope that one of the conditions produces something that looks harvestable, or optimizable. If no obvious leads come out of the screen, it is hard to learn anything from the negative (precipitate and clear) results.

There are a few screens that try to test crystallization space in a more rational manner – for example, the Clear Strategy Screen and The Solubility Tool Kit.

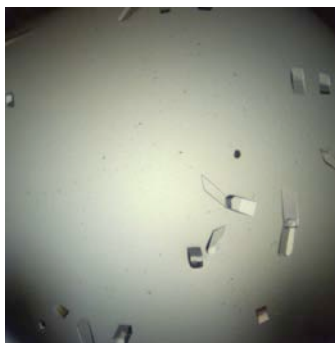
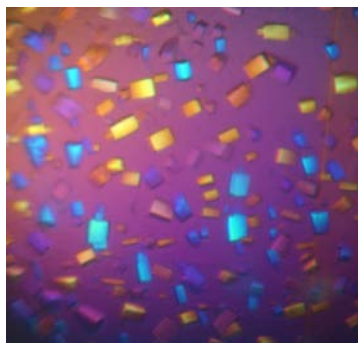
Traditional PEG/Ion screens provide a logical test of seven cations and eleven anions using PEG 3350 as the precipitation agent. However, the user has no control over pH and hence cannot determine the effect of one cation or anion over another.

For this reason the PEG/ION/pH (PACT) screen has been developed to systematically test the effect of pH, anions and cations, using PEG as the precipitant. This screen has been implemented very successfully at the Netherlands Cancer Institute (NKI), and at the Oxford Protein Production Facility (OPPF).

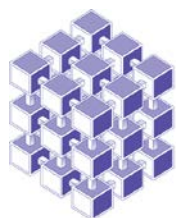
PACT *premier*

pH/PEG screen

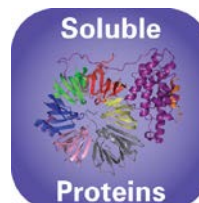
This consists of four broad range buffer systems (1) versus PEG 1500. These buffers allow one to scan the pH range from 4 to 9, without changing the chemistry of the system, so effectively isolating the effect of pH from the effect of the buffer that causes the change in pH.



Protein crystals grown successfully with PACT *premier*.



Molecular
Dimensions



PACT premier

Cation/PEG screen

This is made up of six cations (all with chloride counter ions) that are combined with PEG 6000 at four different pHs: Acetate pH 5, MES pH 6, HEPES pH 7 and Tris pH 8. The cations tested are Na⁺, NH₄⁺, Li⁺, Mg²⁺, Ca²⁺ and Zn²⁺. The zinc ion is tested at lower concentration than the other cations in the screen (0.01 M vs. 0.2 M)

Anion/PEG screen

This is made up of 12 anions, with either sodium or potassium counter ions, which are tested at 0.2 M against PEG 3350. The anions include fluoride, bromine, iodide, thiocyanate, nitrate, formate, acetate, sulfate, tartrate, phosphate, citrate and malonate. The phosphate solution is tested at a concentration of 0.02 M. Chloride is not included here as it is the counter ion in the cation screen. Three sets of reagents are tested at pH 6.5, 7.5, and 8.5 with the Bis-Tris-Propane buffer system whilst one set of reagents is tested without buffering.

References:

(1) Newman *et al* (2005). Towards rationalization of crystallization screening for small- to medium-sized academic laboratories: the PACT/JCSG+ strategy. *Acta Cryst.* **D61**, 1426-1431.

Formulation Notes

PACT premier 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.

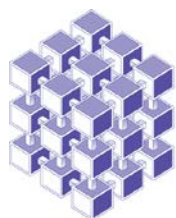
Individual reagents and stock solutions for optimization are available from Molecular Dimensions.

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

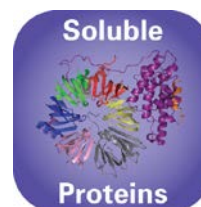
Contact and product details can be found at www.moleculardimensions.com

PACT premier was developed by Janet Newman, and was tested in the laboratory of Anastassis Perrakis at the Netherlands Cancer Institute as part of the SPINE programme and is manufactured under license by Molecular Dimensions.

PACT premier when used together with **JCSG plus** as a primary screening strategy is an extremely powerful and successful combination, (i.e. a combination of a modern sparse matrix approach and an information yielding systematic trial).



Molecular
Dimensions

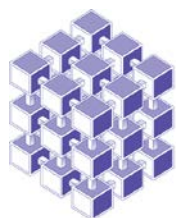


PACT premier Eco Screen

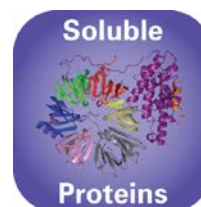
Conditions 1-48 (Box 1)

MD1-29-ECO

Tube #	Conc.	Salt	Conc.	Buffer	pH	Conc.	Precipitant
1-1			0.1 M	SPG	4.0	25 % w/v	PEG 1500
1-2			0.1 M	SPG	5.0	25 % w/v	PEG 1500
1-3			0.1 M	SPG	6.0	25 % w/v	PEG 1500
1-4			0.1 M	SPG	7.0	25 % w/v	PEG 1500
1-5			0.1 M	SPG	8.0	25 % w/v	PEG 1500
1-6			0.1 M	SPG	9.0	25 % w/v	PEG 1500
1-7	0.2 M	Sodium chloride	0.1 M	Sodium acetate	5.0	20 % w/v	PEG 6000
1-8	0.2 M	Ammonium chloride	0.1 M	Sodium acetate	5.0	20 % w/v	PEG 6000
1-9	0.2 M	Lithium chloride	0.1 M	Sodium acetate	5.0	20 % w/v	PEG 6000
1-10	0.2 M	Magnesium chloride hexahydrate	0.1 M	Sodium acetate	5.0	20 % w/v	PEG 6000
1-11	0.2 M	Calcium chloride dihydrate	0.1 M	Sodium acetate	5.0	20 % w/v	PEG 6000
1-12	0.01 M	Zinc chloride	0.1 M	Sodium acetate	5.0	20 % w/v	PEG 6000
1-13			0.1 M	MIB	4.0	25 % w/v	PEG 1500
1-14			0.1 M	MIB	5.0	25 % w/v	PEG 1500
1-15			0.1 M	MIB	6.0	25 % w/v	PEG 1500
1-16			0.1 M	MIB	7.0	25 % w/v	PEG 1500
1-17			0.1 M	MIB	8.0	25 % w/v	PEG 1500
1-18			0.1 M	MIB	9.0	25 % w/v	PEG 1500
1-19	0.2 M	Sodium chloride	0.1 M	MES	6.0	20 % w/v	PEG 6000
1-20	0.2 M	Ammonium chloride	0.1 M	MES	6.0	20 % w/v	PEG 6000
1-21	0.2 M	Lithium chloride	0.1 M	MES	6.0	20 % w/v	PEG 6000
1-22	0.2 M	Magnesium chloride hexahydrate	0.1 M	MES	6.0	20 % w/v	PEG 6000
1-23	0.2 M	Calcium chloride dihydrate	0.1 M	MES	6.0	20 % w/v	PEG 6000
1-24	0.01 M	Zinc chloride	0.1 M	MES	6.0	20 % w/v	PEG 6000
1-25			0.1 M	PMTP	4.0	25 % w/v	PEG 1500
1-26			0.1 M	PMTP	5.0	25 % w/v	PEG 1500
1-27			0.1 M	PMTP	6.0	25 % w/v	PEG 1500
1-28			0.1 M	PMTP	7.0	25 % w/v	PEG 1500
1-29			0.1 M	PMTP	8.0	25 % w/v	PEG 1500
1-30			0.1 M	PMTP	9.0	25 % w/v	PEG 1500
1-31	0.2 M	Sodium chloride	0.1 M	HEPES	7.0	20 % w/v	PEG 6000
1-32	0.2 M	Ammonium chloride	0.1 M	HEPES	7.0	20 % w/v	PEG 6000
1-33	0.2 M	Lithium chloride	0.1 M	HEPES	7.0	20 % w/v	PEG 6000
1-34	0.2 M	Magnesium chloride hexahydrate	0.1 M	HEPES	7.0	20 % w/v	PEG 6000
1-35	0.2 M	Calcium chloride hexahydrate	0.1 M	HEPES	7.0	20 % w/v	PEG 6000
1-36	0.01 M	Zinc chloride	0.1 M	HEPES	7.0	20 % w/v	PEG 6000
1-37			0.1 M	MMT	4.0	25 % w/v	PEG 1500
1-38			0.1 M	MMT	5.0	25 % w/v	PEG 1500
1-39			0.1 M	MMT	6.0	25 % w/v	PEG 1500
1-40			0.1 M	MMT	7.0	25 % w/v	PEG 1500
1-41			0.1 M	MMT	8.0	25 % w/v	PEG 1500
1-42			0.1 M	MMT	9.0	25 % w/v	PEG 1500
1-43	0.2 M	Sodium chloride	0.1 M	Tris	8.0	20 % w/v	PEG 6000
1-44	0.2 M	Ammonium chloride	0.1 M	Tris	8.0	20 % w/v	PEG 6000
1-45	0.2 M	Lithium chloride	0.1 M	Tris	8.0	20 % w/v	PEG 6000
1-46	0.2 M	Magnesium chloride hexahydrate	0.1 M	Tris	8.0	20 % w/v	PEG 6000
1-47	0.2 M	Calcium chloride dihydrate	0.1 M	Tris	8.0	20 % w/v	PEG 6000
1-48	0.002 M	Zinc chloride	0.1 M	Tris	8.0	20 % w/v	PEG 6000



Molecular
Dimensions

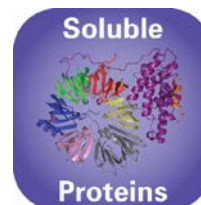
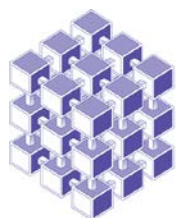


PACT premier Eco Screen

Conditions 1-48 (Box 2)

MD1-29-ECO

Tube #	Conc.	Salt	Conc.	Buffer	pH	Conc.	Precipitant
2-1	0.2 M	Sodium fluoride				20 % w/v	PEG 3350
2-2	0.2 M	Sodium bromide				20 % w/v	PEG 3350
2-3	0.2 M	Sodium iodide				20 % w/v	PEG 3350
2-4	0.2 M	Potassium thiocyanate				20 % w/v	PEG 3350
2-5	0.2 M	Sodium nitrate				20 % w/v	PEG 3350
2-6	0.2 M	Sodium formate				20 % w/v	PEG 3350
2-7	0.2 M	Sodium acetate trihydrate				20 % w/v	PEG 3350
2-8	0.2 M	Sodium sulfate				20 % w/v	PEG 3350
2-9	0.2 M	Potassium sodium tartrate tetrahydrate				20 % w/v	PEG 3350
2-10	0.02 M	Sodium/potassium phosphate				20 % w/v	PEG 3350
2-11	0.2 M	Sodium citrate tribasic dihydrate				20 % w/v	PEG 3350
2-12	0.2 M	Sodium malonate dibasic monohydrate				20 % w/v	PEG 3350
2-13	0.2 M	Sodium fluoride	0.1 M	Bis-Tris propane	6.5	20 % w/v	PEG 3350
2-14	0.2 M	Sodium bromide	0.1 M	Bis-Tris propane	6.5	20 % w/v	PEG 3350
2-15	0.2 M	Sodium iodide	0.1 M	Bis-Tris propane	6.5	20 % w/v	PEG 3350
2-16	0.2 M	Potassium thiocyanate	0.1 M	Bis-Tris propane	6.5	20 % w/v	PEG 3350
2-17	0.2 M	Sodium nitrate	0.1 M	Bis-Tris propane	6.5	20 % w/v	PEG 3350
2-18	0.2 M	Sodium formate	0.1 M	Bis-Tris propane	6.5	20 % w/v	PEG 3350
2-19	0.2 M	Sodium acetate trihydrate	0.1 M	Bis-Tris propane	6.5	20 % w/v	PEG 3350
2-20	0.2 M	Sodium sulfate	0.1 M	Bis-Tris propane	6.5	20 % w/v	PEG 3350
2-21	0.2 M	Potassium sodium tartrate tetrahydrate	0.1 M	Bis-Tris propane	6.5	20 % w/v	PEG 3350
2-22	0.02 M	Sodium/potassium phosphate	0.1 M	Bis-Tris propane	6.5	20 % w/v	PEG 3350
2-23	0.2 M	Sodium citrate tribasic dihydrate	0.1 M	Bis-Tris propane	6.5	20 % w/v	PEG 3350
2-24	0.2 M	Sodium malonate dibasic monohydrate	0.1 M	Bis-Tris propane	6.5	20 % w/v	PEG 3350
2-25	0.2 M	Sodium fluoride	0.1 M	Bis-Tris propane	7.5	20 % w/v	PEG 3350
2-26	0.2 M	Sodium bromide	0.1 M	Bis-Tris propane	7.5	20 % w/v	PEG 3350
2-27	0.2 M	Sodium iodide	0.1 M	Bis-Tris propane	7.5	20 % w/v	PEG 3350
2-28	0.2 M	Potassium thiocyanate	0.1 M	Bis-Tris propane	7.5	20 % w/v	PEG 3350
2-29	0.2 M	Sodium nitrate	0.1 M	Bis-Tris propane	7.5	20 % w/v	PEG 3350
2-30	0.2 M	Sodium formate	0.1 M	Bis-Tris propane	7.5	20 % w/v	PEG 3350
2-31	0.2 M	Sodium acetate trihydrate	0.1 M	Bis-Tris propane	7.5	20 % w/v	PEG 3350
2-32	0.2 M	Sodium sulfate	0.1 M	Bis-Tris propane	7.5	20 % w/v	PEG 3350
2-33	0.2 M	Potassium sodium tartrate tetrahydrate	0.1 M	Bis-Tris propane	7.5	20 % w/v	PEG 3350
2-34	0.02 M	Sodium/potassium phosphate	0.1 M	Bis-Tris propane	7.5	20 % w/v	PEG 3350
2-35	0.2 M	Sodium citrate tribasic dihydrate	0.1 M	Bis-Tris propane	7.5	20 % w/v	PEG 3350
2-36	0.2 M	Sodium malonate dibasic monohydrate	0.1 M	Bis-Tris propane	7.5	20 % w/v	PEG 3350
2-37	0.2 M	Sodium fluoride	0.1 M	Bis-Tris propane	8.5	20 % w/v	PEG 3350
2-38	0.2 M	Sodium bromide	0.1 M	Bis-Tris propane	8.5	20 % w/v	PEG 3350
2-39	0.2 M	Sodium iodide	0.1 M	Bis-Tris propane	8.5	20 % w/v	PEG 3350
2-40	0.2 M	Potassium thiocyanate	0.1 M	Bis-Tris propane	8.5	20 % w/v	PEG 3350
2-41	0.2 M	Sodium nitrate	0.1 M	Bis-Tris propane	8.5	20 % w/v	PEG 3350
2-42	0.2 M	Sodium formate	0.1 M	Bis-Tris propane	8.5	20 % w/v	PEG 3350
2-43	0.2 M	Sodium acetate trihydrate	0.1 M	Bis-Tris propane	8.5	20 % w/v	PEG 3350
2-44	0.2 M	Sodium sulfate	0.1 M	Bis-Tris propane	8.5	20 % w/v	PEG 3350
2-45	0.2 M	Potassium sodium tartrate tetrahydrate	0.1 M	Bis-Tris propane	8.5	20 % w/v	PEG 3350
2-46	0.02 M	Sodium/potassium phosphate	0.1 M	Bis-Tris propane	8.5	20 % w/v	PEG 3350
2-47	0.2 M	Sodium citrate tribasic dihydrate	0.1 M	Bis-Tris propane	8.5	20 % w/v	PEG 3350
2-48	0.2 M	Sodium malonate dibasic monohydrate	0.1 M	Bis-Tris propane	8.5	20 % w/v	PEG 3350



Abbreviations:

HEPES; N-(2-hydroxyethyl)-piperazine-N'-2-ethanesulfonic acid, **MES**; 2-(N-morpholino)ethanesulfonic acid, **PEG**; Polyethylene glycol, **Tris**; 2-Amino-2-(hydroxymethyl)propane-1,3-diol, **SPG buffer**; Succinic Acid, Phosphate, Glycine, **MIB buffer**; Malonic acid, Imidazole, Boric acid, **PMTP buffer**; Propionic acid, MES, Bis-tris propane, **MMT buffer**; Malic acid, MES, Tris.

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



Ordering details:

Catalogue Description

Catalogue Code

PACT *premier*

(96 x 10 mL kit)

MD1-29

PACT *premier* HT-96

(96 x 1 mL)

MD1-36

Eco Screens

PACT *premier*

(96 x 10 mL kit)

MD1-29-ECO

PACT *premier* HT-96

(96 x 1 mL)

MD1-36-ECO

Green Screens

PACT *premier*

(96 x 10 mL kit)

MD1-55

PACT *premier* HT-96

(96 x 1 mL)

MD1-52

Single Reagents

PACT *premier*

(100 mL)

MDSR-29 - tube number

PACT *premier* HT-96

(100 mL)

MDSR-36 - well number

PACT *premier* green screen

(100 mL)

MDSR-55 - tube number

PACT *premier* green screen HT-96

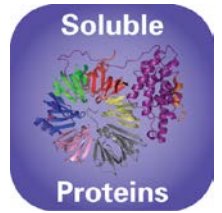
(100 mL)

MDSR-52 - well number

For PACT *premier*[™] stock reagents visit our Optimization page on our website.



Molecular
Dimensions



JCSG-plus™ Eco screen

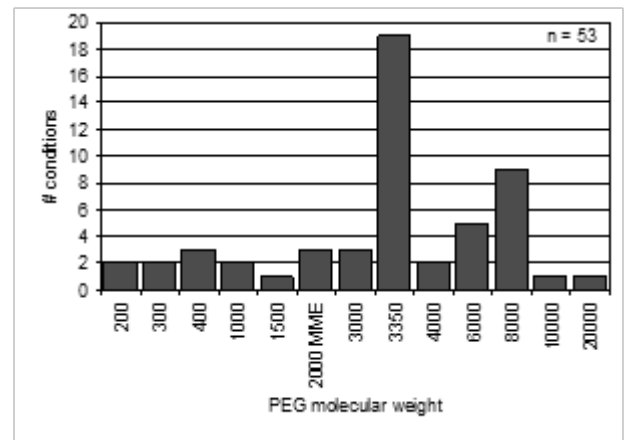
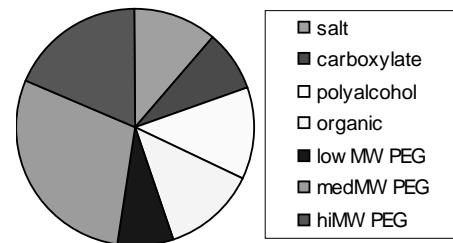
MD1-37-ECO

JCSG-plus is the screen of choice for initial screening experiments.
The most complete sparse matrix screen available today.

MD1-37-ECO is presented as 96 x 10 mL cacodylate-free/dioxane-free conditions in a deep-well block.

Features of JCSG-plus:

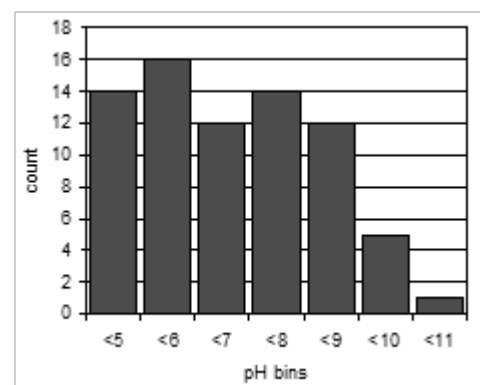
- Optimized sparse matrix screen without cacodylate (MES used instead) or dioxane.
- Reduced redundancy.
- Screens classic PEG and salt conditions.
- Access more areas of crystallization space.
- Neutralised organic acids: Formate, acetate, citrate, succinate, malate, malonate.
- More organic and polyalcohol conditions
- Precipitant synergy.
- Wide pH range 4.0 – 10.0.
- Cacodylate and dioxane-free.



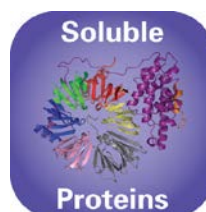
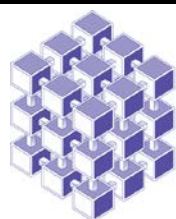
Introduction

Commercially available sparse matrix screens are devised using conditions based on previously successful crystallization conditions. Since increasing numbers of researchers now use commercially available sparse matrix screens, the same sub-sets of conditions are used repeatedly. A number of structural genomics initiatives have published results of data-mining exercises using internally consistent datasets and analysing negative results as well as positive hits. The results have been startling!

Members of the Joint Centre for Structural Genomics analysed the crystallization of over 500 different proteins against commercially available sparse matrix screens totalling 480 conditions, compiled to sample a wide range of precipitant, buffer, additive and pH. The **core screen (JCSG)** was developed when data mining revealed massive redundancy between clusters of conditions in commercial screens, particularly where high molecular weight PEGs are used as precipitants (1). Using a novel algorithm, members of the JCSG identified "conditions most essential for promoting crystal formation for the most diverse set of proteins. **JCSG+ supersedes the JCSG Core Screen and Index screens.**



Analysis of precipitants used in JCSG-plus



In-filling the optimized screen

The second issue to come to light was that even extensive suites of sparse matrix screens represent incomplete coverage of crystallisation space – 480 conditions failed to crystallise 15% of the target proteins.

The **JCSG-plus** screen is supplemented with additional conditions to provide a more complete coverage of crystallisation space and improved chemical complementarity (2).

- i. In-filling the pH profile
- ii. introduce conditions using neutralised organic acids as the precipitant (3)
- iii. expanded range of organic and polyalcohol conditions
- iv. precipitant synergy

Usage

JCSG-*plus* is designed for the rapid, efficient screening for crystallization leads of a new protein or preparation. In the first instance, drops should be set-up using equal volumes of protein solution and reagent. Protein samples should be in a minimal solvent system containing a low concentration of buffer. Starting protein concentrations should be between 5 mg/ml and 40 mg/ml. Protein concentration can be varied in subsequent rounds depending on initial results.

The conditions in JCSG-*plus* are compatible with all commonly used crystallisation methods, sitting drop, hanging drop, sandwich drop, microbatch, vapour microbatch and microdialysis.

The JCSG-*plus* sparse matrix screen is highly effective when used alongside a systematic screen such as PACT-*premier*. The two screens provide a thorough exploration of crystallization conditions and the unique design of PACT-*premier* facilitates rational interpretation of results from both itself and JCSG-*plus* assisting the design of subsequent experiments.

Formulation Notes:

JCSG-*plus* reagents are formulated using ultrapure water (>18.0 MΩ) and are sterile-filtered using 0.22 μm filters. No preservatives are added.

50% Stock solutions of Jeffamine are adjusted to pH 7.0 using HCl prior to inclusion in the reagents. 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 JCSG-*plus* formulation, interpretation of results or optimization strategies are welcome. Please e-mail, fax or phone your query to Molecular Dimensions.

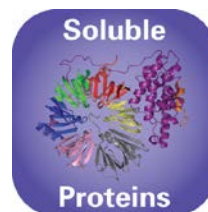
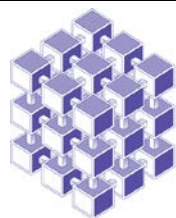
Contact and product details can be found at www.moleculardimensions.com

References.

1. Page *et al* (2003). Shotgun crystallization strategy for structural genomics: an optimized two-tiered crystallization screen against the *Thermotoga maritima* proteome. *Acta Cryst.* **D59**, 1028-1037
2. Newman *et al* (2005). Towards rationalization of crystallization screening for small- to medium-sized academic laboratories: the PACT/JCSG+ strategy. *Acta Cryst.* **D61**, 1426-1431
3. McPherson *et al* (2001). A comparison of salts for the crystallisation of macromolecules, *Protein Science* **10**, 418422
4. Crystallization of Nucleic Acids and Proteins, Edited by A. Ducruix and R. Giegé, The Practical Approach Series, Oxford Univ. Press, 1992
5. Protein Crystallization Techniques Strategies & Tips, Edited by Terese Bergfors, IUL 1999
6. Methods and Results in the Crystallization of Membrane Proteins, Edited by So Iwata, IUL 2003.

Hints & Tips:

The JCSG-*plus* sparse matrix screen is highly effective when used alongside a systematic screen such as PACT-*premier*. The two screens provide a thorough exploration of crystallization conditions and the unique design of PACT-*premier* facilitates rational interpretation of results from both itself and JCSG-*plus* assisting the design of subsequent experiments.

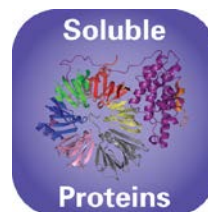


JCSG-plus Eco Screen

Conditions 1-48 (Box 1)

MD1-37-ECO

Tube #	Conc.	Salt	Conc.	Buffer	pH	Conc.	Precipitant
1-1	0.2 M	Lithium sulfate	0.1 M	Sodium acetate	4.5	50 % w/v	PEG 400
1-2		None	0.1 M	Sodium citrate	5.5	20 % w/v	PEG 3000
1-3	0.2 M	Ammonium citrate dibasic		None	-	20 % w/v	PEG 3350
1-4	0.02 M	Calcium chloride dihydrate	0.1 M	Sodium acetate	4.6	30 % v/v	MPD
1-5	0.2 M	Magnesium formate dihydrate		None	-	20 % w/v	PEG 3350
1-6	0.2 M	Lithium sulfate	0.1 M	Phosphate/citrate	4.2	20 % w/v	PEG 1000
1-7		None	0.1 M	CHES	9.5	20 % w/v	PEG 8000
1-8	0.2 M	Ammonium formate		None	-	20 % w/v	PEG 3350
1-9	0.2 M	Ammonium chloride		None	-	20 % w/v	PEG 3350
1-10	0.2 M	Potassium formate		None	-	20 % w/v	PEG 3350
1-11	0.2 M	Ammonium phosphate monobasic	0.1 M	Tris	8.5	50 % v/v	MPD
1-12	0.2 M	Potassium nitrate		None	-	20 % w/v	PEG 3350
1-13	0.8 M	Ammonium sulfate	0.1 M	Citrate	4.0		None
1-14	0.2 M	Sodium thiocyanate		None	-	20 % w/v	PEG 3350
1-15		None	0.1 M	BICINE	9.0	20 % w/v	PEG 6000
1-16		None	0.1 M	HEPES	7.5	10 % w/v	PEG 8000
1-17		None	0.1 M	MES	6.5	40 % v/v	MPD
1-18		None	0.1 M	Phosphate/citrate	4.2	40 % v/v	Ethanol
1-19		None	0.1 M	Sodium acetate	4.6	8 % w/v	PEG 4000
1-20	0.2 M	Magnesium chloride hexahydrate	0.1 M	Tris	7.0	10 % w/v	PEG 8000
1-21		None	0.1 M	Citrate	5.0	20 % w/v	PEG 6000
1-22	0.2 M	Magnesium chloride hexahydrate	0.1 M	MES	6.5	50 % v/v	PEG 200
1-23	1.6 M	Sodium citrate tribasic dihydrate		None	6.5		None
1-24	0.2 M	Potassium citrate tribasic monohydrate		None	-	20 % w/v	PEG 3350
1-25	0.2 M	Sodium chloride	0.1 M	Phosphate/citrate	4.2	20 % w/v	PEG 8000
1-26	1.0 M	Lithium chloride	0.1 M	Citrate	4.0	20 % w/v	PEG 6000
1-27	0.2 M	Ammonium nitrate		None	-	20 % w/v	PEG 3350
1-28		None	0.1 M	HEPES	7.0	10 % w/v	PEG 6000
1-29	0.8 M	Sodium phosphate monobasic monohydrate	0.1 M	Sodium HEPES	7.5		None
1-30		None	0.1 M	Phosphate/citrate	4.2	40 % v/v	PEG 300
1-31	0.2 M	Zinc acetate dihydrate	0.1 M	Sodium acetate	4.5	10 % w/v	PEG 3000
1-32		None	0.1 M	Tris	8.5	20 % v/v	Ethanol
1-33		None	0.1 M	Sodium/potassium phosphate	6.2	25 % v/v	1,2-Propanediol
1-34		None	0.1 M	BICINE	9.0	10 % w/v	PEG 20,000
1-35	2.0 M	Ammonium sulfate	0.1 M	Sodium acetate	4.6		None
1-36		None		None	-	10 % w/v	PEG 1000
1-37		None		None	-	10 % w/v	PEG 8000
1-38	0.2 M	Magnesium chloride hexahydrate	0.1 M	Sodium HEPES	7.5	24 % w/v	PEG 1500
1-39	0.2 M	Sodium chloride	0.1 M	Sodium/potassium phosphate	6.2	20 % v/v	Glycerol
1-40	0.2 M	Lithium sulfate	0.1 M	Sodium acetate	4.5	50 % v/v	PEG 200
1-41		None	0.1 M	HEPES	7.5	30 % w/v	PEG 8000
1-42	0.2 M	Magnesium chloride hexahydrate	0.1 M	Tris	8.5	70 % v/v	MPD
1-43	0.2 M	Lithium sulfate	0.1 M	Tris	8.5	20 % w/v	PEG 8000
1-44		None	0.1 M	Tris	8.5	40 % v/v	PEG 400
1-45	0.17 M	Ammonium sulfate		None	8.0	40 % v/v	MPD
1-46	0.2 M	Calcium acetate hydrate	0.1 M	MES	-	25.5 % w/v	PEG 4000
1-47	0.14 M	Calcium chloride dihydrate	0.07 M	Sodium acetate	4.6	15 % v/v	Glycerol
1-48	0.04 M	Potassium phosphate monobasic		None	-	40 % v/v	PEG 300
						14 % v/v	2-Propanol
						30 % v/v	Glycerol
						16 % w/v	PEG 8000
						20 % v/v	Glycerol



JCSG-plus Eco Screen

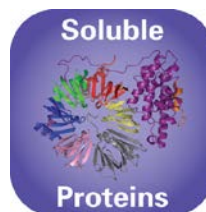
Conditions 1-48 (Box 2)

MD1-37-ECO

Tube #	Conc.	Salt	Conc.	Buffer	pH	Conc.	Precipitant
2-1	1.0 M	Sodium citrate tribasic dihydrate	0.1 M	MES	6.5		None
2-2	2.0 M	Ammonium sulfate	0.1 M	MES	6.5		None
	0.2 M	Sodium chloride					
2-3	0.2 M	Sodium chloride	0.1 M	HEPES	7.5	10 % v/v	2-Propanol
2-4	1.26 M	Ammonium sulfate	0.1 M	Tris	8.5		None
	0.2 M	Lithium sulfate					
2-5		None	0.1 M	CAPS	10.5	40 % v/v	MPD
2-6	0.2 M	Zinc acetate dihydrate	0.1 M	Imidazole	8.0	20 % w/v	PEG 3000
2-7	0.2 M	Zinc acetate dihydrate	0.1 M	MES	6.5	10 % v/v	2-Propanol
2-8	1.0 M	Ammonium phosphate dibasic	0.1 M	Sodium acetate	4.5		None
2-9	1.6 M	Magnesium sulfate heptahydrate	0.1 M	MES	6.5		None
2-10		None	0.1 M	BICINE	9.0	10 % w/v	PEG 6000
2-11	0.16 M	Calcium acetate hydrate	0.08 M	MES	6.5	14.4 % w/v	PEG 8000
						20 % v/v	Glycerol
						10 % w/v	PEG 8000
2-12		None	0.1 M	Imidazole	8.0	10 % w/v	PEG 8000
2-13	0.05 M	Cesium chloride	0.1 M	MES	6.5	30 % v/v	Jeffamine® M-600
2-14	3.2 M	Ammonium sulfate	0.1 M	Citrate	5.0		None
2-15		None	0.1 M	Tris	8.0	20 % v/v	MPD
2-16		None	0.1 M	HEPES	7.5	20 % v/v	Jeffamine® M-600
2-17	0.2 M	Magnesium chloride hexahydrate	0.1 M	Tris	8.5	50 % v/v	Ethylene glycol
2-18		None	0.1 M	BICINE	9.0	10 % v/v	MPD
2-19	0.8 M	Succinic acid		None	7.0		None
2-20	2.1 M	DL-Malic acid		None	7.0		None
2-21	2.4 M	Sodium malonate dibasic monohydrate		None	7.0		None
2-22	1.1 M	Sodium malonate dibasic monohydrate	0.1 M	HEPES	7.0	0.5 % v/v	Jeffamine® ED-2003
2-23	1.0 M	Succinic acid	0.1 M	HEPES	7.0	1 % w/v	PEG 2000 MME
2-24		None	0.1 M	HEPES	7.0	30 % v/v	Jeffamine® M-600
2-25		None	0.1 M	HEPES	7.0	30 % v/v	Jeffamine® ED-2003
2-26	0.02 M	Magnesium chloride hexahydrate	0.1 M	HEPES	7.5	22 % w/v	Poly(acrylic acid sodium salt) 5100
2-27	0.01 M	Cobalt(II) chloride hexahydrate	0.1 M	Tris	8.5	20 % w/v	Polyvinylpyrrolidone
2-28	0.2 M	TMAO	0.1 M	Tris	8.5	20 % w/v	PEG 2000 MME
2-29	0.005 M	Cobalt(II) chloride hexahydrate	0.1 M	HEPES	7.5	12 % w/v	PEG 3350
	0.005 M	Cadmium chloride hemi(pentahydrate)					
	0.005 M	Magnesium chloride hexahydrate					
	0.005 M	Nickel(II) chloride hexahydrate					
2-30	0.2 M	Sodium malonate dibasic monohydrate		None	-	20 % w/v	PEG 3350
2-31	0.1 M	Succinic acid		None	-	15 % w/v	PEG 3350
2-32	0.15 M	DL-Malic acid		None	-	20 % w/v	PEG 3350
2-33	0.1 M	Potassium thiocyanate		None	-	30 % w/v	PEG 2000 MME
2-34	0.15 M	Potassium bromide		None	-	30 % w/v	PEG 2000 MME
2-35	2.0 M	Ammonium sulfate	0.1 M	BIS-Tris	5.5		None
2-36	3.0 M	Sodium chloride	0.1 M	BIS-Tris	5.5		None
2-37	0.3 M	Magnesium formate dihydrate	0.1 M	BIS-Tris	5.5		None
2-38	1.0 M	Ammonium sulfate	0.1 M	BIS-Tris	5.5	1 % w/v	PEG 3350
2-39		None	0.1 M	BIS-Tris	5.5	25 % w/v	PEG 3350
2-40	0.2 M	Calcium chloride dihydrate	0.1 M	BIS-Tris	5.5	45 % v/v	MPD
2-41	0.2 M	Ammonium acetate	0.1 M	BIS-Tris	5.5	45 % v/v	MPD
2-42	0.1 M	Ammonium acetate	0.1 M	BIS-Tris	5.5	17 % w/v	PEG 10,000
2-43	0.2 M	Ammonium sulfate	0.1 M	BIS-Tris	5.5	25 % w/v	PEG 3350
2-44	0.2 M	Sodium chloride	0.1 M	BIS-Tris	5.5	25 % w/v	PEG 3350
2-45	0.2 M	Lithium sulfate	0.1 M	BIS-Tris	5.5	25 % w/v	PEG 3350
2-46	0.2 M	Ammonium acetate	0.1 M	BIS-Tris	5.5	25 % w/v	PEG 3350
2-47	0.2 M	Magnesium chloride hexahydrate	0.1 M	BIS-Tris	5.5	25 % w/v	PEG 3350
2-48	0.2 M	Ammonium acetate	0.1 M	HEPES	7.5	45 % v/v	MPD

Abbreviations: Bis Tris; Bis-(2-hydroxyethyl)imino-tris(hydroxymethyl)methane, **CAPS**; N-Cyclohexyl-3-aminopropanesulfonic acid, **CHES**; 2-(N-Cyclohexylamino)ethane Sulfonic Acid, **HEPES**; 2-(4-(2-Hydroxyethyl)-1-piperazinyl)ethanesulfonic Acid, **Na HEPES**; 2-(4-(2-Hydroxyethyl)-1-piperazinyl)ethanesulfonic Acid Sodium Salt, **MES**; 2-(N-morpholino)ethanesulfonic acid, **MPD**; 2,4-methyl pentanediol, **PEG**; Polyethylene glycol (2K, 6K, 8K and 10K correspond to the molecular weight, in thousands of Daltons, of PEG), **TMAO**: Trimethylamine N-oxide, **Tris**; 2-Amino-2-(hydroxymethyl)propane-1,3-diol.

N.B. Jeffamine ED-2001 has been superseded with Jeffamine ED-2003. Polyvinylpyrrolidone K15 is called Polyvinylpyrrolidone.



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



Re-Ordering details:

Catalogue Description Code	Pack size	Catalogue
JCSG- <i>plus</i>	96 x 10 mL	MD1-37
JCSG- <i>plus</i> HT-96	96 x 1 mL	MD1-40
Eco screens		
JCSG- <i>plus</i> Eco Screen	96 x 10 mL	MD1-37-ECO
JCSG- <i>plus</i> HT-96 Eco Screen	96 x 1 mL	MD1-40-ECO
Green screens (contain fluorescent green dye- ideal for UV)		
JCSG- <i>plus</i> Green screen	96 x 10 mL	MD1-56
JCSG- <i>plus</i> HT-96 Green screen	96 x 1 mL	MD1-53
Combo Packs		
Super2 Combo Value Pack (JCSG- <i>plus</i> + PACT- <i>premier</i>)	2 x 96 x 10 mL	MD1-75
Super2 Combo HT-96 Value Pack (JCSG- <i>plus</i> HT-96 + PACT- <i>premier</i> HT-96)	2 x 96 x 10 mL	MD1-75-HT
Single Reagents		
JCSG- <i>plus</i> single reagents	100 mL	MDSR-37-tube number
JCSG- <i>plus</i> single reagents	100 mL	MDSR-40-well number

For JCSG-*plus* stock solutions please visit the Optimization section on our website.