Macromolecular Crystallography

Catalog No. 3

- How to get started
- Initial Screening
- Hit Optimization
- Data Collection & Cryo Crystallography
- Phasing

IFTA AG
Certified QMS according to
DIN EN ISO 9001
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How to get started

Teaching

Protein Crystallization Starter Kit

Product	Cat. No.	Price (€)
Proteinkristallisations Starter Kit, Deutsche Version	CS-401DE	99,75
Protein Crystallization Starter Kit, English Version	CS-401EN	99,75
Kit d' initiation à la cristallisation des protéines, version française	CS-401FR	99,75

The **Protein Crystallization Starter Kit** is designed to introduce students to the field of protein crystallization. It contains all material you need to start to grow great looking Lysozyme crystals – a real highlight in Biology or Chemistry courses!

Two different experiments can be carried out using the Protein Crystallization Starter Kit:

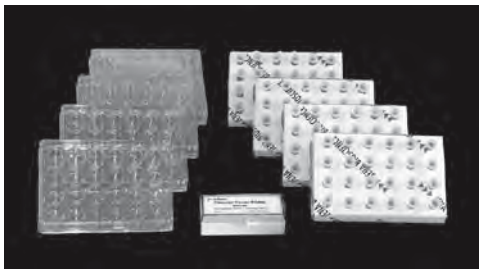
- Growing Lysozyme crystals using the hanging-drop method, demonstrating the dependence of nucleation and crystal growth on salt concentration and buffer pH
- Growing Lysozyme crystals within minutes using the batch crystallization method

The kit contains two crystallization plates, cover slides, a microscope slide, a syringe pre-filled with sealing grease, all necessary buffer and salt stock solutions and a small tube containing pre-filtered Lysozyme solution.

No pipettes necessary! – If you don't have pipettes, simply use the included microcapillaries to pipette your crystallization drops!

JBS Crystallization Freshman Kits

JBS Crystallization Freshman Kit - Junior



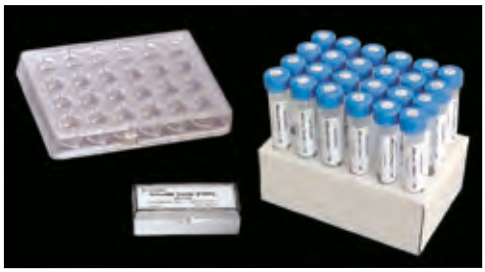
Product	Cat. No.	Price (€)
JBS Crystallization Freshman Kit – Junior	CSK-101	280,—

The **JBS Crystallization Freshman Kit – Junior** is addressed to newcomers in the field of protein crystallography. It is designed for screening of initial crystallization conditions of proteins, peptides, nucleic acids and macromolecular complexes in order to grow single crystals suitable for X-ray diffraction analysis.

The **JBS Crystallization Freshman Kit – Junior** contains the required material to crystallize your protein under investigation using the "Hanging Drop Method":

- four 24-well crystallization plates
- 100 thick siliconized cover slides
- 1ml each of 96 unique **JBScreen JCSG++** screening reagents
- a detailed User Guide

JBS Crystallization Freshman Kit – Scholar



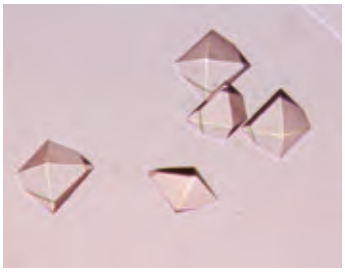
Product	Cat. No.	Price (€)
JBS Crystallization Freshman Kit – Scholar	CSK-102	900,—

The **JBS Crystallization Freshman Kit – Scholar** is the extended version of our JBS Crystallization Freshman Kit - Junior. It is addressed to newcomers in the field of protein crystallography who are interested in a rather extensive screening of one or more proteins, peptides, nucleic acids or macromolecular complexes in order to grow single crystals suitable for X-ray diffraction analysis.

The **JBS Crystallization Freshman Kit – Scholar** contains the required material for crystallization screening using the "Hanging Drop Method":

- forty 24-well crystallization plates
- 1000 thick siliconized cover slides
- five **JBScreen Classic Kits**, each containg 24 reagents at 10 ml
  - JBScreen Classic 1 (PEG 400 to PEG 3000 based)
  - JBScreen Classic 2 (PEG 4000 based)
  - JBScreen Classic 4 (PEG 5000 MME to 8000 based)
  - JBScreen Classic 6 (Ammonium Sulfate based)
  - JBScreen Classic 7 (MPD based)
- a detailed User Guide

Crystallization Model Proteins



Product	Cat. No.	Price (€)
Lysozyme	CO-401	50,—
Lipase B	CO-402	130,—
Xylanase	CO-403	60,—
Proteinase K	CO-404	240,—

Our **Crystallization Model Proteins** can be utilized in crystallization experiments as well as crystallization training and demos.

We offer 4 proteins which can be easily crystallized within days as lyophilized powder or in a stabilization buffer:

- Lysozym *(Chicken egg white)*
- Lipase B *(Candida antarctica)*
- Xylanase *(Trichoderma longibrachiatum)*
- Proteinase K *(Tritirachium album)*

Crystal Handling Kit

Product	Cat. No.	Price (€)
Crystal Handling Kit	CO-150	174,—

The **Crystal Handling Kit** will help you to acquire skills in protein crystallization, crystal mounting and data collection.

Each kit contains:

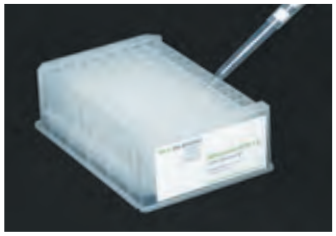
- 4 proteins, i.e. Lysozyme, Lipase B, Xylanase and Proteinase K
- optimized solubilization and crystallization buffers for each protein
- MicroMounts™ and Goniometer Bases, as well as
- a user manual with instructions for protein crystallization using the hanging-drop vapor diffusion method and crystal mounting using MiTeGen's MicroMounts™

Initial Screening

Crystallization Screens

JBScreen Family

The products of the **JBScreen family** are designed for efficient and flexible screening of crystallization conditions for proteins, peptides, nucleic acids, macromolecular complexes and water-soluble small molecules.



A broad sampling of crystallization space and select formulations proven to maximize the rate of success make JBScreen's the number one choice for academic and industrial labs around the world.

The high-quality reagents are prepared with great care ensuring elaborate and reproducible crystallization experiments.

- Chemicals used are of MicroSelect grade for Molecular Biology.
- Buffers are prepared as 1 M stock solutions. The pH is adjusted to the value indicated in the specification of the particular condition (23°C; Fisher pH electrode). pH values indicated are those of the buffer used, not those of the final JBScreen condition!
- Percentages given are w/v or v/v values as indicated in the data sheets.
- The final volume is adjusted with >18 MΩ × cm^{-1} water.
- Solutions are sterile filtered (0.2 µm filter) and filled under sterile conditions.
- All screens contain a detailed production report.

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Reg. No. IC 03214 034

The production of our screening reagents is examined by a stringent quality management system which is certified by **DIN EN ISO 9001**.

All our Screens include a detailed production report and data sheets.

The formulations of the unique reagents are listed in the appendix. → Please see page 40

JBScreen Classic

Product	Cat. No.	Price (€)
JBScreen Classic 1	CS-101L	150,—
JBScreen Classic 2	CS-102L	150,—
JBScreen Classic 3	CS-103L	150,—
JBScreen Classic 4	CS-104L	150,—
JBScreen Classic 5	CS-105L	150,—
JBScreen Classic 6	CS-106L	150,—
JBScreen Classic 7	CS-107L	150,—
JBScreen Classic 8	CS-108L	150,—
JBScreen Classic 9	CS-109L	150,—
JBScreen Classic 10	CS-110L	150,—
JBScreen Classic 1–5	CS-112L	565,—
JBScreen Classic 6–10	CS-113L	565,—
JBScreen Classic 1–10	CS-114L	890,—
JBScreen Classic HTS I S (1.0 ml per well)	CS-201S	140,—
JBScreen Classic HTS I L (1.7 ml per well)	CS-201L	225,—
JBScreen Classic HTS II S (1.0 ml per well)	CS-202S	140,—
JBScreen Classic HTS II L (1.7 ml per well)	CS-202L	225,—

Applications: Crystallization screening for proteins, peptides, nucleic acids, macromolecular complexes and water-soluble small molecules.

Formats:

Bulk – 1Kit contains 24 screening solutions at 10 ml aliquots.

HTS – a **compressed JBScreen Classic** delivered in 2 x 96 well master blocks (HTS I & HTS II).

HTS S: 1.0 ml per well

HTS L: 1.7 ml per well

The **JBScreen Classic** crystallization screening kits represent a comprehensive statistical compilation of the most successful crystallization conditions published.

The full JBScreen Classic system comprises 10 screening kits covering 240 conditions, with each kit containing 24 reagent formulations grouped according to precipitant type and concentration. The organization of the JBScreen Classic maximizes flexibility by allowing the user to selectively screen against specific precipitant classes. A zone-organized layout of the individual kit formulations also provides an opportunity to visualize the effects of conditions neighbouring a particular‚hit'.

Numerous **literature citations** show that JBScreen Classic has been successfully employed in crystallization experiments:

Marcia *et al.* (2009) The structure of Aquifex aeolicus sulfide:quinone oxidoreductase, a basis to understand sulfide detoxification and respiration. *Proc. Natl. Acad. Sci* **106**:9625.

Dunstan *et al.* (2009) Structure of the Thiostrepton Resistance Methyltransferase S-Adenosyl-L-methionine Complex and Its Interaction with Ribosomal RNA. *J. Biol. Chem.* **284**: 17013.

Vulliez-LeNormand *et al.* (2008) Structures of synthetic O-antigen fragments from serotype 2a Shigella flexneri in complex with a protective monoclonal antibody. *Proc. Natl. Acad. Sci.* **105**:9976.

Okada *et al.* (2007) Crystal Structure of the γ-Glutamyltranspeptidase Precursor Protein from Escherichia coli. *J. Biol Chem.* **282**:2433.

Smatanová *et al.* (2006) New techniques for membrane protein crystallization tested on photosystem II core complex of Pisum sativum. *Photosynth. Res.* **90**:255.

Ferraroni *et al.* (2005) Crystallization and preliminary structure analysis of the blue laccase from the ligninolytic fungus Panus tigrinus. *Acta Cryst. F* **61**:205.

Irimia *et al.* (2004) Methanoarchaeal sulfolactate dehydrogenase: prototype of a new family of NADH-dependent enzymes. *EMBO J* **23**:1234.

Vorup-Jensen *et al.* (2003) Structure and allosteric regulation of the aXb2 integrin I domain. *Proc. Natl. Acad. Sci. USA* **100**:1873.

JBScreen Basic

Product	Cat. No.	Price (€)
JBScreen Basic 1	CS-121	150,—
JBScreen Basic 2	CS-122	150,—
JBScreen Basic 3	CS-123	150,—
JBScreen Basic 4	CS-124	150,—
JBScreen Basic 1–4	CS-125	450,—
JBScreen Basic HTS S (1.0 ml per well)	CS-203S	140,—
JBScreen Basic HTS L (1.7 ml per well)	CS-203L	225,—

Applications: Crystallization screening for proteins, peptides, nucleic acids, macromolecular complexes and water-soluble small molecules.

Formats:

Bulk – 1Kit contains 24 screening solutions at 10 ml aliquots

HTS – 96 solutions of **JBScreen Basic 1–4** delivered in a 96 well masterblock (HTS I & HTS II).

HTS S: 1.0 ml per well

HTS L: 1.7 ml per well

JBScreen Basic has been formulated to comply with our customers' continuous interest in this particular sparse-matrix screen. The reagents of JBScreen Basic were selected based upon the protocol of Jancarik & Kim [1] and others [2]. Visit our web page to read more about the improvements we have made, such as the elimination of harmful cacodylate.

CyBio

JBScreen Basic has been used to crystallize various proteins with the **CyBi®-Crystal Creator** from CyBio AG [3]. Samples of Insulin, Alcohol Dehydrogenase, Phospholipase A2, Trypsin and Lysozyme at 10 mg/ml were crystallized using protein volumes as low as 0.1 µl.

All five proteins applied in the crystallization experiment yielded either micro crystals or well-shaped small crystals. Both the reagent selection and the software-controlled robotic system with its Graphical User Interface enabled easy and very efficient walk-away automation of the crystallization experiment.

Protein	No. of Hits produced by JBScreen Basic	
	room temperature	4°C
Insulin	7	4
Alcohol Dehydrogenase	7	2
Phospholipase A2	0	2
Trypsin	1	1
Lysozyme	1	17

References:

[1] Jancarik & Kim (1991) Sparse matrix sampling: a screening method for crystallization of proteins. *J. Appl. Cryst.* **4**:409.

[2] Cudney *et al.* (1994) Screening and optimization strategies for macromolecular crystal growth. *Acta Cryst. D* **50**:414.

[3] Kenklies *et al.* (2007) Application Note: Fully automated sitting drop protein crystallization with CyBi®-Crystal Creator using JBScreen Basic HTS Kit, www.cybio-ag.com

Selected Literature Citations of JBScreen Basic

Kumar *et al.* (2009) Crystallization and preliminary X-ray diffraction analysis of human seminal plasma protein PSP94. *Acta Cryst. F* **65**:389.

Squina *et al.* (2009) Expression, purification, crystallization and preliminary crystallographic analysis of an endo-1,5-α-L-arabinanase from hyperthermophilic Thermotoga petrophila. *Acta Cryst. F* **65:**902.

Feahnle *et al.* (2006) Examination of Key Intermediates in the Catalytic Cycle of Aspartate-β-semialdehyde Dehydrogenase from a Gram-positive Infectious Bacteria. *J. Biol. Chem.* **281**:31031.

Küttener *et al.* (2006) Crystallization and preliminary X-ray characterization of two thermostable DNA nucleases. *Acta Cryst. F* **62:**1290.

JBScreen Membrane

Product	Cat. No.	Price (€)
JBScreen Membrane 1	CS-301L	150,—
JBScreen Membrane 2	CS-302L	150,—
JBScreen Membrane 3	CS-303L	150,—
JBScreen Membrane 1–3	CS-306L	340,—
JBScreen Membrane 1–3 & Detergents 1–2	CS-307L	470,—
JBScreen Membrane HTS S (1.0 ml per well)	CS-305S	105,—
JBScreen Membrane HTS L (1.7 ml per well)	CS-305L	170,—

Applications: Effective crystallization screening for membrane proteins.

Formats:

Bulk – 1Kit contains 24 screening solutions at 10 ml aliquots

HTS – 72 solutions of **JBScreen Membrane 1–3** delivered in a 96 well masterblock

HTS S: 1.0 ml per well

HTS L: 1.7 ml per well

The **JBScreen Membrane** crystallization screening kits represent a compilation of the most successful published crystallization conditions for obtaining well-diffracting membrane protein crystals.

Similar to JBScreen Classic, the JBScreen Membrane kits are organized in terms of precipitant type and concentration. The powerful conditions and sensible layout make JBScreen Membrane a first choice for crystallization screening of membrane proteins. When used in combination with the **JBScreen Detergents** kits, a further dramatic enhancement of membrane protein crystallization potential is realized.

Selected Literature Citations of JBScreen Membrane

Cherezov *et al.* (2006) In Meso Structure of the Cobalamin Transporter, BtuB, at 1.95 Å Resolution. *J. Mol. Biol.* **364**:716.

JBScreen Kinase

Product	Cat. No.	Price (€)
JBScreen Kinase 1	CS-131	150,—
JBScreen Kinase 2	CS-132	150,—
JBScreen Kinase 3	CS-133	150,—
JBScreen Kinase 4	CS-134	150,—
JBScreen Kinase 1–4	CS-135	450,—
JBScreen Kinase HTS S (1.0 ml per well)	CS-204S	140,—
JBScreen Kinase HTS L (1.7 ml per well)	CS-204L	225,—

Applications: Crystallization screening for protein kinases.

Formats:

Bulk – 1Kit contains 24 screening solutions at 10 ml aliquots

HTS – 96 solutions of **JBScreen Kinase 1–4** delivered in a 96 well masterblock

HTS S: 1.0 ml per well

HTS L: 1.7 ml per well

JBScreen Kinase is a highly specialized screen formulated for the determination of initial crystallization conditions of protein kinases.

Through the use of advanced data mining, crystallization conditions of kinases have been identified from published structures. Data evaluation and verification resulted in the formulation of 96 unique reagents, highly effective for the crystallization of kinases.

JBScreen Kinase utilizes a variety of different precipitating agents, i.e. various molecular weight PEG's, MPD and Ammonium Sulfate, in combination with buffers covering a pH range from 3.1 – 10.0 and numerous additives.

JBScreen Phosphatase

Product	Cat. No.	Price (€)
JBScreen Phosphatase 1	CS-171	150,—
JBScreen Phosphatase 2	CS-172	150,—
JBScreen Phosphatase 3	CS-173	150,—
JBScreen Phosphatase 4	CS-174	150,—
JBScreen Phosphatase 1–4	CS-175	450,—
JBScreen Phosphatase HTS S (1.0 ml per well)	CS-208S	140,—
JBScreen Phosphatase HTS L (1.7 ml per well)	CS-208L	225,—

Applications: Crystallization screening for phosphatases.

Formats:

Bulk – 1Kit contains 24 screening solutions at 10 ml aliquots

HTS – 96 solutions of **JBScreen Phosphatase 1–4** delivered in a 96 well masterblock
HTS S: 1.0 ml per well
HTS L: 1.7 ml per well

JBScreen Phosphatase is a highly specialized crystallization screen ideally suited for phosphatases. 96 conditions have been selected from a comprehensive survey of successfully crystallized phosphatases.

JBScreen Phosphatase utilizes a variety of different precipitating agents, i.e. various molecular weight PEGs, MPD and Ammonium Sulfate, in combination with buffers covering a pH range from 4.0–11.0 and numerous additives. The reagents have been selected and indexed according to the main precipitant.

JBScreen Nuc-Pro

Product	Cat. No.	Price (€)
JBScreen Nuc-Pro 1	CS-181	150,—
JBScreen Nuc-Pro 2	CS-182	150,—
JBScreen Nuc-Pro 3	CS-183	150,—
JBScreen Nuc-Pro 4	CS-184	150,—
JBScreen Nuc-Pro 1–4	CS-185	450,—
JBScreen Nuc-Pro HTS S (1.0 ml per well)	CS-209S	140,—
JBScreen Nuc-Pro HTS L (1.7 ml per well)	CS-209L	225,—

Applications: Crystallization screening for preliminary crystallization conditions of nucleic acids and protein-nucleic acid complexes.

Formats:

Bulk – 1Kit contains 24 screening solutions at 10 ml aliquots

HTS – 96 solutions of **JBScreen Nuc-Pro 1–4** delivered in a 96 well masterblock
HTS S: 1.0 ml per well
HTS L: 1.7 ml per well

JBScreen Nuc-Pro is a highly effective sparse matrix screen based upon extensive screening of the PDB [1], with focus on entries by structural genomic initiatives, the BMCD [2] and other protocols [3–5]. Reported crystallization conditions for various RNAs, DNAs as well as protein-nucleic acid complexes were compiled and analyzed for rate of recurrence.

The 96 conditions selected cover a variety of polymers, mono- and divalent metal ions, organics, alcohols and buffers of a pH range from 4.0 to 8.5. The organization of the reagents into individual kits is based upon the main precipitant, i.e. various molecular weight PEGs, Salts, alcohols (MPD and 2-Propanol).

References:

[1] Berman *et al.* (2000) The Protein Data Bank. *Nucleic Acids Research* **28**:235.

[2] Gilliland *et al.* (1994) The Biological Macromolecule Crystallization Database, Version 3.0: New Features, Data, and the NASA Archive for Protein Crystal Growth Data. *Acta Cryst. D* **50**:408.

[3] Doudna *et al.* (1993) Crystallization of ribozymes and small RNA motifs by a sparse matrix approach. *Proc. Natl. Sci.* USA **90**:7829.

[4] Scott *et al.* (1995) Rapid Crystallization of Chemically Synthesized Hammerhead RNAs using a Double Screening Procedure. *J. Mol. Biol.* **250**:327.

[5] Ke *et al.* (2004) Crystallization of RNA and RNA-protein complexes. *Methods* **34**:408.

JBScreen PEG/Salt

Product	Cat. No.	Price (€)
JBScreen PEG/Salt 1	CS-141	150,—
JBScreen PEG/Salt 2	CS-142	150,—
JBScreen PEG/Salt 3	CS-143	150,—
JBScreen PEG/Salt 4	CS-144	150,—
JBScreen PEG/Salt 1–4	CS-145	450,—
JBScreen PEG/Salt HTS S (1.0 ml per well)	CS-205S	140,—
JBScreen PEG/Salt HTS L (1.7 ml per well)	CS-205L	225,—

Applications: Crystallization screening for soluble proteins.

Formats:

Bulk – 1Kit contains 24 screening solutions at 10 ml aliquots

HTS – 96 solutions of **JBScreen PEG/Salt 1–4** delivered in a 96 well masterblock
HTS S: 1.0 ml per well
HTS L: 1.7 ml per well

JBScreen PEG/Salt is an effective and universal reagent kit designed for initial screening of crystallization conditions of biological macromolecules.

It comprises high-purity PEG 3350 and PEG 5000 MME, each combined with 48 different salts, thus covering a range of anions and cations most frequently used in bio-crystallography. The unique combination of the reagents allows screening of PEG versus ionic strength, ion type and pH.

JBScreen Pentaerythritol

Product	Cat. No.	Price (€)
JBScreen Pentaerythritol 1 (PEP 426 based)	CS-191	150,—
JBScreen Pentaerythritol 2 (PEP 629 based)	CS-192	150,—
JBScreen Pentaerythritol 3 (PEE 270 based)	CS-193	150,—
JBScreen Pentaerythritol 4 (PEE 797 based)	CS-194	150,—
JBScreen Pentaerythritol 1–4	CS-195	450,—
JBScreen Pentaerythritol HTS S (1.0 ml per well)	CS-210S	140,—
JBScreen Pentaerythritol HTS L (1.7 ml per well)	CS-210L	225,—

Applications: Crystallization screening of peptides, proteins, membrane proteins and macromolecular complexes based on pentaerythritol polymers as precipitants.

Formats:

Bulk – 1Kit contains 24 screening solutions at 10 ml aliquots

HTS – 96 solutions of **JBScreen Pentaerythritol 1–4** delivered in a 96 well masterblock
HTS S: 1.0 ml per well
HTS L: 1.7 ml per well

JBScreen Pentaerythritol has been designed for efficient crystallization screening of biological macromolecules based on pentaerythritol polymers as precipitants. The screen was developed by Ulrike Demmer from the Max-Planck-Institute for Biophysics in Frankfurt.

The choice of a suitable precipitant is of crucial importance for the crystallization of proteins. **JBScreen Pentaerythritol** utilizes two novel precipitating agents, i.e. pentaerythritol propoxylate and pentaerythritol epoxylate. Both are branched polymers containing a pentaerythritol backbone. Thus they differ from more traditional precipitants like MPD and PEG's in size and nature.

The successful application of pentaerythritols to yield protein crystals was first described by Gulick *et al.* [1]. Pentaerythritol polymers are also very effective in membrane protein crystallization, i.e. pentaerythritol ethoxylate has been successfully employed as precipitant to crystallize cbb_3 Cytochrome Oxidase [2].

In addition, pentaerythritol polymers function as cryoprotectants. Protein crystals grown in high concentrations of these precipitants can be frozen directly from the crystallization drop.

JBScreen Pentaerythritol comprises of 96 unique conditions, based on 4 different pentaerythritol polymers as precipitating agent:

- Pentaerythritol propoxylate 426 (5/4 PO/OH)
- Pentaerythritol propoxylate 629 (17/8 PO/OH)
- Pentaerythritol ethoxylate 270 (3/4 EO/OH)
- Pentaerythritol ethoxylate 797 (15/4 EO/OH)

The 4 polymers are arranged to a grid screen, thus allowing screening i) of three different precipitant concentrations, ii) four different pH values and iii) with and without the addition of salts, i.e. magnesium chloride, ammonium sulfate, potassium chloride.

The advantage of **JBScreen Pentaerythriol** not only lies in the novel 96 conditions but also in the systematic arrangement of the unique reagents, which enables the user to compare individual conditions directly. Even if initial screening may not always yield crystals, valuable information about the protein under investigation can be obtained from the scoring sheet.

All **JBScreen Pentaerythritol** screening kits include a detailed production report and data sheets.

References:

[1] Gulick *et al.* (2002) Pentaerythritol propoxylate: a new crystallization agent and cryoprotectant induces crystal growth of 2-methylcitrate dehydratase. *Acta Cryst. D* **58**:306.

[2] Buschmann *et al.* (2010) The Structure of cbb_3 Cytochrome Oxidase Provides Insights into Proton Pumping. *Science* DOI: **10**.1126/science.1187303

JBScreen Cryo

Product	Cat. No.	Price (€)
JBScreen Cryo 1	CC-103	150,—
JBScreen Cryo 2	CC-104	150,—
JBScreen Cryo 3	CC-105	150,—
JBScreen Cryo 4	CC-106	150,—
JBScreen Cryo 1–4	CC-107	450,—
JBScreen Cryo HTS S (1.0 ml per well)	CC-201S	140,—
JBScreen Cryo HTS L (1.7 ml per well)	CC-201L	225,—

Applications: Crystallization screening for proteins, peptides, nucleic acids, macromolecular complexes and water-soluble small molecules with cryo-ready reagents.

Formats:

Bulk – 1Kit contains 24 screening solutions at 10 ml aliquots

HTS – 96 solutions of **JBScreen Cryo 1–4** delivered in a 96 well masterblock
HTS S: 1.0 ml per well
HTS L: 1.7 ml per well

The employment of cryo-techniques is not only used to carefully preserve and store crystals for later analysis but also to reduce radiation damage, caused by intense X-ray sources, since the diffusion of active radicals is decelerated. Therefore, cryocooling prolongs crystal lifetime and facilitates straightforward data collection [1].

However, the use of cryoprotectants is crucial to prevent crystals from cracking and to protect them from the damaging effects of ice formation during the cryocooling process. The right cryoprotectant will guarantee that the thin layer of mother liquor, which surrounds the protein, will form an amorphous glass without the formation of water ice. Thus, X-ray data free of "ice rings" can be collected.

JBScreen Cryo is designed for efficient crystal screening in the presence of various cryoprotectants. The unique formulations of the JBScreen Cryo reagents are based on an extensive data base search [2] and contain sufficiently high concentrations of cryoprotectants allowing direct transfer of crystals from the crystallization drop into liquid nitrogen.

References:

[1] Garman (1999) Cool data: quantity AND quality. *Acta Cryst. D* **55**:1641.

[2] http://idb.exst.jaxa.jp/db_data/protein/search-e.php

JBScreen PACT++

Product	Cat. No.	Price (€)
JBScreen PACT++ 1	CS-161	150,—
JBScreen PACT++ 2	CS-162	150,—
JBScreen PACT++ 3	CS-163	150,—
JBScreen PACT++ 4	CS-164	150,—
JBScreen PACT++ 1–4	CS-165	450,—
JBScreen PACT++ HTS S (1.0 ml per well)	CS-207S	140,—
JBScreen PACT++ HTS L (1.7 ml per well)	CS-207L	225,—

Applications: Crystallization screen facilitating systematic pH, anion- and cation testing in the presence of polyethylene glycol (PEG).

Formats:

Bulk – 4 Kits containing 24 screening solutions each at 10 ml aliquots

HTS – 96 solutions of **JBScreen PACT++ 1–4** delivered in a 96 well masterblock
HTS S: 1.0 ml per well
HTS L: 1.7 ml per well

JBScreen PACT++ is based on the work of Newman *et al.* [1]. The 96 unique crystallization conditions combine three mini-screens in one:

1. 24-condition PEG/pH screen
2. 24-condition PEG/cation screen
3. 48-condition PEG/anion screen

This systematic approach aims to alter individual components of the crystallization conditions, i.e. pH, anions and cations, independently from the others in order to obtain more information of the precipitation behaviour of the protein.

When **JBScreen PACT ++** is used along with **JBScreen JCSG ++**, systematic investigation of the precipitation behaviour of the protein can be combined with a sparse matrix screen in order to enhance the success rate of protein crystallization.

References:

[1] Newman *et al.* (2005) Towards rationalization of crystallization screening for small- to medium-sized academic laboratories: the PACT/JCSG+ strategy. *Acta Cryst. D* **61**:1426.

JBScreen JCSG ++

Product	Cat. No.	Price (€)
JBScreen JCSG++ 1	CS-151	150,—
JBScreen JCSG++ 2	CS-152	150,—
JBScreen JCSG++ 3	CS-153	150,—
JBScreen JCSG++ 4	CS-154	150,—
JBScreen JCSG++ 1–4	CS-155	450,—
JBScreen JCSG++ HTS S (1.0 ml per well)	CS-206S	140,—
JBScreen JCSG++ HTS L (1.7 ml per well)	CS-206L	225,—

Applications: Crystallization screening for biological macromolecules.

Formats:

Bulk – 4 Kits containing 24 screening solutions each at 10 ml aliquots

HTS – 96 solutions of **JBScreen JCSG++ 1–4** delivered in a 96 well masterblock
HTS S: 1.0 ml per well
HTS L: 1.7 ml per well

JBScreen JCSG++ is a opimized sparse matrix screen developed by researchers from the Joint Center for Structural Genomics (JCSG) [1] and from the European Genomics Consortium [2].

96 reagents have been selected with the aim and to maximize the coverage of the crystallization parameter space and to reduce the redundancy of crystallization conditions within commercially available crystallization screens. Thus, a core set of 66 conditions used by the JCSG for high-throughput structural determination [1] was extended to 96 screening conditions in order to round off the pH profile and to incorporate different precipitants such as succinate, malonate and formate.

When **JBScreen JCSG ++** is used along with **JBScreen PACT ++**, the benefits of a sparse matrix screen can be combined with the systematic investigation the precipitation behaviour of the protein.

References:

[1] Page *et al.* (2004) Shotgun crystallization strategy for structural genomics: an optimized two-tiered crystallization screen against the Thermotoga maritima proteome. *Acta Cryst. D* **59**:1028.

[2] Newman *et al.* (2005) Towards rationalization of crystallization screening for small- to medium-sized academic laboratories: the PACT/JCSG+ strategy. *Acta Cryst. D* **61**:1426.

Emerald BioSystems Crystal Growth Matrices

All **Emerald BioSystems Screens** have been prepared with ultra-pure chemicals and water (18.2 MΩ × cm^{-1}) followed by sterile 0.2 micron filtration into either sterile 15 ml tubes or into sterile 96 deep well matrix block plates that are sealed with a sterile reusable matte cover.

The high-quality reagents are prepared with great care ensuring elaborate and reproducible crystallization experiments.

Please note: *Jena Bioscience is not enabled to sell Emerald products to US and Japan! Customers in these countries please contact Emerald BioSystems for distributor information.*

Wizard™ I + II

Product	Cat. No.	Price (€)
Wizard™ I (48 formulations, 10 ml each)	EBS-WIZ-I	341,—
Wizard™ II (48 formulations, 10 ml each)	EBS-WIZ-II	341,—
Wizard™ I + II (all 96 reagents, 10 ml each)	EBS-WIZ-F	660,—
Full Wizard™ I & Wizard™ II Kit in 96 well block plate (96 formulations, 1.0 ml each)	EBS-BWZ	205,—

Each Crystallization matrix for Wizard™ I & Wizard™ II contains:

- 48 unique formulations, 10 ml each
- 2 ml each of a light silicone oil and a heavy paraffin oil for use in modulating vapor diffusion rates

Each matrix block contains:

- 1.7 ml of all 96 solutions from the Wizard™ I & Wizard™ II screens

Wizard™ Screen I & II are highly effective random sparse matrices for the crystallization of biological macromolecules (proteins, nucleic acids, peptides and combinations thereof). Sixteen different crystallants and eleven different buffers, ranging from pH 4.5 to pH 10.5, ensure a broad sampling of crystallization space.

U.S. PATENT 6,267,935

Wizard™ III + IV

Product	Cat. No.	Price (€)
Wizard™ III (48 formulations, 10 ml each)	EBS-WIZ-III	341,—
Wizard™ IV (48 formulations, 10 ml each)	EBS-WIZ-IV	341,—
Wizard™ EXT III + IV (96 formulations of Wizard III & IV, 10 ml each)	EBS-WIZ-EXT	660,—
Wizard III & IV in 96 Well Block Plate (96 formulations of Wizard III & IV, 1ml per well)	EBS-BWZ-EXT	205,—
Wizard Suite (Wizard I, II, III and IV in two 96 Well Block Plates 1.0 ml per well)	EBS-BWZ-STE	385,—

Wizard™ III is a random sparse matrix for the crystallization of biological macromolecules (proteins, nucleic acids, peptides and combinations thereof). This solution set is comprised of 48 published formulations which have been proven to be highly effective for use in the initial screening of biological macromolecules [1,2].

Wizard™ VI complements the Wizard I, II and III random sparse matrices with 48 new and highly effective formulations for protein crystal growth.

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. D* **59**:1028.

[2] Wooh *et al.* (2003) Comparison of three commercial sparse-matrix crystallization screens. *Acta Cryst. D* **59**:769.

Ozma™ PEG-Series

Product	Cat. No.	Price (€)
Ozma™ PEG 48-Salt Screen with PEG 1K & 4K (1.0 ml per well)	EBS-PEG-14BLK	245,—
Ozma™ PEG 48-Salt Screen with PEG 8 & 10 K (1.0 ml per well)	EBS-PEG-810BLK	245,—
Full Ozma™ PEG-Series 48-Salt (1.0 ml per well in two 96 Well Matrix Block Plates)	EBS-PEG-48BLK	490,—

The **Ozma™ PEG-Series 48-Salt Screens** are formulated using one of four different Mwt PEG's; 30%(w/v) PEG-1000, 20%(w/v) PEG-4000, 20%(w/v) PEG-8000, or 10%(w/v) PEG-10,000 plus 48 different salts. These protein crystal growth matrices provide excellent coverage of a broad range of PEG molecular weights (1K to 10K) at known optimal concentrations for protein crystal growth, in combination with 48 different salts. The cationic components of the salts include coverage of Ammonium, Calcium, Lithium, Potassium, Sodium, Magnesium, and Zinc. The anionic components the salts include coverage of Acetate, Chloride, Fluoride, Formate, Iodide, Nitrate, Phosphate (mono- and di-basic), Sulfate, Tartrate, Thiocyanate, Citrate, and Isothiocyanate.

Precipitant Synergy™

Product	Cat. No.	Price (€)
Precipitant Synergy™ Primary 64 (64 formulations, 10 ml each)	EBS-TPS-P1	635,—
Precipitant Synergy™ Primary 64 in 96 well block plate (64 formulations, 1.0 ml per well)	EBS-BPS-P1	205,—
Precipitant Synergy™ Expanded 192 (192 formulations, 10 ml each)	EBS-TPS-E	1.650,—
Precipitant Synergy™ Expanded 192 in 96 well block plate (192 formulations, 1.0 ml per well)	EBS-BPS-E	560,—

Precipitant Synergy™ uses synergistic combinations of mechanistically distinct precipitating agents to obtain crystallization hits from a starter set of 64 different formulations. Each Precipitant Synergy™ (PS) formulation contains a carefully selected combination of at least two mechanistically distinct precipitating agents including:

- Salts that affect the activity coefficient of water at high concentration
- Organic solvents which alter the dielectric constant of the solvating medium
- PEGs which operate by increasing molecular crowding

Experiments with 10 different proteins showed that the Precipitant Synergy™ screen roughly triples the number of different crystals obtained compared to other screens [1].

Each of the 64 formulations in the **Primary PS** screen are prepared with precipitants at a fairly high concentration, close to their maximum solubility, in order to reach or exceed the protein's precipitation point. The 64 PS formulations also encompass a broad pH range from 5.5 to 8.5, with a diverse array of eight different buffering agents.

Rapid optimization of initial hits (precipitation and/or crystallization) is achieved by either serial dilution of the lead Primary PS formulation, or by re-screening with **Expanded PS** formulations that contain precipitating agents at 67% or 33% of their primary concentration, while holding the buffer and additive compositions constant. Hence, the 192-formulaion Expanded format has three sets of the 64 PS formulations with precipitant concentrations at 100% (Primary 64), 67%, or 33%.

References:

[1] Majeed *et al.* (2003) Enhancing Protein Crystallization through Precipitant Synergy. *Structure* **11**:1061.

Cryo™ I & II

Product	Cat. No.	Price (€)
Cryo™ I	EBS-CRYO-I	340,—
Cryo™ II	EBS-CRYO-II	340,—
Cryo™ I + II	EBS-CRYO-F	630,—
Cryo™ I + II in 96 well block plate (1.0 ml per well)	EBS-BCY	205,—

Each Crystallization matrix for Cryo™ I & Cryo™ II contains:

- 48 unique formulations, 10 ml each
- 2 ml each of a Light Silicone Oil and a Heavy Parafin Oil for use in modulating vapor diffusion rates.

Each matrix block contains:

- The full 96 unique formulations of the Cryo™ I & II screens. Sparse matrices for the crystallization of biological macromolecules. Every formulation will flash-freeze to a clear amorphous glass in liquid nitrogen or in the cryo-stream at 100 K. Eleven different cryocrystallants and sparing use of glycerol ensures a broad sampling of possible cryo conditions. Crystals can be frozen directly from their growth chambers, thus avoiding the additional step of pre-equilibration with an artificial cryo-solvent that can damage the crystal.

U.S. PATENT 6,267,935.

Cubic™ Screen & Cubic™ LCP Kit

Product	Cat. No.	Price (€)
Cubic™ Screen in 96 well block (1.0 ml per well)	EBS-BLCP	205,—
Cubic™ LCP Kit	EBS-LCP-2	1.980,—
Cubic™ LCP Mixer Union (Patented Mixer Union Replacement for LCP Kit)	EBS-LCP-Union	935,—

Each **Cubic™ LCP Kit contains:**

- Two 250 µl Hamilton syringes with a mixer union for the preparation of the LCP
- Ratchet dispenser with 10 µl syringe and short needle to dispense the LCP
- One 10 µl microsyringe pipette
- 100 mg monolein
- Ten microtrays
- Cubic™ Screen formulation matrix block
- Oil and tape
- Instructions and technical sheets

The **Cubic™ Screen** is a random sparse matrix for the crystallization of biological macromolecules, with or without lipidic matrices such as the lipidic cubic phase. The Cubic™ Screen is a set of 96 formulations compatible with monoolein-based lipidic cubic phases. [1]

The complete **Cubic™ LCP Kit** contains all tools, formulations, and lipid to prepare micro-crystallization experiments according to the LCP micro method. Biological macromolecules are first incorporated into a lipidic material, and in a second step the LCP is dispensed in portions of approximately 200 nl. The LCP forms spontaneously and acts as a matrix supporting the crystallization of soluble and membrane proteins.

References:

[1] Nollert *et al.* (2002) Crystallization of membrane proteins in cubo. *Meth. Enzymol.* **343**:183.

Individual Screen Conditions

Product	Cat. No.	Price (€)
Individual Jena Bioscience Screen Condition, 10 ml	CS-IND-10ML	63,—
Individual Jena Bioscience Screen Condition, 100 ml	CS-IND-100ML	136,50
Individual Emerald BioSystems Screen Condition, 200 ml	EBS-M200	220,—
Individual Emerald BioSystems Screen Condition, 500 ml	EBS-M500	440,—

Applications: Convenient reproduction and optimization of crystallization conditions.

Formats:

Jena Bioscience individual conditions: 10 ml and 100 ml volumes

Emerald individual conditions: 200 ml and 500 ml volumes

Access to individual screen conditions in larger volumes is important when it comes to reproducing initial hits and starting crystallization optimization, or for soaking experiments.

Individual conditions are available for the following Jena Bioscience screens...

- **JBScreen Classic**
- **JBScreen Basic**
- **JBScreen Membrane**
- **JBScreen Kinase**
- **JBScreen Phosphatase**
- **JBScreen Nuc-Pro**
- **JBScreen PEG/Salt**
- **JBScreen Pentaerytritol**
- **JBScreen Cryo**
- **JBScreen PACT++**
- **JBScreen JCSG++**

...and Emerald BioSystems screens:

- **Wizard™**
- **Ozma™**
- **Precipitant Synergy™**
- **Cryo™**
- **Cubic™**

Solutions are made from identical chemicals as the conditions in the original screens.

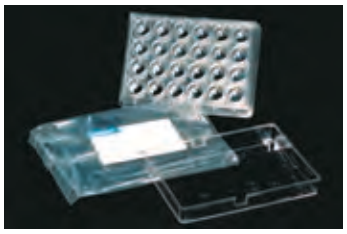
Upon ordering, please indicate which condition from which screen you wish to purchase!

Crystallization Plates & Accessories

Cat.- No.	Plate name	Manufacturer	Max. reservoir volume	# Protein wells per reservoir	Protein well volume	Material / Treatment
24 Well Plates						
CPL-101(S/L)	Linbro Plate	MP Biomedicals	3500 µl	-	-	Polystyrene
CPL-119	ComboPlate™ – 662150	Greiner Bio-One	3300 µl	-	-	Polystyrene
CPL-131	ComboPlate™ – 662050, pregreased	Greiner Bio-One	3300 µl	-	-	Polystyrene
CPL-143	ComboPlate™ – 662850	Greiner Bio-One	3300µl	-	-	LBR
CPL-130	Crystalgen SuperClear™ Plates	Crystalgen	3500 µl	-	-	Polystyrene
CPL-132	Crystalgen SuperClear™ Plates, pregreased	Crystalgen	3500 µl	-	-	Polystyrene
CPL-102	CombiClover™ Plate	Emerald BioSystems	1500 µl	4	50 µl	Polypropylene
CPL-103	CompactClover™ Plate	Emerald BioSystems	250 µl	4	50 µl	Polypropylene
CPL-105	CombiClover, Jr.™ Plate	Emerald BioSystems	500 µl	4	10 µl	Polypropylene
48 Well Plates						
CPL-154S/L	MRC Maxi Plate	SWISSCI	200 µl	1	10 µl	UVP
CPL-155S/L	MRC Maxi Plate	SWISSCI	200 µl	1	10 µl	Polystyrene
CPL-138(S/L)	CrystalPlate 48	Axygen Biosciences	1500 µl	-	-	Polystyrene
96 Well Plates						
CPL-118(S/L)	CrystalQuick™ – 609101	Greiner Bio-One	320 µl	3	4,1 µl	Polystyrene
CPL-107(S/L)	CrystalQuick™ – 609120	Greiner Bio-One	320 µl	3	1,9 µl	Polystyrene
CPL-108(S/L)	CrystalQuick™ – 609171	Greiner Bio-One	140 µl	1	3,9 µl	Polystyrene
CPL-120(S/L)	CrystalQuick™ – 609801	Greiner Bio-One	320 µl	3	4,1 µl	LBR
CPL-121(S/L)	CrystalQuick™ – 609820	Greiner Bio-One	320 µl	3	1,9 µl	LBR
CPL-122(S/L)	CrystalQuick™ – 609871	Greiner Bio-One	140 µl	1	3,9 µl	LBR
CPL-123(S/L)	CrystalQuick™ – 609130	Greiner Bio-One	320 µl	3	4,1 µl	Hydrophobic Surface
CPL-124(S/L)	CrystalQuick™ – 609830	Greiner Bio-One	320 µl	3	4,1 µl	LBR & Hydrophobic S.
CPL-125(S/L)	CrystalQuick™ – 609180	Greiner Bio-One	140 µl	1	3,9 µl	Hydrophobic Surface
CPL-126(S/L)	Corning® Plate 3773	Corning Life Science	210 µl	1	10 µl	Advanced Polymer
CPL-127(S/L)	Corning® Plate 3785	Corning Life Science	210 µl	1	7 µl	Advanced Polymer
CPL-109(S/L)	Corning® Plate 3556	Corning Life Science	100 µl	1	4 µl	Hydrophobic COC
CPL-110(S/L)	Corning® Plate 3551	Corning Life Science	100 µl	1	4 µl	Hydrophobic COC
CPL-111(S/L)	Corning® Plate 3552	Corning Life Science	100 µl	3	2 µl	PZero Polymer
CPL-112(S/L)	Corning® Plate 3553	Corning Life Science	100 µl	3	2 µl	PZero Polymer
CPL-114(S/L)	Corning® Plate 3555	Corning Life Science	100 µl	3	2 µl	PZero Polymer
CPL-115(S/L)	Corning® Plate 3557	Corning Life Science	100 µl	5	1 µl	PZero Polymer
CPL-116(S/L)	Corning® Plate 3550	Corning Life Science	100 µl	5	1 µl	PZero Polymer
CPL-133	CrystalClear 'Duo'	Douglas Instruments	100 µl	2	2 µl	Polystyrene
CPL-134	CrystalClear 'P'	Douglas Instruments	100 µl	1	2 µl	Polystyrene
CPL-135(S/L)	AxyGem™ Crystallography Plate	Axygen Biosciences	250 µl	1	4,3 µl	Polystyrene
CPL-139(L)	MRC 2 Well Crystallization Plate	SWISSCI	80 µl	2	5 µl	UVP
CPL-153(S/L)	MRC 2 Well Crystallization Plate	SWISSCI	80 µl	2	5 µl	Polystyrene
CPL-149(S/L)	3 Well Crystallization Plate	SWISSCI	50-100µl	3	bis 5µl	UVP
CPL-150(S/L)	3 Well Crystallization Plate	SWISSCI	50-100µl	3	bis 5µl	Polystyrene
CPL-151	HDP Hanging Drop Crystallization Plate	SWISSCI	200µl	-	bis 5µl	UVP
CPL-156	Lipidic Cubic Phase Screening Kit	SWISSCI	—	—	1,6µl	UVP
CPL-106	CompactClover, Jr.™ Plate	Emerald BioSystems	300 µl	1	6 µl	Polypropylene
Microbatch						
CPL-152(S/L)	MRC Under Oil Crystallization Plate	SWISSCI	—	—	100 bis 500 nl	UVP
CPL-117(S/L)	Imp@ct™ Plate – 673170	Greiner Bio-One	—	—	8 µl	Polystyrene
CPL-144(S/L)	Imp@ct™ Plate – 673096, black, 96 well	Greiner Bio-One	—	—	8 µl	Polystyrene
CPL-145(S/L)	Imp@ct™ Plate – 790801, LBR, 1536 well	Greiner Bio-One	—	—	10,1 µl	Polystyrene
CPL-146	Terasaki – 653102, 60 well	Greiner Bio-One	—	—	11,45 µl	Polystyrene
CPL-147	Terasaki – 654102, 72 well	Greiner Bio-One	—	—	11,45 µl	Polystyrene
CPL-148	Terasaki – 654180, 72 well	Greiner Bio-One	—	—	10µl	Polystyrene
CPL-128(S/L)	Vapor Batch Plate, hydrophobic	Douglas Instruments	—	—	9,3 µl	Hydrophobic Surface
CPL-129(S/L)	Vapor Batch Plate, hydrophilic	Douglas Instruments	—	—	9,3 µl	Polystyrene

24 Well Plates

Linbro Plates



Product	Cat. No.	Amount	Price (€)
Linbro Plate, S pack	CPL-101S	10	60,—
Linbro Plate, L pack	CPL-101L	50	230,—

The standard 24 well plate for hanging-drop crystallizations:

- made of optically clear polystyrene
- wells are labeled by lettered rows A–D and numbered columns 1–6
- wells can be sealed with 22 mm circular cover slides
- each plate is individually sealed in a sterile bag

ComboPlates™ and CrystalBridges™

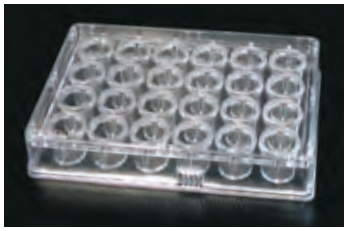
Product	Cat. No.	Amount	Price (€)
Greiner 662150 – ComboPlate™	CPL-119	24	65,—
Greiner 662050 – ComboPlate™, pregreased	CPL-131	24	180,—
Greiner 662850 - ComboPlate™, LBR	CPL-143	24	165,—
Greiner CrystalBridge™, 45 µl	CPB-119	100	70,—

The **ComboPlate™** is a universal 24 well protein crystallization microplate for hanging and sitting drop vapor diffusion within a standardized footprint. Virgin, high clarity styrene combined with a distortion-free bottom provides excellent optical properties for microscopic inspection of crystal growth.

Flat, raised rings around each well minimize spills and cross-contamination. 18 mm cover slides or a clear sealing tape can be used to separately seal each reservoir. A slightly raised protection lid prevents scratches and shifting of the seal during stacking or transportation.

CrystalBridge™ inserts, necessary for sitting drop crystallization, fit neatly into the wells of ComboPlate™. Each CrystalBridge™ features a round bottom indentation to accommodate 45 µl of sample. A CrystalBridge™ can be easily transferred to another well during or after the crystallization event.

SuperClear™ Crystallization Plates

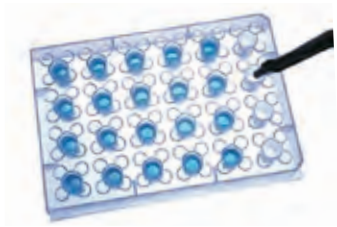


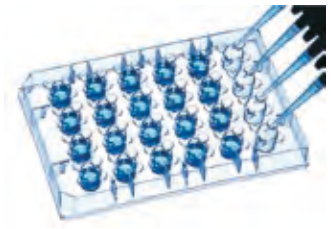
Product	Cat. No.	Amount	Price (€)
Crystalgen SuperClear™ Plates	CPL-130	100	230,—
Crystalgen SuperClear™ Plates, pregreased	CPL-132	100	360,—

The **SuperClear™ 24** well plates are designed for hanging drop vapor diffusion. They are made of crystal clear polystyrene with stackable edges. Each plate is individually wrapped. The plates have wide, raised rings that allow secure sealing of wells using 22 mm cover slides.

The **SuperClear™ pregreased** 24 well plates are ready to use. A bead of high vacuum grease is applied to the ring of the reservoir with a novel printing technology (Patent pending). This allows sealing of the reservoir secure and leak-proof.

Clover™ Plates





Product	Cat. No.	Amount	Price (€)
CombiClover™ Plate (includes one roll of sealing tape, 3" wide)	CPL-102	20	150,—
CompactClover™ Plate (includes one roll of sealing tape, 3" wide)	CPL-103	20	150,—
Clover™ plate combo pack (10 CombiClover™ plates and 10 CompactClover™ plates plus one roll of sealing tape, 3" wide)	CPL-104	10+10	150,—
CombiClover™ Junior Plate (includes one roll of sealing tape, 3" wide)	CPL-105	16	140,—

The **CombiClover™** crystallization plates utilize a patented sitting-drop well design. A central reservoir is connected to four satellite drop chambers via dedicated vapor diffusion channels to create a novel combinatorial "crystallization clover". Each plate has 24 of the described clovers, providing 96 flat-bottom sitting drop chambers. The unique design allows four different crystallization experiments to occur within each clover providing maximum efficacy and conservation of crystallization solutions.

- Plate dimensions are 120.0 mm x 165.0 mm x 24.0 mm
- The central reservoir volume is 1.5 ml
- The satellite drop chamber volume is 50 µl

The **CombiClover, Jr.™** crystallization plates offer the exact same design and utility as the CombiClover™ crystallization plates, but have a smaller capacity in the reservoir and drop chambers.

- Plate dimensions are 85.5 mm x 127.8 mm x 14.4 mm
- Plates are compatible with SBS standard laboratory automated instrumentation
- Drop chambers are 9 mm apart and reservoir chambers are 18 mm apart in both horizontal and vertical directions for easy use with multi-channel pippetors
- The central reservoir volume is 500 µl
- The satelite drop chamber volume is 10 µl

The **CompactClover™** crystallization plate differs from the CombiClover™ plates because it utilizes four partitioned reservoir chambers in the place of one central reservoir. These four partitioned chambers are each connected to a satellite drop chamber via dedicated vapor diffusion channels to create a variation of the novel combinatorial "crystallization clover" provided in the CombiClover™ plates. Each plate has 24 of the partitioned reservoirs and 96 flat-bottom sitting drop chambers. This design allows four different experiments to be conducted in each clover, with each portion containing a different crystallant, and allowing them to be investigated simultaneously.

- Plate dimensions are 120.0 mm x 165.0 mm x 24.0 mm
- The capacity of each of the four partitioned areas of the reservoir is 250 µl

48 Well Plates

MRC Maxi 48-well Crystallization Plate

Product	Cat. No.	Amount	Price (€)
MRC Maxi Plate - UVP, S pack	CPL-154S	10	75,—
MRC Maxi Plate - UVP, L pack	CPL-154L	100	720,—
MRC Maxi Plate - Polystyrene, S pack	CPL-155S	10	73,—
MRC Maxi Plate - Polystyrene, L pack	CPL-155L	100	700,—

The **MRC Maxi plate**is an optimization plate in a 48 well format, designed by the MRC Cambridge. The plate offers large sitting-drop wells and is compatible both with standard robotic systems as well as manual pipetting.

Volumes validated for MRC Maxi are up to 10 µl of sample drop and 200 µl of the crystallization reagent. It complements the original MRC crystallization plate, which is intended for smaller drop volumes and higher throughput during screening.

The plate is available in virgin Polystyrene and in a highly UV transparent polymer.

Advantages of the MRC Maxi Crystallization plate

Easy crystal retrieval

Raised wide wells make the crystal mounting especially easy.

Easy viewing

Each well has a micro lens for perfect illumination.
Micro numbering readable under the microscope for each well.
The optically superior polymer (UVP) is UV transmissible.

Better sealing

Wide partition walls between the wells give plenty of area for good sealing with tape.
Very rigid, automation-friendly plate design.
The UVP polymer reduces through-plastic evaporation to a minimum.

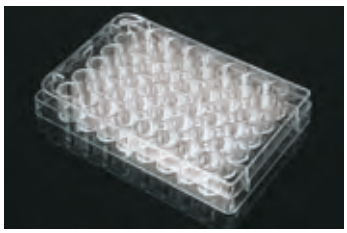
SBS Standard

The plates are designed to the SBS standard and are compatible with all common holders.
9 mm distance from well-to-well within columns, 18 mm distance within rows.

Unique Polymer (UVP)

Ultra-low sample binding.
No static charging.

CrystalPlate – 48



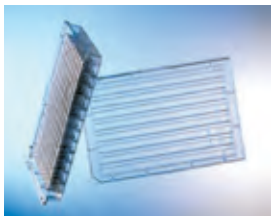
Product	Cat. No.	Amount	Price (€)
CrystalPlate – 48, S pack	CPL-138S	10	30,—
CrystalPlate – 48, L pack	CPL-138L	50	125,—

The **48 well CrystalPlate** from Axygen Biosciences is a flat-bottom polystyrene plate used for vapor diffusion crystallization experiments. These plates are supplied without the cover and sealant and can be sealed with 12 mm circle cover slides. Each of the positions is identified by lettered rows and numbered columns.

- Excellent optics
- Stackable
- Resistant to organic solvents
- Compatible with manual pipetters and automated robotic equipments

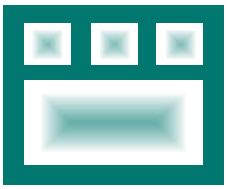
96 Well Plates

CrystalQuick™ Crystallization Plates



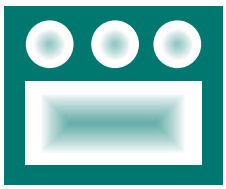
- designed for sitting drop vapor diffusion set-ups
- suitable for high-throughput crystallization
- 96 reservoir wells; the 8 vertical wells are labeled A–H and the 12 horizontal wells are labeled 1–12
- available as
  - polystyrene standard version
  - LBR version with low birefringent background
  - CrystalQuick™ Plus with a hydrophobic surface

CrystalQuick™ – Standard Profile – Flat Bottom – Greiner 609101 / 609130 / 609801 / 609830



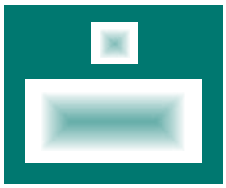
- 3 drop positions
- drop well shape: square and flat
- max. drop volume 4.1 µl
- reservoir volume 320 µl

CrystalQuick™ – Standard Profile – Round Bottom – Greiner 609120 / 609820



- 3 drop positions
- drop well shape: round and concave
- max. drop volume 1.9 µl
- reservoir volume 320 µl

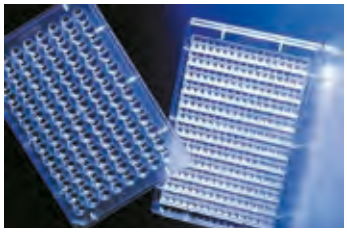
CrystalQuick™ – Low Profile – Flat Bottom – Greiner 609171 / 609 871 / 609180



- 1 drop positions
- drop well shape: square and flat
- max. drop volume 3.9 µl
- reservoir volume 140 µl

Product	Cat. No.	Amount	Price (€)
Greiner 609101 – CrystalQuick™, S pack 3 square wells, flat bottom	CPL-118S	10	90,—
Greiner 609101 – CrystalQuick™, L pack 3 square wells, flat bottom	CPL-118L	40	330,—
Greiner 609120 – CrystalQuick™, S pack 3 round wells, concave bottom	CPL-107S	10	90,—
Greiner 609120 – CrystalQuick™, L pack 3 round wells, concave bottom	CPL-107L	40	330,—
Greiner 609171 – CrystalQuick™, S Pack 1 square well, flat bottom, low profile	CPL-108S	20	180,—
Greiner 609171 – CrystalQuick™, L pack 1 square well, flat bottom, low profile	CPL-108L	80	660,—
Greiner 609801 – CrystalQuick™ LBR, S pack 3 square wells, flat bottom, low birefringent background	CPL-120S	10	95,—
Greiner 609801 – CrystalQuick™ LBR, L pack 3 square wells, flat bottom, low birefringent background	CPL-120L	40	350,—
Greiner 609820 – CrystalQuick™ LBR, S pack 3 round wells, concave bottom, low birefringent background	CPL-121S	10	95,—
Greiner 609820 – CrystalQuick™ LBR, L pack 3 round wells, concave bottom, low birefringent background	CPL-121L	40	350,—
Greiner 609871 – CrystalQuick™ LBR, S pack 1 square well, flat bottom, low profile, low birefringent background	CPL-122S	20	190,—
Greiner 609871 – CrystalQuick™ LBR, L pack 1 square well, flat bottom, low profile, low birefringent background	CPL-122L	80	700,—
Greiner 609130 – CrystalQuick™ Plus, S pack 3 square wells, flat bottom, hydrophobic surface	CPL-123S	10	90,—
Greiner 609130 – CrystalQuick™ Plus, L pack 3 square wells, flat bottom, hydrophobic surface	CPL-123L	40	330,—
Greiner 609830– CrystalQuick™ Plus LBR, S pack 3 square wells, flat bottom, hydrophobic surface & low birefringent background	CPL-124S	10	95,—
Greiner 609830 – CrystalQuick™ Plus LBR, L pack 3 square wells, flat bottom, hydrophobic surface & low birefringent background	CPL-124L	40	350,—
Greiner 609180 – CrystalQuick™ Plus, S pack 1 square well, flat bottom, low profile, hydrophobic surface	CPL-125S	20	180,—
Greiner 609180 – CrystalQuick™ Plus, L pack 1 square well, flat bottom, low profile, hydrophobic surface	CPL-125L	80	660,—

CrystalEX™ Crystallization Microplates



Product	Cat. No.	Amount	Price (€)
Corning® Plate 3773, S pack round bottom, advanced polymer, not treated	CPL-126S	10	112,—
Corning® Plate 3773, L pack round bottom, advanced polymer, not treated	CPL-126L	50	540,—
Corning® Plate 3785, S pack flat bottom, advanced polymer, hydrophilic treated	CPL-127S	10	112,—
Corning® Plate 3785, L pack flat bottom, advanced polymer, hydrophilic treated	CPL-127L	50	540,—

High Performance Microplates for automated crystal screening

- Designed for high throughput screens using the sitting-drop crystallization method
- Feature large reservoir wells with corresponding protein wells
- Manufactured from an advanced optically clear polymer

Key Benefits

- Easier microscopic crystal viewing with the high clarity wells
- Minimal protein and reagent volume loss due to the low water absorption and high chemical resistance properties of the polymer
- Efficient vapor space for crystal growth with novel well design
- Automation-friendly design is compatible with imaging systems and liquid handling equipment

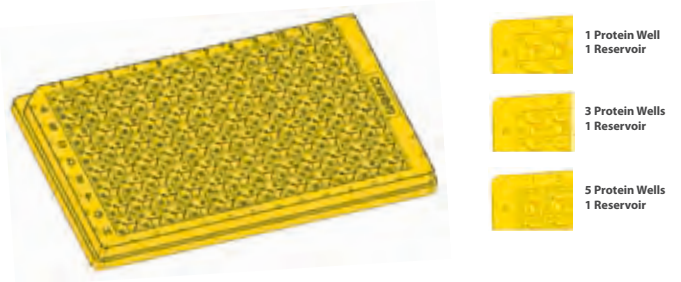
Key Features of the Corning® CrystalEX Microplates

	Corning® 3773	Corning® 3785
Protein well shape	Conical bottom	Flat bottom
Protein well volume	10 µl	7 µl
Protein well dimensions (top/bottom)	3 mm	3 mm / 1.5 mm
Protein well depth	3.1 mm	3.1 mm
Reagent well volume	210 µl	210 µl
Recommended reagent working volume	25 to 150 µl	25 to 150 µl

Next Generation CrystalEX™ Crystallization Microplates

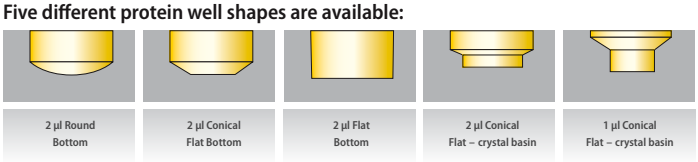
Product	Cat. No.	Amount	Price (€)
Corning® plate 3556, S pack 1 protein well – round bottom	CPL-109S	10	112,—
Corning® plate 3556, L pack 1 protein well – round bottom	CPL-109L	50	540,—
Corning® plate 3551, S pack 1 protein well – conical flat bottom	CPL-110S	10	112,—
Corning® plate 3551, L pack 1 protein well – conical flat bottom	CPL-110L	50	540,—
Corning® plate 3552, S pack 3 protein wells – round bottom	CPL-111S	10	120,—
Corning® plate 3552, L pack 3 protein wells – round bottom	CPL-111L	50	575,—
Corning® plate 3553, S pack 3 protein wells – conical flat bottom	CPL-112S	10	120,—
Corning® plate 3553, L pack 3 protein wells – conical flat bottom	CPL-112L	50	575,—
Corning® plate 3555, S pack 3 protein wells – conical flat-crystal basin	CPL-114S	10	120,—
Corning® plate 3557, S pack 5 protein wells – conical flat-crystal basin	CPL-115S	10	120,—
Corning® plate 3557, L pack 5 protein wells – conical flat-crystal basin	CPL-115L	50	575,—
Corning® plate 3550, S pack 3 protein wells – conical flat bottom	CPL-116S	10	120,—
Corning® plate 3550, L pack 3 protein wells – conical flat bottom	CPL-116L	50	575,—

These 96 well sitting drop format plates have a basic design where one reagent well is flanked by either one, three, or five protein wells, with SBS-standard spacing between the centers of adjacent well "clusters".



The image shows an example of the 3:1 plate (three protein wells, one reagent well).

Five different protein well shapes are available:



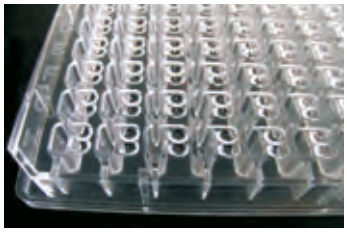
Advantages of the new Corning Crystallography Plates

- Options include 1, 3 or 5 protein wells per reagent well
- Choice of round, flat, or conical flat well shapes
- Available in two materials, including a proprietary zero polarization polymer
- Improved transparency
- Reservoir numbers are embossed on each individual well for easy identification
- Protein well locations conform to SBS standards for robotic handling
- Low volume reagent reservoir saves on reagent costs

Technical Data

Corning Item #	Protein Well Size	Protein Well Shape	# of Protein Wells	Material	Treated
3556	4 µl	Round	1	COC	Yes
3551	4 µl	Conical flat	1	COC	Yes
3552	2 µl	Round	3	PZero	No
3553	2 µl	Conical flat	3	PZero	No
3554	2 µl	Flat	3	PZero	No
3555	2 µl	Conical flat – crystal basin	3	PZero	No
3557	1 µl	Conical flat – crystal basin	5	PZero	No
3550	1 µl	Conical flat	3	PZero	No

MRC Crystallization Plates and 3 Well Crystallization Plates

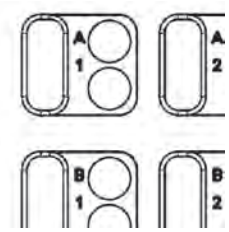


Product	Cat. No.	Amount	Price (€)
MRC 2 Well Crystallization Plate in UVP, S Pack (also called Innovaplate™ SD-2)	CPL-139S	10	87,—
MRC 2 Well Crystallization Plate in UVP, L Pack (also called Innovaplate™ SD-2)	CPL-139	100	820,—
MRC 2 Well Crystallization Plate in Polystyrene, S Pack	CPL-153S	10	87,—
MRC 2 Well Crystallization Plate in Polystyrene, L Pack	CPL-153L	100	820,—
3 Well Crystallization Plate in UVP, S Pack	CPL-149S	10	90,—
3 Well Crystallization Plate in UVP, L Pack	CPL-149L	100	845,—
3 Well Crystallization Plate in Polystyrene, S Pack	CPL-150S	10	90,—
3 Well Crystallization Plate in Polystyrene, L Pack	CPL-150L	100	845,—

The **SWISSCI MRC 2 Well** and **3 Well Crystallization Plates** are designed in the 96 well plate format with either 2 or 3 protein wells per reservoir well. They were developed in collaboration with experienced protein crystallographers, e.g. the MRC Laboratory of Molecular Biology (Cambridge, UK).

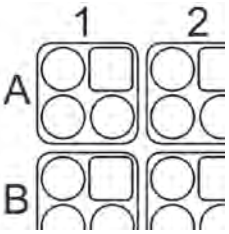
Both plates offer unique properties that make it ideal for both nanolitre crystallization screening and mircoliter optimisation alike. They are available in two different materials, i.e. polystyrene and an optically superior polymer (UVP).

2 Well Plate Features:



- Plate with 2 wells for each sample
- 192 optical wells offer twice the number of experimental constructions
- Easy to fill 96-well structure – typically 85 µl per buffer well
- Standard SBS form for automation
- Microscopic identifier within wells, simplifying the orientation under the microscope
- Wells can be individually sealed with a perfectly flat upper surface

3 Well Plate Features:



- Plate with 3 wells for each sample
- Triplicates allow for 288 constructs per plate
- Easy to fill 96-well structure - typically 65 µl per buffer well
- Standard SBS form for automation
- Microscopic identifier within wells, simplifying the orientation under the microscope
- Wells can be individually sealed with a perfectly flat upper surface
- The profile allows for easier storage

HDP Hanging Drop Plate

Product	Cat. No.	Amount	Price (€)
HDP Hanging Drop Crystallization Plate material UVP	CPL-151	10	290,—

The **SWISSCI Hanging Drop Crystallization Plate** is a breakthrough for protein crystallization in a 96-well format. For the first time individual wells can be identified and removed without any disturbance to the growing crystals inside the plate.

The plate has been developed by SWISSCI AG together with leading Crystallographers. The Hanging Drop Crystallization Plate offers unique properties that make it ideal for both nanolitre crystallization screening and microliter optimisation alike. Made from optically superior polymer (UVP) and with a new design of the wells, the plate allows easy crystal viewing and retrieval.

The system is fully covered by design and patent protection.

Lipidic Cubic Phase (LCP) Screening Kit

Product	Cat. No.	Price (€)
Lipidic Cubic Phase screening kit material UVP	CPL-156	352,—

Application: The **Lipidic Cubic Phase** Crystallizations (LCP) kit facilitates the automation and increased throughput of LCP crystallization set-ups. This novel system enables LCP screening to be performed accurately and with ease - using manual - or automated systems to complete the delivery of the solutions.

Features:

- developed by scientists from MRC and SWISSCI AG
- the ready to use the plate fits laboratory robotics
- SBS standard
- unique polymer to ensure that UV visualization is not compromised by polarization
- easy sealing with dry tabbed adhesive tape exposure and thin UVP cover film
- unique low tack plate security allows for the sandwich plate to be removed from the base plate when required - in-situ X-ray data collection and structure determination is then enabled

Contents:

The product comprises a base plate with low tack 700 micron thickness slide and top sealing tape of 100 microns - a brown ready to remove cover sheet and separate 200 micron UVP cover film with protective dust cover. The kit is completed with a SWISSCI plate leveling device.

Box of 20 plates

CrystalClear Strips

Product	Cat. No.	Amount	Price (€)
CrystalClear 'Duo' Strips with two depressions	CPL-133	10	100,—
CrystalClear 'P' Strips with platforms	CPL-134	10	120,—

CrystalClear Strips were designed and are manufactured by Douglas Instruments. 12 strips fit into the supplied plate frame, creating a 96 well crystallization plate. They are suitable for both automatic and manual crystallization, including screening and optimization.

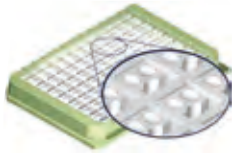
- Exceptionally good optics
- Reliable flatness for automatic use

CrystalClear 'Duo':

The latest version of the Product, with two depressions per reservoir. Spacing in all directions comply with the SBS specification (9.00 mm).

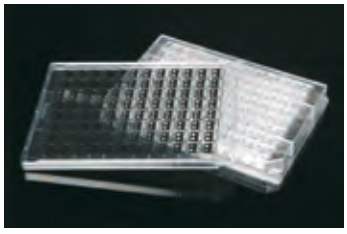
CrystalClear 'P':

The platform version, has a circular platform on the shelf on which samples are placed. This gives improved viewing and is especially suitable for samples containing detergents such as membrane protein samples. The edge of the platform has a "pinning edge" which prevents liquids from running down into the reservoirs.



The spacing between strips is 9 mm (the regular SBS spacing). However, the spacing between sample chambers along a the 'P' strip is only 8.45 mm.

AxyGem™ Crystallization Plate



Product	Cat. No.	Amount	Price (€)
AxyGem™ Crystallography Plate, S pack	CPL-135S	10	80,—
AxyGem™ Crystallography Plate, L pack	CPL-135L	50	375,—
AxyPearl™ Lid, S pack	CPL-136S	20	95,—

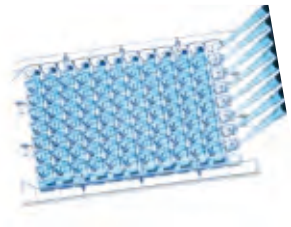
The **AxyGem™ Crystallography Plate** is made of optically clear polystyrene to enable precise crystal visualization. The buffer well has a novel D-shape geometry located on the right, with the elevated round shape protein well located to its left. This plate can be filled manually with pipetters or with automated liquid handling workstations. The plate is sealed with commercially available clear adhesive seals, such as the UltraClear™ film.

- SBS standard 96 well sitting-drop vapor diffusion crystallization plate
- 96 buffer wells (max. volume of 250 µl) and one adjacent protein well (max. volume 4.3 µl)
- Compatible with manual pipetters and automated robotic equipments
- Resistant to organic solvents
- Reduced polarization
- Bar-coding option

The **AxyPearl™ Lid** is a high-throughput hanging drop vapor diffusion crystallography lid with 192-indentations. Printed grids around each of the indentations significantly improve crystal detection. Specifically designed channels around each of the 192 indentations allow for airtight sealing with silicone grease.

Each of the 96 positions is identified by lettered rows A through H and numbered columns 1 through 12.

CompactClover, Jr.™ Crystallization Plate



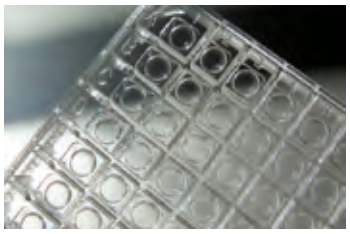
Product	Cat. No.	Amount	Price (€)
CompactClover, Jr.™ (includes 1 roll of sealing tape, 3" wide)	CPL-106	16	140,—

The **CompactClover, Jr.™** crystallization plate utilizes Emerald BioSystems' patented sitting-drop well design and vapor diffusion channel. This plate has 96 reservoirs with 96 drop chambers.

- Plate dimensions are 85.5 mm x 127.8 mm x 14.4 mm
- Plates are compatible with SBS standard laboratory automated instruments
- Drop chambers are 9 mm apart in both horizontal and vertical directions for easy use with multi-channel pipettors
- The reservoir volume is 300 µl
- The drop chamber volume is 6 µl

Microbatch Plates

MRC Under Oil 96 Well Crystallization Plate



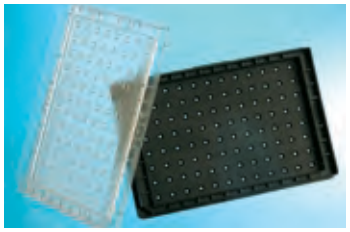
Product	Cat. No.	Amount	Price (€)
MRC Under Oil Crystallization Plate, S pack	CPL-152S	10	92,—
MRC Under Oil Crystallization Plate, L Pack	CPL-152L	100	890,—

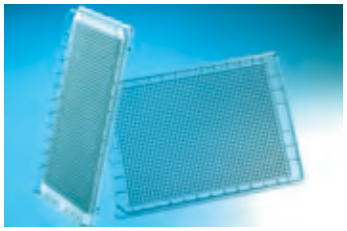
The SWISSCI **MRC Under Oil 96 well Crystallization plate** was developed at the MRC Laboratory of Molecular Biology (Cambridge, UK) in collaboration with Dr. Jan Löwe and colleagues.

The plate offers unique properties that make it ideal for both nanolitre crystallisation screening and microlitre optimisation alike. Made from optically superior polymer (UVP) and with a new design of the wells, the plate allows easy crystal viewing and retrieval.

The new MRC Under Oil 96 well Crystallisation plate uses proprietary oil specially selected for the purpose of running macromolecular crystallisation under oil. Following the initial experiment, the solution under the oil is sequentially allowed to evaporate as a second stage enabling further crystal growth as a consequence of concentration. This is different from other experiments in that the conditions are then extreme in nature and permit new conditions to arise.

Imp@ct Plates





Product	Cat. No.	Amount	Price (€)
Greiner 673170 – Imp@ct™ Plate, S pack 96 well	CPL-117S	10	67,—
Greiner 673170 – Imp@ct™ Plate, L pack 96 well	CPL-117L	40	255,—
Greiner 673096 – Imp@ct ™ Plate, black, S pack 96 well, µClear, conical wells, flat bottom	CPL-144S	10	80,—
Greiner 673096 – Imp@ct ™ Plate, black, L pack 96 well, µClear, conical wells, flat bottom	CPL-144L	40	300,—
Greiner 790801 – Imp@ct ™ Plate, LBR, S pack 1536 well, half-conical wells, flat bottom	CPL-145S	15	210,—
Greiner 790801 – Imp@ct ™ Plate, LBR, L pack 1536 well, half-conical wells, flat bottom	CPL-145L	60	795,—

Greiner Bio-One **Imp@ct™ Plates** have been designed for high throughput microbatch crystallography. Conical wells promote a central location of droplets as well as ease of crystal harvests. The flat, optically clear bottom assures perfect microscopic investigation of crystal growth, and a high rim surrounds the plate perimeter to afford the bulk addition of oil. Another unique feature is the double-rim reservoir, which allows addition of gels to control the evaporation out of the droplets.

The **Imp@ct Plate, black** has a µClear® bottom and is characterized by extremely low light scattering between individual wells and by low birefringence.

Greiner Bio-One, in collaboration with the Hauptman-Woodward Medical Research Institute, has developed a **1536 well microplate** for high-throughput microbatch crystallography. Half-conical wells with optimized geometry allow small-volume crystallization and avoid the spread of droplets away from the center, a prerequisite of effective crystallization under oil. Smooth, flat bottoms assure perfect microscopic investigations of growing crystals. A well-fitting transparent lid is available.

The **1536 well Imp@ct™ LBR Plate** provides superior optical properties for crystal scoring with polarized light.

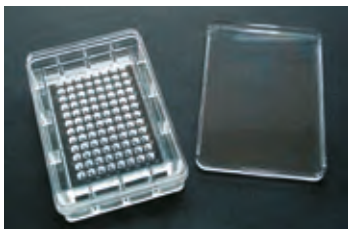
Terasaki Plates

Product	Cat. No.	Amount	Price (€)
Greiner 653102 – Terasaki Plate, 60 well	CPL-146	580	390,—
Greiner 654102 – Terasaki Plate, 70 well	CPL-147	270	190,—
Greiner 654180 – Terasaki Plate, 72 well physical surface treatment	CPL-148	270	230,—

Terasaki plates are small size microassay plates commonly used for microbatch protein crystallography. Conical wells avoid spreading of droplets away from the center for optimized crystallization under oil. Smooth, flat bottoms enable perfect microscopic investigation of growing crystals. Plate storage space is minimized with a compact and low profile shape. Each plate is delivered with a well-fitting transparent lid.

Virgin, high clarity styrene in combination with a distortion-free bottom gives excellent optical properties for microscopic inspection of crystal growth.

Vapor Batch Plate



Product	Cat. No.	Amount	Price (€)
Vapor Batch Plate, hydrophobic, S pack	CPL-128S	10	40,—
Vapor Batch Plate, hydrophobic, L pack	CPL-128L	80	270,—
Vapor Batch Plate, hydrophilic, S pack	CPL-129S	10	40,—
Vapor Batch Plate, hydrophilic, L pack	CPL-129L	80	270,—

The **Douglas Vapor Batch Plate** is designed for both microbatch and vapor diffusion (sitting drop) crystallization. It has 96 wells in the center and several reservoirs around the outside. The reservoirs can be used to preserve microbatch crystals by preventing drying out of the wells, or they can be used for simple vapor diffusion experiments where up to 96 wells are equilibrated against a single precipitant.

Sold in boxes of 10 or 80 plates in two versions:

- Hydrophobic – reduces nucleation and crystals sticking.
- Hydrophilic (plasma treated) – recommended for small volume screening experiments.

Sealing

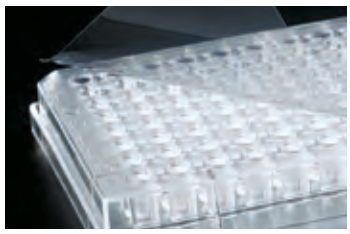
Cover Slides & Grease

Product	Cat. No.	Amount	Price (€)
18 mm Circular Cover Slides – plain circle diameter: 18 mm, thickness: 0.22 mm	CSL-103	1000	110,—
22 mm Circular Cover Slides – plain cirle diameter: 22 mm, thickness: 0.22 mm	CSL-104	1000	110,—
18 mm Circular Cover Slides – siliconized circle diameter: 18 mm, thickness: 0.22 mm	CSL-105	500	100,—
22 mm Circular Cover Slides – siliconized circle diameter: 22 mm, thickness: 0.22 mm	CSL-106	500	100,—
22 mm Thick Circular Cover Slides – siliconized circle diameter: 22 mm, thickness: 0.5 mm	CSL-107	500	130,—
Bayer Silicone Grease – low viscosity	CGR-102	1Tube (35g)	5,—
Bayer Silicone Grease – medium viscosity	CGR-101	1Tube (35g)	5,—
Bayer Silicone Grease – high viscosity	CGR-103	1Tube (35g)	5,—

Circular glass cover slides are available plain or with a siliconized surface. They are designed for hanging-drop, sitting-drop and sandwich-drop crystallization experiments. Ø 18 mm cover slides fit the Greiner ComboPlates™, while Ø 22 mm cover slides fit Linbro and SuperClear™ plates. All cover slides can be sealed to the respective crystallization plates using Bayer Silicon grease.

Bayer Silicon Grease is the ideal sealant for crystallization set-ups. Chemical and heat resistant.

Sealing Tape



Product	Cat. No.	Amount	Price (€)
Manco™ Crystal Clear Sealing Tape, 3" wide	CTP-101M	1 Roll (50 m)	10,—
UVP Hanging Drop MRC Plate Seal (10)	CTP-HDP-S	10	95,—
UVP Hanging Drop MRC Plate Seal (100)	CTP-HDP-L	100	100,—
Greiner VIEWseal™	CTP-102	100	135,—
Axygen UltraClear™ Sealing Film	CTP-103	100	150,—
Corning® Universal Optical Microplate Sealing Tape	CTP-104	100	235,—
Axygen CyclerSeal Sealing Film	CTP-105	100	40,—

Manco™ Crystal Clear Sealing Tape is the ideal sealant for sitting-drop crystallization plates, such as Emerald BioStructures' Clover plates.

The new revolutionary **UVP Hanging Drop MRC Plate Seal** (SWISSCI) comes ready to use with dust free protective coating and specialty polymer base.. The seals accommodate up to 3 separate drops of protein and fit the standard 2 drop - or 3 drop MRC plates. The product has a 100 micron thin layer of UVP specialty polymer developed for compact drop creation and ability to shoot X ray without any noticeable diffraction.

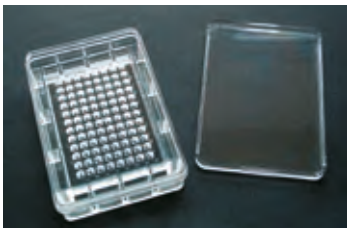
Greiner **VIEWseal™** is a special highly transparent sealer for precise optical measurements. The pressure-sensitive silicon coating will only adhere where pressure is applied.

The Axygen **UltraClear™** film is precut to completely fit 96- and 384-well crystallization plates or microplates. The endtabs of the seal are perforated to facilitate positioning while eliminating fingerprints, which could interfere with optical clarity or view field.

Corning® **Universal Optical Microplate Sealing Tape** is a pressure-sensitive tape that ensures tight sealing, suitable for use between -70 and 100 °C

Axygen CyclerSeal Sealing Film is suitable for sealing multi-well plates.

96 Well Masterblocks & Cap Mats



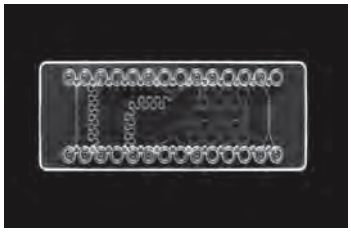
Product	Cat. No.	Amount	Price (€)
Greiner 780261 – Masterblock 1 ml 96 well, U-bottom	CMB-101	10	65,—
Greiner 780271 – Masterblock 2 ml 96 well, V-bottom	CMB-102	10	70,—
Greiner 381061 – Cap Mat for 1 ml Masterblock 96 well, not pierceable	CCM-101	10	35,—
Greiner 381081 – Cap Mat for 2 ml Masterblock 96 well, not pierceable	CCM-102	10	36,—

The Masterblocks are ideal for storage of crystallization reagents. They have standard microplate format and are suitable for multi-channel pipettes.

The Masterblocks can be tightly sealed with the respective Cap Mats. All items are sterile and individually packed.

Counter Diffusion

SWISSCI UVP Micro-channel Chip



Product	Cat. No.	Price (€)
UVP Micro-channel Chip	CD-MCCUVP1	145,—

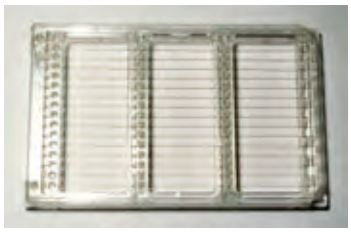
The Swissci AG - **UVP Micro-channel Chip** features a total of five passive flow-through mixers, which intermix smallest liquid volumes within milliseconds. The mixers are integrated on a microscope slide size chip and cover a wide range of potentially interesting flow rates or viscosities. The slide is made of proprietary polymer mixture devised by Swissci AG to combine excellent good optical properties with biocompatibility.

The UVP Micro-channel Chip also has good chemical resistance to most acids and bases.

Main features

- several channels on one chip
- made of transparent plastic - X-ray compatible
- simple channel geometry for first results
- slide format - SBS use in multiples of 4 units
- useful in both screening and optimization of crystallization experiments
- wide applications include chromatographic separation of biological molecules

CrystalHarp™ Plate



Product	Cat. No.	Price (€)
CrystalHarp™ Plate	QH48T-G100	180,—

Application: The **CrystalHarp™** plate is designed for crystallization based on capillary diffusion and can be used for crystallization screening and optimization.

Contents of box

1. CrystalHarp™ plate in shrink wrapper
2. Sealant in 10 ml syringe with orange delivery nozzle
3. 2 ml syringe and flat green nozzle for capillary cleaving
4. Instruction booklet

Features

- Capillary diffusion offers a broad variable screen in one experiment
- 48 experiments per plate
- Direct beam line and in situ diffraction analysis possible
- Unique capillary material with easy to remove crystal methodology

Capillary diffusion achieves a much broader screening of variables in one single experiment. The CrystalHarp™ plate contains 48 capillaries in total and in an ANSI/SBS 1-2004-standard format to facilitate handling and imaging.

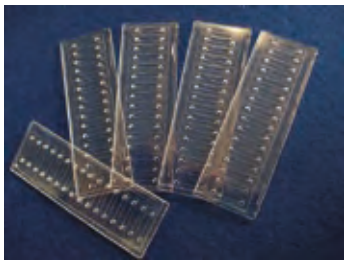
Addition of cryoprotectants or derivatives for phasing studies can be easily added after crystal appearance. The SBS format enables the usage of the plate directly on beam line robots or alternatively single capillaries can be easily mounted to standard magnetic base, enabling in-situ diffraction analysis.

The unique capillary material allows data collection at room temperature. Flash-freezing in a liquid nitrogen stream (with or without the use of cryoprotectants) is also feasible. The formation of ice-rings is kept to a manageable minimum.

Microlytic's innovative microfluidic devices

Microlytic uses microfluidic technology to minimize major problems in structural biology. Microlytic has combined its strengths in microfabrication, surface chemistry and fluid physics to develop innovative devices that offer researchers ease-of-use, improved success rates and superior output. The Crystal Former™ is the first product developed by Microlytic addressing the major bottleneck in structural biology of obtaining high quality crystals. The device is designed to allow researchers to grow crystals in a microfluidic device immediately useful for X-ray diffraction studies.

Crystal Former™



Product	Cat. No.	Price (€)
Crystal Former ™ - 10 device package	CF-10	750,—
Crystal Former ™ - 50 device package	CF-50	3750,—
Crystal Former ™ - 100 device package	CF-100	7500,—

The **Crystal Former™** consists of 16 reaction channels, each providing access to two inlets for loading protein and precipitant solutions. The channels are covered by a thin removable foil. The crystallization channel volume is 150 nl; however, it is recommended that users load at least 200 nl to allow for proper loading of the channel.

The reaction channels are spaced 4.5 mm apart to allow compatibility with multichannel pipettes and liquid handling robots.

The Crystal Former™ Set Up:

1. Appropriate volumes of protein solution should be loaded into all the protein inlets. The crystallization channels will fill once the protein solution is loaded.
2. Appropriate volumes of precipitant should be loaded into the precipitant inlet. In doing so, the precipitant drop contacts the protein solution in the crystallization channel.
3. The protein and precipitant inlets are sealed with sealing strip (Cat.No. MTR-1). The device is then incubated and monitored for the formation of crystals.

Crystallization Reaction

The mixing of precipitant and protein solutions primarily occurs by diffusive equilibration based on the concentration difference established at the crystallization channel facing the precipitant inlet.

The crystallization channel is 10 mm long, allowing for a substantial exploration of protein phase space due to the long equilibration times. For a typical salt, precipitant equilibration will occur over a period of about 1 week, whereas larger polymers will require a longer equilibration. However, note that equilibration is not required for crystal growth, and crystals can form from half a day to three days.

Crystal Harvesting

Thaumatin (A), Myoglobin (B) , and Xylanase (C) crystals grown in Crystal Former™

As crystals are formed in the Crystal Former™ they can be extracted from the chip and used for seeding experiments or X-ray diffraction studies. To extract crystals from a specific channel in the device the chip is positioned on a flat surface, with the inlet side facing down, and a razor blade is used to cut through the thin foil sealing for the channel of interest. Once the foil has been completely cut it is removed using tweezers and the crystal can be extracted using standard loops or micro mounts.

Crystal Former™ Advantages

- **Platform independent set up**
  The Crystal Former™ can be operated with standard pipettes or liquid-handling robots. After loading precipitant and protein solutions, the microfluidic architecture encourages proper mixing and separation of individual crystallization reactions.
- **Reaction chamber dimensions**
  The Crystal Former™ benefits from low sample consumption because of reaction volumes of 150 nl. The size of the chamber allows crystals to grow large enough so that they can be immediately suitable for X-ray diffraction. This allows users to move from the Crystal Former™ screen directly to X-ray diffraction studies.
  Furthermore, the dimensions of the chamber allow a large number of chemical conditions to be sampled while the solutions equilibrate. This increases the probability that sampling conditions will be conducive to crystal formation.
- **Optimal mixing kinetics**
  Although reaction chambers are large enough to facilitate the growth of usable high-quality crystals, individual reaction chambers are small enough so that viscous forces dominate. Additionally, the mixing of precipitant and protein inside the Crystal Former™ allows the gentle manipulation of protein solubility. This means that precipitant and protein solutions can mix optimally, allowing protein phase space to be thoroughly explored.
  In tests comparing the Crystal Former™ to vapor diffusion, some proteins have up to a 30-fold higher probability of crystallizing as a result of our proprietary mixing kinetics.
- **Direct access to crystals**
  The Crystal Former™ allows users to easily collect crystals grown inside the chip. This enables collection of diffraction patterns from crystals grown in the Crystal Former™ without the need to repeat experiments in larger volumes, or using different techniques. Direct access also permits smaller crystals to be harvested for subsequent seeding experiments.

Terese Bergfors Proof Statement:

"The equilibration kinetics is a major determinant in the success or failure of a crystallization trial. The Microfluidic Crystal Former™ offers a unique method for exploring the phase diagram and for manipulating the equilibration kinetics. The kinetics in different methods can be strikingly different, even when the same precipitant is used. Therefore it makes good sense to try different ones, especially when screening, but also in the optimization phase. We use the Crystal Former™ as part of our overall crystallization strategy. The sample volume requirements are modest and it is easy to use. The students can set it up in minutes."

Terese Bergfors, Uppsala University, Sweden

Crystal Former™ XL

Product	Cat. No.	Price (€)
Crystal Former™ XL - 10 device package	CF-XL-10	750,—

The Crystal Former is a novel microfluidic device that improves crystallization hit rate and allows users to go straight from structure to function. With the wider channels, the **Crystal Former XL** is ideal for optimization and crystal growth.

Crystallization Kits

Product	Cat. No.	Price (€)
Microlytic Crystallization Kit - 3 Protein Size includes everything you need to crystallize 3 proteins	MCK-3	500,—
Microlytic Crystallization Kit - 7 Protein Size cirle diameter: 22 mm, thickness: 0.22 mm	MCK-7	1225,—

Microlytic Crystallization Kit - 3 Protein size

- 9 Crystal Former chips
- 1 Smart Screen (75 µl per well)
- Sealing Tape

Microlytic Crystallization Kit - 7 Protein size

- 21 Crystal Former chips
- 1 Smart Screen (75 µl per well)
- Sealing Tape
- Slide holder

Smart Screen

Product	Cat. No.	Price (€)
Microlytic SmartScreen (48 conditions, 75 µl per well)	MLS-1	125,—

Microlytic's SmartSreen is a sparse matrix screen consisting of 48 conditions as 3x16 solution sets, which have been selected from many published screens. Each well contains approximately 75 µl of screen arranged in order of productivity (1 is best, 2 second best, etc…). Only microliter volumes are required with the Crystal Former.

Microlytic states:

- The first 16 conditions should give crystals for over 65% of proteins.
- The next 16 should raise that number to over 85%.
- The last 16 should produce more than 94% crystal growth.

PurePEGs

Product	Cat. No.	Price (€)
Microlytic PurePEGs (48 conditions, 70 µl per well)	MLY-2	125,—

The **PurePEGs Screen** features conditions with a mixture of purified PEGs, ranging from 300 MW to 8,000 MW. At a total PEG concentration of 22.5 % [1], combined with various salts and buffers, the conditions are designed to give the most crystallization hits spanning a wide pH range (1.1 - 9.8).

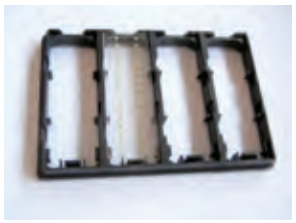
Features

- Ultra pure PEGs – USP grade
- Optimized for diffusive mixing; capillary crystallization
- Polydispersed PEGs; 5 PEGs in each condition
- pH measured and recorded for final solution
- Better control of manufacturing impurities in the PEGs

Accessories

Product	Cat. No.	Price (€)
Sealing Tape Roll (enough for 100 chips)	MTR-1	25,—
Crystal Former Holder SH-2 (4 chip size - snap-fit design)	MSH-1	100,—
Crystal Former Holder SH-2 (4 chip size - drop-in design)	MSH-2	100,—

Roll of Sealing Strips - enough for 100 chips.



Slide Holder SH-1

Simplify your setup by placing your Crystal Formers in this holder.

The **SH-2 holder** is a low profile design that is compatible with the visible light objective of the Rock Imager from Formulatrix and is also compatible with all automated systems previously using the SH-1 holder.

The **SH-2 holder** design also affords 2 major advantages:

- manual manipulation of the Crystal Formers is facilitated by the drop-in design and
- the reduction in mechanical stress decreases the likelihood of damage to the Crystal Formers during staging.

Oils & Dyes

Crystallization Oils

Product	Cat. No.	Amount	Price (€)
Silicone Oil	CO-201	250 ml	15,—

Silicone oil for Under Oil Crystallization Plates. Adequate for 100 Plates (Cat. No. CPL-152S/L).

JBS Crystal Dyes

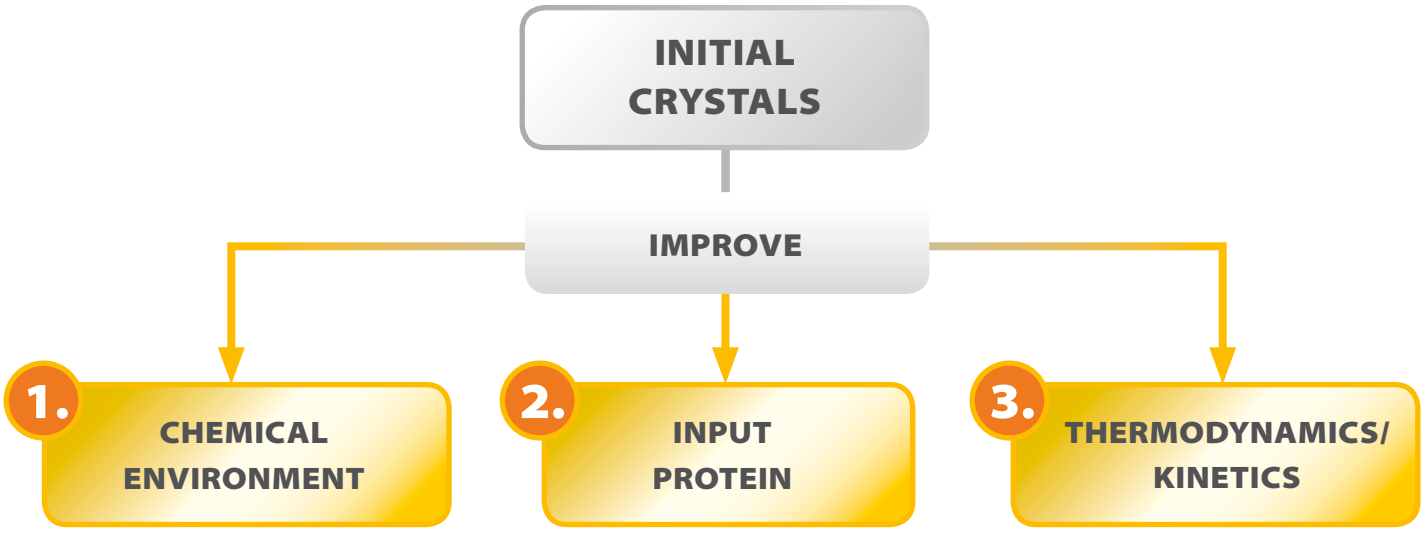
Product	Cat. No.	Amount	Price (€)
JBS True Blue	CO-301	300 µl	8,40
JBS Deep Purple	CO-302	300 µl	8,40
JBS Xtal Green	CO-303	300 µl	8,40
JBS Bright Red	CO-304	300 µl	8,40
JBS Rainbow Set of JBS Deep Purple, JBS True Blue, JBS Xtal Green and JBS Bright Red	CO-305	4 × 300 µl	27,30
JBS Black Light Fluorescent Crystal Dye	CO-306	300 µl	26,25

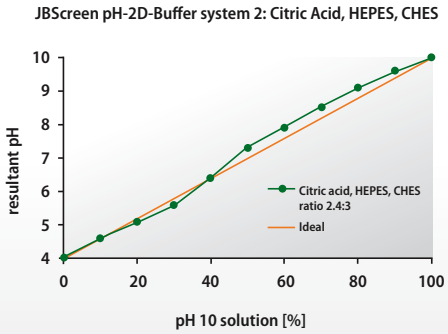
With the help of **JBS Crystal Dyes** you can discriminate between macromolecular crystals and salt crystals within minutes. Whatever suits your taste, you can stain your crystals blue, purple, green or red. All our crystal dyes are small molecules which are able to permeate the solvent channels of proteins and thus, staining them. In contrast, salt crystals will remain colorless.

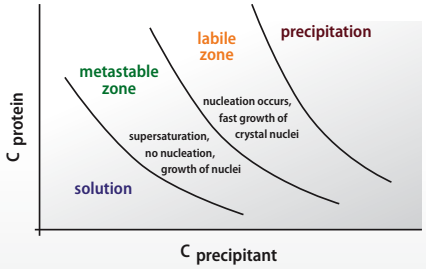
Our **JBS Black Light** is a nonspecific fluorescent crystal dye used for the detection of protein crystals in crystallization trials. The fluorescence signal can be exploited to contrast protein crystals above background artifacts and enables the detection of microcrystals, even if they are located under a protein skin. Thus, the dye is suitable for automatic crystal detection.

Hit Optimization

Strategies to optimize initial crystallization hits:







Chemical Environment

Kits and screens to optimize the chemical composition of your crystallization reagents, i.e. buffer pH, precipitant and additive compostion.

Input Protein

Get your protein ready for crystallization! Consider to optimize the solubilization buffer, alter the protein surface or modify the sequence by truncation or mutagenesis. Or try a new mode of production.

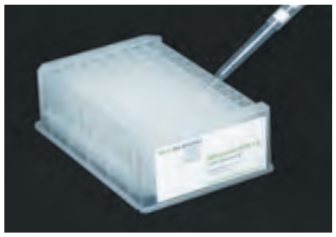
Thermodynamics / Kinetics

Do not discard bad diffracting crystals! They can be very useful, too. Try to improve diffraction by varying the solvent content or use your initial crystals for seeding.

Chemical Environment

Screens & Stock Solutions

JBS Custom Screen



Let us mix your screens!

JBS Custom Screens are designed by you! – Devise your own crystallization screens for initial screening or for optimization of a successful crystallization condition and let us prepare them for you.

Simply, send an xls sheet to orders@jenabioscience.com containing your required screening compostion and format. We will come back to you with a quote and delivery time.

Please contact xtals@jenabioscience.com with questions or inquiries.

JBScreen Single Stocks

Applications: Reagents, consistent with Jena Bioscience screens, for reproduction and optimization of screening conditions.

Formats: JBScreen Single Stocks are available at 100 ml aliquots

Single stock solutions of the **JBScreen** components, i.e. polymers, buffers and salts are ideal for the optimization of your crystallization conditions.

Using the same chemicals as utilized in the JBScreens ensures higher reproducibility of your experiments. **JBScreen Single Stocks** are ready for use: the concentration is adjusted and they are sterile filtered.

Polymers

Product	Cat. No.	Price (€)
Pentaerythritol ethoxylate (3/4 EO/OH), 60 % w/v PEE 270	CSS-372	25,—
Pentaerythritol ethoxylate (3/4 EO/OH), 100 % v/v PEE 270	CSS-373	30,—
Pentaerythritol ethoxylate (15/4 EO/OH), 60 % w/v PEE 797	CSS-374	25,—
Pentaerythritol ethoxylate (15/4 EO/OH), 100 % v/v PEE 797	CSS-375	30,—
Pentaerythritol propoxylate (17/8 PO/OH), 60 % w/v PEP 629	CSS-376	25,—
Pentaerythritol propoxylate (17/8 PO/OH), 100 % v/v PEP 629	CSS-377	30,—
Pentaerythritol propoxylate (5/4 PO/OH), 60 % w/v PEP 426	CSS-378	25,—
Pentaerythritol propoxylate (5/4 PO/OH), 100 % v/v PEP 426	CSS-379	30,—
Polyethyleneglycol 200, 50 % v/v	CSS-239	30,—
Polyethyleneglycol 200, 50 % w/v	CSS-238	30,—
Polyethyleneglycol 300, 50 % v/v	CSS-247	30,—
Polyethyleneglycol 400, 50 % v/v	CSS-334	25,—
Polyethyleneglycol 400, 50 % w/v	CSS-250	25,—
Polyethyleneglycol 400, 75 % w/v	CSS-251	27,—
Polyethyleneglycol 400, 100 % v/v	CSS-252	30,—
Polyethyleneglycol 550 Monomethylether, 50 % v/v	CSS-236	30,—
Polyethyleneglycol 550 Monomethylether, 50 % w/v	CSS-237	30,—
Polyethyleneglycol 600, 50 % v/v	CSS-241	30,—
Polyethyleneglycol 600, 50 % w/v	CSS-240	30,—
Polyethyleneglycol 1000, 50 % w/v	CSS-242	30,—
Polyethyleneglycol 1500, 50 % w/v	CSS-244	30,—
Polyethyleneglycol 2000, 50 % w/v	CSS-245	30,—
Polyethyleneglycol 2000 Monomethylether, 50 % w/v	CSS-234	30,—
Polyethyleneglycol 3000, 50 % w/v	CSS-248	30,—
Polyethyleneglycol 3350, 50 % w/v	CSS-249	30,—
Polyethyleneglycol 4000, 50 % w/v	CSS-253	30,—
Polyethyleneglycol 5000 Monomethylether, 50 % w/v	CSS-235	30,—
Polyethyleneglycol 6000, 50 % w/v	CSS-255	30,—
Polyethyleneglycol 8000, 50 % w/v	CSS-256	30,—
Polyethyleneglycol 10000, 50 % w/v	CSS-243	30,—
Polyethyleneglycol 20000, 50 % w/v	CSS-246	30,—
Polyethylenimine, 50 % w/v	CSS-257	55,—
Jeffamine M-600, 50 % v/v, pH 7.0	CSS-196	55,—

Organics

Product	Cat. No.	Price (€)
1,3-Propanediol, 50 % v/v	CSS-104	40,—
1,4-Dioxane, 50 % v/v	CSS-107	20,—
1,4-Dioxane, 50 % w/v	CSS-106	20,—
1,6-Hexanediol, 5 M	CSS-109	20,—
2,3-Butandiol, 50 % v/v	CSS-113	40,—
2-Methyl-2,4-Pentanediol, 50 % v/v MPD	CSS-328	20,—
2-Methyl-2,4-Pentanediol, 50 % w/v MPD	CSS-115	20,—
2-Methyl-2,4-Pentanediol, 100 % v/v MPD	CSS-117	25,—
2-Propanol, 50 % w/v Iso-Propanol	CSS-118	20,—
2-Propanol, 100 % v/v Iso-Propanol	CSS-119	25,—
Ethanol, 50 % v/v Ethylalkohol	CSS-330	25,—

Ethanol, 66 % w/v Ethylalkohol	CSS-179	30,—
Ethylene glycol, 50 % v/v 1,2-Ethanediol	CSS-182	20,—
Ethylene glycol, 50 % w/v 1,2-Ethanediol	CSS-336	20,—
Ethylene glycol, 100 % v/v 1,2-Ethanediol	CSS-183	25,—
Glycerol, 50 % v/v Glycerin	CSS-329	10,—
Glycerol, 50 % w/v Glycerin	CSS-186	10,—
Glycerol, 80 % v/v Glycerin	CSS-332	15,—
Glycerol, 80 % w/v Glycerin	CSS-187	15,—
Glycerol, 100 % v/v Glycerin	CSS-188	20,—
L-Glutathion reduced, 0.16 M	CSS-199	80,—
Methanol, 50 % w/v	CSS-224	25,—
Propylene Glycol, 50 % v/v 1,2-Propanediol	CSS-280	20,—
tert-Butanol, 50 % v/v 2-Methyl-2-propanol	CSS-311	10,—
tert-Butanol, 50 % w/v 2-Methyl-2-propanol	CSS-310	10,—
Triethyleneglycol, 50 % w/v	CSS-314	20,—
Xylitol, 50 % w/v Xylite	CSS-322	20,—

Buffers

Product	Cat. No.	Price (€)
ADA pH 6.0, 1 M N-(2-Acetamido) iminodiacetic acid, N-(Carbamoylmethyl)iminodiacetic acid	CSS-125	70,—
ADA pH 6.5, 1 M N-(2-Acetamido) iminodiacetic acid, N-(Carbamoylmethyl)iminodiacetic acid	CSS-338	70,—
Bicine pH 9.0, 1 M N,N-Bis(2-hydroxyethyl) glycine	CSS-147	35,—
Bicine pH 9.5, 1 M N,N-Bis (2-hydroxyethyl) glycine	CSS-339	35,—
Bis-Tris pH 6.5, 1 M 2-Bis (2-hydroxyethyl) amino-2-(hydroxymethyl)-1,3-propanediol	CSS-148	50,—
Bis-Tris pH 7.0, 1 M 2-Bis (2-hydroxyethyl) amino-2-(hydroxymethyl)-1,3-propanediol	CSS-340	50,—
Bis-Tris-Propan pH 7.0, 1M	CSS-149	95,—
CAPS pH 10, 1 M 3-(Cyclohexylamino)-1-1propanesulfonic acid	CSS-156	35,—
CHES pH 9.5, 1 M 2-(Cyclohexylamino)ethanesulfonic acid	CSS-160	70,—
Citrate/ Phosphate pH 4.4, 1 M 1M di-Potassium hydrogen Phosphate adjusted with Citric acid	CSS-161	45,—
Citrate/ Phosphate pH 5.0, 1 M 1M di-Potassium hydrogen Phosphate adjusted with Citric acid	CSS-341	45,—
Citric Acid pH 3.1, 1 M	CSS-162	35,—
Citric Acid pH 4.2, 1 M	CSS-342	35,—
Citric Acid pH 5.0, 1 M	CSS-343	35,—
di-Potassium hydrogen Phosphate pH 7.0, 5 M	CSS-073	30,—
Glycine pH 9.5, 1 M Glycocoll	CSS-089	35,—
Glycine, 1 M Glycocoll	CSS-189	30,—
HEPES pH 7.5, 1 M 4-(2-Hydroxyethyl)piperazine-1-ethanesulfonic acid	CSS-192	35,—
HEPES, 1 M 4-(2-Hydroxyethyl)piperazine-1-ethanesulfonic acid	CSS-360	30,—
Imidazole pH 6.5, 1 M	CSS-095	45,—
Imidazole pH 7.0, 1 M	CSS-355	45,—
Imidazole pH 7.5, 1 M	CSS-344	45,—
Imidazole pH 8.0, 1 M	CSS-345	45,—
Imidazole pH 9.0, 1 M	CSS-346	45,—
Imidazole, 1 M	CSS-195	40,—
Lithium Acetate Dihydrate pH 7.5, 1 M	CSS-000	35,—
L-Malic Acid pH 7.0, 1 M	CSS-197	35,—
MES pH 6.5, 1M 2-(N-Morpholino)ethanesulfonic acid hydrate	CSS-222	35,—
MOPS pH 7.0, 1 M 3-(N-Morpholino)propanesulfonic acid	CSS-226	70,—
PIPES pH 6.0, 1 M 1,4-Piperazinediethanesulfonic acid	CSS-232	80,—
PIPES pH 7.0, 1 M 1,4-Piperazinediethanesulfonic acid	CSS-347	80,—
Sodium Acetate pH 4.6, 1 M	CSS-283	35,—
Potassium Phosphate, 1 M 1M di-Potassium hydrogen Phosphate adjusted with 1M Potassium dihydrogen Phosphate to pH 8.0	CSS-273	35,—
Sodium dihydrogen Phosphate, 5 M	CSS-087	35,—
Sodium Phosphat pH 6.2, 1 M 1M di-Sodium hydrogen Phosphate adjusted with 1M Sodium dihydrogen Phosphate	CSS-297	30,—
Sodium Phosphat pH 6.7, 1 M 1M di-Sodium hydrogen Phosphate adjusted with 1M Sodium dihydrogen Phosphate	CSS-348	30,—
Sodium Phosphat pH 6.8, 1 M 1M di-Sodium hydrogen Phosphate adjusted with 1M Sodium dihydrogen Phosphate	CSS-349	30,—
Sodium Phosphat pH 7.0, 1 M 1M di-Sodium hydrogen Phosphate adjusted with 1M Sodium dihydrogen Phosphate	CSS-350	30,—
Sodium Potassium Phosphate pH 6.5, 1 M	CSS-299	30,—
Sodium Potassium Phosphate pH 7.5, 1 M	CSS-351	30,—
Succinic Acid, 0.5 M	CSS-307	20,—
Tricine pH 8.0, 1 M N-[Tris(hydroxymethyl)methyl]glycine	CSS-313	35,—
Tris (Tris-Acetate) pH 8.0, 1 M 2-Amino-2-(hydroxymethyl)-1,3-propanediol	CSS-337	30,—
Tris pH 7.5, 1 M 2-Amino-2-(hydroxymethyl)-1,3-propanediol	CSS-320	35,—

Tris pH 8.0, 1 M 2-Amino-2-(hydroxymethyl)-1,3-propanediol	CSS-353	35,—
Tris pH 8.5, 1 M 2-Amino-2-(hydroxymethyl)-1,3-propanediol	CSS-354	35,—
tri-Sodium Citrate Dihydrate pH 4.8, 1 M	CSS-318	30,—
tri-Sodium Citrate Dihydrate pH 5.6, 1 M	CSS-352	30,—

Salts

Product	Cat. No.	Price (€)
Ammonium Acetate, 1 M	CSS-128	30,—
Ammonium Acetate, 5 M	CSS-129	30,—
Ammonium Bromide, 1 M	CSS-130	30,—
Ammonium Chloride, 5 M	CSS-131	30,—
Ammonium dihydrogen Phosphate, 1 M	CSS-132	30,—
Ammonium dihydrogen Phosphate, 3 M	CSS-133	30,—
Ammonium Fluoride, 10 M	CSS-134	35,—
Ammonium Formate, 2.5 M	CSS-135	35,—
Ammonium Formate, 5 M	CSS-136	40,—
Ammonium Iodide, 1 M	CSS-137	30,—
Ammonium Nitrate, 10 M	CSS-138	35,—
Ammonium Sulfate, 1 M	CSS-142	35,—
Ammonium Sulfate, 5 M	CSS-143	40,—
Cadmium Chloride, 1 M	CSS-151	40,—
Cadmium Sulfate, 1 M	CSS-152	40,—
Calcium Acetate Hydrate, 1 M	CSS-153	30,—
Calcium Chloride Dihydrate, 1 M	CSS-154	30,—
Calcium Chloride Dihydrate, 5 M	CSS-155	35,—
Cesium Chloride, 1 M	CSS-157	40,—
Cesium Chloride, 2 M	CSS-158	50,—
Cobalt(II) Chloride Hexahydrate, 1 M	CSS-163	40,—
di-Ammonium hydrogen Phosphate, 3.5 M	CSS-171	30,—
di-Ammonium Tartrate, 2 M	CSS-172	30,—
di-Potassium hydrogen Phosphate, 5 M	CSS-173	30,—
di-Sodium hydrogen Phosphate, 0.5 M	CSS-174	30,—
Ferric(III) Chloride Hexahydrate, 1 M	CSS-184	40,—
Hexadecyltrimethylammonium Bromide, 0.008 M Cetyltrimethylammonium bromide	CSS-331	20,—
Lithium Acetate Dihydrate, 1 M	CSS-200	30,—
Lithium Bromide, 1 M	CSS-201	60,—
Lithium Chloride, 1 M	CSS-335	30,—
Lithium Chloride, 5 M	CSS-202	35,—
Lithium Chloride, 10 M	CSS-356	40,—
Lithium Citrate Hydrate, 1.5 M	CSS-203	30,—
Lithium Nitrate, 8 M	CSS-204	40,—
Lithium Sulfate, 1 M	CSS-206	30,—
Lithium Sulfate, 2.5 M	CSS-207	35,—
Magnesium Acetate Tetrahydrate, 1 M	CSS-210	35,—
Magnesium Chloride Hexahydrate, 1 M	CSS-211	35,—
Magnesium Chloride Hexahydrate, 2.5 M	CSS-212	40,—
Magnesium Formate Dihydrate, 0.2 M	CSS-213	30,—
Magnesium Nitrate Hexahydrate, 1 M	CSS-214	35,—
Magnesium Sulfate Heptahydrate, 1 M	CSS-215	30,—
Magnesium Sulfate Heptahydrate, 2.5 M	CSS-216	35,—
Nickel Sulfate Hexahydrate, 1 M	CSS-227	35,—
Nickel(II) Chloride Hexahydrate, 1 M	CSS-228	40,—
Potassium Acetate, 5 M	CSS-262	35,—
Potassium Bromide, 4 M	CSS-264	40,—
Potassium Chloride, 1 M	CSS-265	35,—
Potassium Chloride, 4 M	CSS-371	40,—
Potassium dihydrogen Phosphate, 1 M	CSS-268	30,—
Potassium Formate, 10 M	CSS-269	80,—
Potassium Iodide, 1 M	CSS-270	35,—
Potassium L-Tartrate Monobasic, 0.025 M	CSS-271	30,—
Potassium Nitrate, 1 M	CSS-272	35,—
Potassium Phosphate, 1 M 1M di-Potassium hydrogen Phosphate/1M Potassium dihydrogen Phosphate	CSS-274	35,—
Potassium Sulfate 0.5 M	CSS-275	30,—
Potassium Thiocyanate, 2 M	CSS-276	45,—
Potassium/Sodium Tartrate-4-hydrate, 1 M	CSS-277	35,—
Potassium/Sodium Tartrate-4-hydrate, 2 M	CSS-278	40,—
Sodium Acetate, 2.5 M	CSS-284	40,—
Sodium Bromide, 3 M	CSS-285	40,—
Sodium Chloride, 1 M	CSS-333	35,—
Sodium Chloride, 5 M	CSS-286	40,—
Sodium dihydrogen Phosphate, 5 M	CSS-287	35,—
Sodium Fluoride, 1 M	CSS-290	30,—
Sodium Formate, 5 M	CSS-291	35,—
Sodium Iodide, 1 M	CSS-293	30,—
Sodium Malonate, 2 M Malonic acid Disodium salt Monohydrate	CSS-217	45,—
Sodium Nitrate, 7 M	CSS-294	30,—
Sodium Sulfate, 1 M	CSS-300	35,—
Sodium Tartrate dibasic Dihydrate, 1 M	CSS-301	35,—
Sodium Thiocyanate, 8 M	CSS-303	30,—
tri-Potassium Citrate Monohydrate, 2.5 M	CSS-266	30,—
tri-Sodium Citrate Dihydrate, 1.6 M	CSS-319	30,—
Zinc Acetate Dihydrate, 1 M	CSS-324	35,—
Zinc Chloride, 1 M	CSS-325	30,—
Zinc Sulfate Heptahydrate, 1 M	CSS-326	35,—

Buffers

JBScreen pH-2D

Product	Cat. No.	Price (€)
JBScreen pH-2D	CS-701	120,—

Applications: Extended broad range pH-screening independent of the chemical nature of the components of the buffer system

Kit contents: 6 broad range buffer systems, each consisting of a low pH and a high pH buffer at 10 ml aliquots.

JBScreen pH-2D is designed to sample a broad pH-range without changing the buffering environment [1]. This ensures pH-screening independent of the chemical nature of the components of the buffer system.

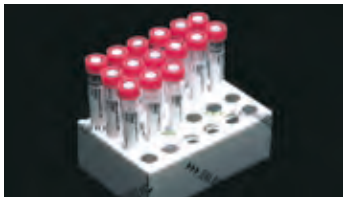
JBScreen pH-2D contains six extended range buffer systems, each composed of a mixture of three individual buffers with a distinct chemical nature and well separated pKa values. Each buffer system is composed of a low-pH and a high-pH stock solution, supplied in 10 ml volumes. The low-pH stock solution is preset at pH 4.0 and the high-pH solution at either pH 9.0 or 10.0. Thus, mixtures of the low-pH and high-pH stock solutions in different proportions allow to cover the entire pH range from 4.0–9.0 or 4.0–10.0, respectively. The composition of the buffer systems assures a virtually linear distribution of the resulting pH vs. the percentage of high pH / low pH stock.

Larger volumes of the buffers are available upon request.

References:

[1] Newman (2004) Novel buffer systems for macromolecular crystallization. *Acta Cryst. D* **60**:610.

JBScreen Buffer Kits



Product	Cat. No.	Price (€)
JBScreen Buffer Kit Sodium Acetate	CO-101	150,—
JBScreen Buffer Kit Sodium Citrate	CO-102	150,—
JBScreen Buffer Kit MES	CO-103	150,—
JBScreen Buffer Kit HEPES	CO-104	150,—
JBScreen Buffer Kit Tris-HCl	CO-105	150,—

Applications: Titrated buffer stocks for pH modulation, reproduction and optimization of crystallization set-ups.

Kit contents: The JBScreen Buffer Kits contain ready-made 1M buffer solutions with preset pH values at 0.1 unit increments at 10 ml aliquots.

- JBScreen Buffer Kit Sodium Acetate, pH 3.5 – 5.6
- JBScreen Buffer Kit Sodium Citrate, pH 3.7 – 6.0
- JBScreen Buffer Kit MES, pH 5.6 – 6.7
- JBScreen Buffer Kit HEPES, pH 6.8 – 8.2
- JBScreen Buffer Kit Tris-HCl, pH 7.1 – 9.0

JBScreen Buffer Kits are designed for convenient reproduction and optimization of crystallization conditions. The solutions can be used to reformulate conditions of the **JBScreen family**, e.g. JBScreen Classic, JBScreen Basic, JBScreen Cryo, and other commercially available crystallization screens.

Furthermore, JBScreen Buffer Kits can be employed for the straightforward preparation of custom screen solutions for the refinement and optimization of initial crystallization conditions. The JBScreen Buffer Kit formulations will help to save time preparing accurate and high-quality reagents for the reproducible production of single protein crystals.

pHat™ Buffers

Emerald BioSystems

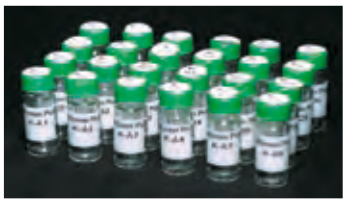
Product	Cat. No.	Price (€)
pHat™ Buffers in 96 Well Block Plate (96 formulations, 1.0 ml each)	PHAT-B1	264,—

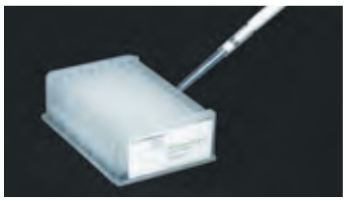
The **pHat™ Buffers Screen** is a set of 96 different buffer solutions encompassing 12 different buffer systems at 8 different pHs each ranging in steps of 0.4 pH units from ±1.4 pH units about the buffer pKa. The screen covers the entire crystallization space with buffers ranging from pH 2.4 to pH 11.6.

The buffers are organized according to their final pH so as to facilitate the setup of subsequent refinement screens. The pHat™ buffers can also simply be added to any other 96 formulation screen to add another chemical dimension to the search for optimized crystal growth conditions.

Additives and Detergents

JBScreen Plus





Product	Cat. No.	Price (€)
JBScreen Plus Kosmotropic	CS-501	157,50
JBScreen Plus Chaotropic	CS-502	157,50
JBScreen Plus Salts	CS-503	157,50
JBScreen Plus Additives	CS-504	157,50
JBScreen Plus Volatiles	CS-505	157,50
JBScreen Plus Complete (all 5 kits)	CS-506	514,50
JBScreen Plus HTS S (200 µl per well)	CS-507S	157,50
JBScreen Plus HTS L (1.0 ml per well)	CS-507L	630,—

Applications: Additive screening to manipulate sample-sample and sample-solvent interactions.

Formats:

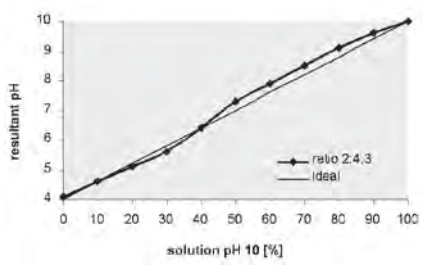
Bulk – 1Kit contains 24 screening solutions at 1 ml aliquots

HTS – 96 solutions of JBScreen Plus (kosmotropic, chaotropic, salts, additives) delivered in a 96 well masterblock

HTS S: 250 µl per well

HTS L: 1.0 ml per well

JBScreen Plus is an additive screen most useful in the optimization of preliminary crystallization conditions. JBScreen Plus consists of 5 individual kits, JBScreen Plus Kosmotropic, JBScreen Plus Chaotropic, JBScreen Plus Salts, JBScreen Plus Additives and JBScreen Plus Volatiles. The selection of the additives is based on the Hofmeister series which reflects the ability of ions to stabilize the structure of proteins. Hence, ions can be classified as either kosmotropic or chaotropic. The former having structure stabilizing properties. Thus, they may assist in, e.g. crystallizing proteins with a high proportion of flexible loop regions. The latter showing structure disturbing properties which may assist in the crystallization of large complexes allowing them to rearrange to form favorable crystal contacts [1].



Plot of the pH-curve for buffer system Citric Acid, HEPES, CHES, which comprises two stock solutions preset at pH 4.0 and 10.0, respectively. The two stock solutions were mixed in different ratios ranging from 10:0 to 0:10 and the resulting pH values were measured.

The 96 solutions of **JBScreen Plus HTS**, comprising the reagents of the kosmotropic, chaotropic, salts and additive kit, are supplied in a sterile deep well block containing either 200 µl (JBScreen Plus HTS S) or 1 ml (JBScreen Plus HTS L). JBScreen Plus HTS S is particularly designed for low volume users. The screening reagents can be added directly to the additives in the deep well block before starting a vapor diffusion experiment, while JBScreen Plus HTS L will enable you to transfer any desired volume of additive solution to your plate.

References:

[1] Collins (2004) Ions from the Hofmeister series and osmolytes: effects on proteins in solution and in the crystallization process. *Methods* **34**:300.

JBScreen Detergents

Product	Cat. No.	Price (€)
JBScreen Detergents 1	CD-101	115,50
JBScreen Detergents 2	CD-102	115,50
JBScreen Detergents 1 & 2	CD-103	173,25

Applications: Optimization of solubility of membrane proteins as well as additive screening with detergents and detergent mixtures.

Kit contents: Each kit contains 12 detergents, supplied as stock solutions at 5 or 10 times the reported CMC (Critical Micellar Concentration), with 100 or 200 µl per compound.

Membrane protein crystallization remains one of the most formidable challenges of modern-day crystallography. To help speed and simplify the process, Jena Bioscience has assembled a collection of the 24 most successful detergents used in membrane protein crystallization.

JBScreen Detergents can be used throughout the protein purification process or can be added afterwards by dialysis on ion-exchange chromatography. Detergent exchange can be vital for obtaining well-diffracting membrane protein crystals [1]. JBScreen Detergents are also valuable for additive screening with detergents and detergent mixtures [2,3] in combination with the JBScreen Membrane kit.

References:

[1] Rosenow *et al.* (2003) The influence of detergents and amphiphiles on the solubility of the light-harvesting I complex. *Acta Cryst. D* **59**:1422.

[2] Adir (1999) Crystallization of the oxygen-evolving reaction centre of photosystem II in nine different detergent mixtures. *Acta Cryst. D* **55**:891.

[3] Koronakis *et al.* (2000) Crystal structure of the bacterial membrane protein TolC central to multidrug efflux and protein export. *Nature* **405**:914.

ADDit™

Emerald BioSystems

Product	Cat. No.	Price (€)
ADDit™ Additives Screen (96 formulations, 0.5 ml each in a 96 well block plate)	ADDIT-1	550,—

The **ADDit™ Additive Screen** is a set of 96 different small molecule and salt solutions that have been found to be effective in aiding the crystallization of biological macromolecules. It comprises a range of crystal growth promoters and nucleation suppressants including detergents, chelators, reducing agents, volatile and non-volatile organics, heavy atoms and salts. The purpose of this screen is to increase the quality and/or size of initial crystal hits when added to a lead conditions.

Input Protein

Existing Protein

JBS Solubility Kit

Product	Cat. No.	Price (€)
JBS Solubility Kit	CO-310	210,—

Applications: Pre-crystallization screen to improve the composition of the initial protein buffer solution prior to performing crystallization set-ups.

Kit contents: 24 buffer solutions at 10 ml aliquots + 14 additives at 250 µl aliquots

The **JBS Solubility Kit** is a pre-crystallization screen to improve the composition of the initial protein buffer solution prior to performing crystallization set-ups [1]. Since the highly complex properties of proteins are dependent on their environment, buffer solutions play an important role, i.e. influencing the solubility and the aggregation behavior of the protein sample. Studies have shown that aggregation of the protein may inhibit nucleation and crystal growth. Therefore, the Solubility Kit has been developed to investigate protein samples towards their homogeneity and monodispersity prior to crystallization trials, employing hanging drop vapor diffusion experiments combined with dynamic light scattering. The JBS Solubility Kit contains 24 buffer solutions at different pH-values for setting up hanging drop vapor diffusion experiments in order to monitor the aggregation and precipitation of the protein sample and 14 additives used for further optimization employing dynamic light scattering.

References:

[1] Jancarik *et al.* (2004) Optimum solubility (OS) screening: an efficient method to optimize buffer conditions for homogeneity and crystallization of proteins. *Acta Cryst. D* **60**:1670.

JBSolution Detergent Test Kit

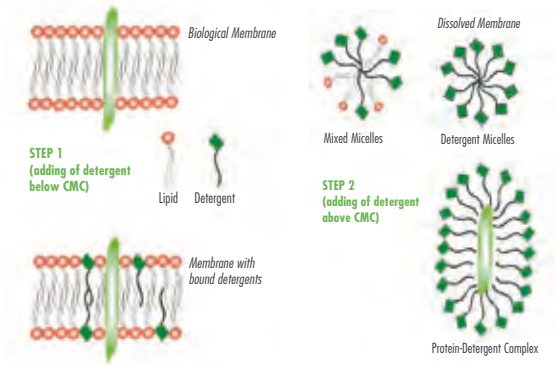
Product	Cat. No.	Price (€)
JBSolution Detergent Test Kit	DK-101	204,75

Applications: Dissolving hydrophobic proteins out of the biological lipid bilayer.

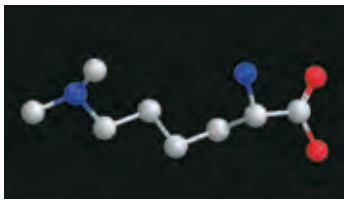
Kit contents: Assembly of 27 detergents as 4 ml stock solutions + 3 buffer solutions at 10 ml aliquots, each at two pH values.

The **JBSolution Detergent Test Kit** is designed to optimize the solubilization of membrane proteins. Compounds assembled in the kit range from ionic to non-ionic to zwitter-ionic detergents. These detergents have non-denaturing as well as denaturing properties. The arrangement is based on years of experience. The kit contains 4 ml stock solutions of 27 detergents and 3 buffers at 1 M concentration (Tris-HCl, HEPES Sodium Salt, Sodium Phosphate Buffer), each at two different pH-values (7.5 and 8.0).

Solubilization of Cell Membranes:



JBS Methylation Kit



Ball-and-Stick representation of a methylated lysine residue.

Product	Cat. No.	Price (€)
JBS Methylation Kit	CS-510	157,50

Applications: Surface engineering by selective methylation of lysine residues to alter crystallization properties of proteins.

Formats: All reagents required, sufficient for at least 6 methylation experiments.

Surface engineering of proteins can be a powerful technique for dealing with proteins that yield no or poorly diffracting crystals. In particularly, reductive methylation of proteins has emerged as a standard procedure in several large scale facilities and research programs, i.e. the Midwest Centre of Structural genomics [1] and the Structural Proteomics In Europe (SPINE) program [2,3].

The **JBS Methylation Kit** is designed for **selective methylation of lysine residues**. The method does not require laborious cloning/expression/purification but chemically replaces the protons of the amino group of all lysine residues with methyl groups. The result is a surface-engineered protein within 24 hours ready for crystallization.

Just follow the manual step-by-step. No background in chemistry necessary.

References:

[1] Kim *et al.* (2008) Large-scale evaluation of protein reductive methylation for improving protein crystallization. *Nature Methods* **5**:853.

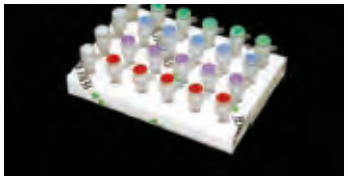
[2] Fogg *et al.* (2006) Application of the use of high-throughput technologies to the determination of protein structures of bacterial and viral pathogens. *Acta Cryst. D* **62**:1196.

[3] Walter *et al.* (2006) Lysine methylation as a routine rescue strategy for protein crystallization. *Structure* **14**:1617.

Reference for successful application of the JBS Methylation Kit:

Shi *et al.* (2006) Expression, crystallization and preliminary crystallographic studies of a novel bifunctional N-acetylglutamate synthase/kinase from Xanthomonas campestris homologous to vertebrate N-acetylglutamate synthase. *Acta Cryst. D* **62**:1218.

JBS Floppy-Choppy



Product	Cat. No.	Price (€)
JBS Floppy-Choppy (In situ proteolysis as rescue technique in protein crystallization)	CO-110	136,50

JBS Floppy-Choppy is *the* rescue kit for proteins which are recalcitrant to crystallization. It enables the researcher to modify the protein target by *in situ* proteolysis to improve its crystallization behavior .

The method implies the addition of trace amounts of protease to the protein solution immediately prior to crystallization. Thus, the crystallization experiment is very straightforward. It can be set up without evaluating the efficacy of proteolysis, without stopping the proteolysis reaction and without purification of any proteolyzed protein fragments.

In situ proteolysis is one of the most efficacious crystallization rescue strategies used at structural genomic centers [1,2].

Make a new / better Protein

Random Mutagenesis Kits

Product	Cat. No.	Amount	Price (€)
JBS dNTP-Mutagenesis Kit Random Mutagenesis by dNTP Analogs	PP-101	15 reactions	240,—
JBS Error-Prone Kit Random Mutagenesis by Error-Prone PCR	PP-102	15 reactions	190,—
JBS DNA-Shuffling Kit Random Mutagenesis by DNA Shuffling	PP-103	15 reactions	240,—

Within three billion years of evolution, nature has produced a plethora of proteins simply by repeated cycles of random mutagenesis followed by in vivo selection for superior function of the encoded proteins. This example of natural evolution has guided researchers within the last two decades to develop strategies for in vitro permutation of proteins.

Among the variety of strategies applied, three major powerful techniques have emerged.

LEXSY – Eukaryotic protein expression in *Leishmania tarentolae*

The unicellular kinetoplast protozoan Leishmania tarentolae, isolated from the Moorish gecko *Tarentola mauritanica*, not pathogenic to mammalians (Biosafety level 1) – was turned into the protein-producing host of our eukaryotic protein expression system LEXSY:

- eukaryotic host as easy to handle as *E. coli*: no specific labware, no cell biology equipment required.
- fully eukaryotic protein expression machinery with post-translational modifications, including glycosylation and disulfide bond formation
- shuttle vectors: cloning in *E. coli*, expression in LEXSY host
- constitutive or inducible, intracellular or secretory expression of target proteins
- stable expression strains for constant protein production

Find all tools required for protein expression with LEXSY (expression kits, LEXSY host, cultivation kits and tools, shuttle vectors and more) in our General Catalog or at our website **www.jenabioscience.com** .

Thermodynamics / Kinetics

Dehydration Salts & Crystal Dehydration and Salvage Kit

Product	Cat. No.	Price (€)
Dehydration Salts	CO-121	95,—
Crystal Dehydration and Salvage Kit	CO-122	145,—

Dehydration has been used as a tool for inducing structural changes in protein crystals since the earliest days of protein crystallography. Though neglected, dehydration remains a powerful tool for improving or at least modifying the diffraction properties of protein crystals.

- Dehydration removes excess solvent, tightens packing of protein molecules, and reduces the size of solvent channels. As a result, it sometimes improves crystal order and diffraction resolution.
- By removing excess solvent, dehydration can make successful flash cooling easier, especially for crystals with large initial solvent contents.
- When sufficiently dehydrated, many protein crystals undergo structural transformations, yielding alternative crystal packings that may be difficult or impossible to achieve directly during crystal growth.

Of all post-crystallization treatments, dehydration has proven to be the most effective in improving crystal diffraction properties. Of course, dehydration also often severely degrades crystal diffraction, but (amazingly!) original crystal order can usually be fully recovered just by rehydrating.

Dehydration Salts and the **Crystal Dehydration and Salvage Kit** have been designed for an easy, controlled and reliable way to dehydrate protein crystals and thus provide an efficient tool for altering / improving their diffraction properties.

The **Dehydration Salts** contain 12 saturated salt solutions, 1 ml each, producing relative humidities in the range of 22.5 to 97.3 %.

The **Crystal Dehydration and Salvage Kit**, shown on the left, is composed of the 12 dehydration salts, MiTeGen's goniometer bases and RT Tubing.

Data Collection & Cryo Crystallography

MiTeGen Tools

MiTeGen has been founded to develop and manufacture products for the small molecule and macromolecular crystallography communities. MiTeGen's strength and focus is on applying concepts and technologies from physics and related fields to address the practical problems faced by collaborators in the structural biology community. The first product – MicroMounts™ – was developed by Prof. Robert Thorne's group in the Physics Department at Cornell University.

Please note: *Jena Bioscience is not entitled to sell MiTeGen products to the USA and Japan! Customers in these countries please contact MiTeGen for distributor information.*

MicroMounts™

Product	Cat. No.	Price (€)
MicroMounts™ Small Aperture Assortment 5 each of 10, 20, 30 and 50 µm crystal apertures	M1-Lxx-A1	60,—
MicroMounts™ Medium Aperture Assortment 5 each of 75, 100, 150 and 200 µm crystal apertures	M1-Lxx-A2	60,—
MicroMounts™, Large Aperture Assortment 5 each of 300, 400, 500 and 600 µm crystal apertures	M1-Lxx-A3	60,—
MicroMounts™, 10 µm aperture mounts 20 of 10 µm aperture mounts	M1- Lxx-10	60,—
MicroMounts™, 20 µm aperture mounts 20 of 20 µm aperture mounts	M1-Lxx-20	60,—
MicroMounts™, 30 µm aperture mounts 20 of 30 µm aperture mounts	M1-Lxx-30	60,—
MicroMounts™, 50 µm aperture mounts 20 of 50 µm aperture mounts	M1-Lxx-50	60,—
MicroMounts™, 75 µm aperture mounts 20 of 75 µm aperture mounts	M1-Lxx-75	60,—
MicroMounts™, 100 µm aperture mounts 20 of 100 µm aperture mounts	M1-Lxx-100	60,—
MicroMounts™, 150 µm aperture mounts 20 of 150 µm aperture mounts	M1-Lxx-150	60,—
MicroMounts™, 200 µm aperture mounts 20 of 150 µm aperture mounts	M1-Lxx-200	60,—
MicroMounts™, 300 µm aperture mounts 20 of 300 µm aperture mounts	M1-Lxx-300	60,—
MicroMounts™, 400 µm aperture mounts 20 of 400 µm aperture mounts	M1-Lxx-400	60,—
MicroMounts™, 500 µm aperture mounts 20 of 500 µm aperture mounts	M1-Lxx-500	60,—
MicroMounts™, 600 µm aperture mounts 20 of 600 µm aperture mounts	M1-Lxx-600	60,—

Upon ordering, please replace xx by the desired pin length, i. e. 11 mm (xx=11), 19 mm (xx=19), SPINE (xx=SP) and 25 mm (xx=25).

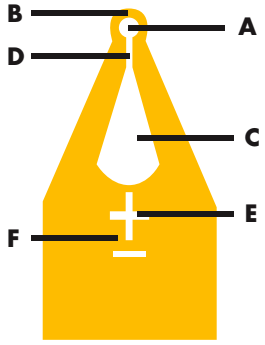
The advantages of MicroMounts™ are:

- Easier crystal retrieval
- Less background X-ray scatter
- Less liquid around your crystal
- Faster flash cooling
- Simplified cryoprotection
- Better cryo temperature diffraction quality
- No vibrations in the cryostream
- Accurate and reproducible crystal positioning
- Easier crystal visualization and alignment
- Easier automation

MicroMounts™ consist of a thin microfabricated polyimide film attached to a solid non-magnetic stainless steel pin. This polyimide film, used in Kapton® tape, has low atomic number (Z) constituents and low density, and produces less background scatter than e.g., nylon. It is optically transparent with an orange-gold hue.

The curvature of the film is obtained by wrapping polyimide film around the steel pin. This provides excellent stiffness even with very thin (5 µm) films, and a convenient, scoop-like action in retrieving and handling crystals.

Crystal aperture (A) sizes from 10 to 600 µm, with minimal polyimide width (B) around the aperture to minimize background scatter in all orientations.



Wicking hole (B) connected via drainage channel (D) to the crystal aperture. Hole size is compatible with size 15 paper wicks. "Fountain-pen"- like design allows easier removal of excess liquid - without ever touching the crystal with the wick.

Alignment cross (E) located a fixed distance from the center of the crystal aperture. Allows easy automated alignment of the crystal aperture (A) sizes from 5 to 700 µm.

Crystal aperture size (F) code around the alignment cross. Allows automated recognition of aperture and crystal size, which determines boundaries of aperture (to be avoided), required alignment tolerance, and area of crystal available to be scanned for optimum diffraction. Initial beam size can then be automatically selected.

MicroMounts™ are mounted on solid stainless steel pins available in four standard lengths: **11 mm, 19 mm, SPINE, and 25 mm**. The 11, 19 and 25 mm pin lengths give pin base-to-crystal center distances comparable to those of nylon loops mounted in 10, 18, and 24 mm pins, respectively. Custom pin lengths available on request.

Since the pins are non-magnetic they will not be pulled out or trapped by magnets in tools or in auto-mounting hardware.

Each box contains 20 MicroMounts™ precision-attached to nonmagnetic solid stainless steel pins.

MicroMeshes™

Product	Cat. No.	Price (€)
MicroMesh™ Mounts – Assortment 5 each of 400/10, 400/25, 400/50 and 700/25 µm meshes	M3-Lxx-A1	75,—
MicroMesh™ Mounts – 400/10 20 of 400 µm diameter, 10 µm aperture meshes	M3-Lxx-10	75,—
MicroMesh™ Mounts – 400/25 20 of 400 µm diameter, 25 µm aperture meshes	M3-Lxx-25	75,—
MicroMesh™ Mounts – 400/50 20 of 400 µm diameter, 50 µm aperture meshes	M3-Lxx-50	75,—
MicroMesh™ Mounts – 700/25 20 of 700 µm diameter, 25 µm aperture meshes	M3-Lxx-25L	75,—
MicroMesh™ Mounts – 80/15 20 of 80 µm diameter, 15 µm aperture meshes	M3-Lxx-15	85,—

Upon ordering, please replace xx by the desired pin length, i. e. 11 mm (xx=11), 19 mm (xx=19), SPINE (xx=SP) and 25 mm (xx=25).

MicroMesh™ Mounts are the tool of choice for microcrystal crystallography and diffraction experiments, especially at microfocus beamlines. They have been used in de novo protein structure determination from crystals as small as 5 µm.

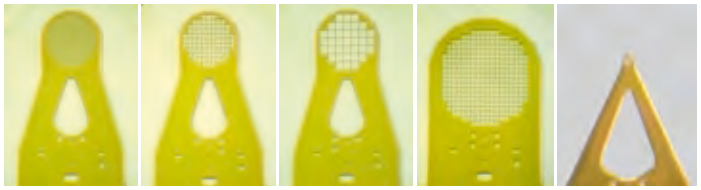
They are excellent for rod shaped crystals, and in particular are superior to mounts with elliptical apertures, because the mesh provides continuous, gentle support for rods of all sizes.

MicroMeshes™ produce the smallest background scatter of any commercial mount. Their sieve-like action allows easy retrieval of sub-30 µm crystals.

We now offer five different size MicroMeshes™. All are 10 µm thick and are curved around the same nonmagnetic stainless steel pins used for MicroMounts, producing the same scoop-like action.

The first three have a 400 µm mesh area with openings of 10, 25 and 50 µm, respectively.

The fourth has a 700 µm diameter mesh area with 25 µm openings.



400/10 400/25 400/25 700/25 80/15

The fifth MicroMesh™ Mount has an 80 µm diameter mesh area with 15 µm openings. This small head is designed to fit entirely within the 80 µm and larger X-ray beams typical of standard synchrotron beamlines and of focused laboratory sources. Consequently, you don't have to see your tiny crystal to align it: just center the 80 µm head in the beam, and your crystal will be within it.

Each box contains 20 MicroMounts™ precision-attached to nonmagnetic solid stainless steel pins (11, 19, 25 mm).

Indexed MicroMeshes™

Product	Cat. No.	Price (€)
Indexed MicroMesh™ Mounts – 400/25-IN1 20 of 400 micron diameter, 25 micron aperture meshes	M3-Lxx-400-IN1	85,—
Indexed MicroMesh™ Mounts – 400/25-IN2 20 of 400 micron diameter, 25 micron aperture meshes	M3-Lxx-400-IN2	85,—
Indexed MicroMesh™ Mounts – 300/25-IN1 20 of 300 micron diameter, 25 micron aperture meshes	M3-Lxx-300-IN1	85,—

Upon ordering, please replace xx by the desired pin length, i. e. 11 mm (xx=11), 19 mm (xx=19), SPINE (xx=SP) and 25 mm (xx=25).

Indexed MicroMesh™ Mounts have all the features and advantages of regular MicroMesh™ Mounts for microcrystal crystallography and diffraction measurements, including the smallest background scatter of any commercial mount, and a sieve-like action that allows easy retrieval of sub-30 µm crystals.

Indexing makes it easier to locate (and then to relocate) a given crystal on the mount. Identify the most promising crystals on your home microscope, and then easily find them again on your microfocus source. Do a high magnification search at the beamline and then refind and shoot the best crystal, without having to zoom out.

Microcrystals from a given drop often have more than one crystalline form/packing, and the different forms may diffract to very different resolutions. Use high magnification to identify and shoot these different forms.

Three styles of indexed MicroMesh mounts, all with 25 µm mesh openings are offered.

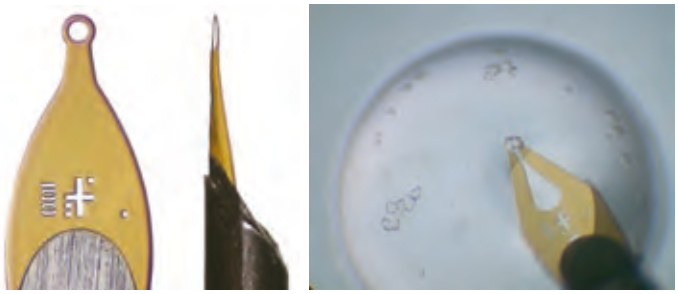
The first two are based on MiTeGen's popular 400/25 MicroMesh Mount. The mesh area is divided into four quadrants, and additional diagonal tabs allow the front/back orientation of the mesh and a crystal's position on the mesh to be uniquely determined in only a 100 µm field of view. In style 400/25-IN1, the quadrants are numbered. In style 400/25-IN2, the numbers are replaced by 60 µm square apertures. Crystals suspended across these larger apertures can sometimes be easier to see.

The third style has a 300 µm mesh area divided into nine numbered 100 µm areas. The flat top of this mount makes it easier to scrape/scoop crystals off of the bottom of a well or coverslip.

MicroLoops™

Product	Cat. No.	Price (€)
MicroLoops, Small Aperture Assortment 5 each of 20, 35, 50 and 75 µm aperture loops	M5-Lxx-A1	65,—
MicroLoops, Medium Aperture Assortment 5 each of 100, 150, 200 and 300 µm aperture loops	M5-Lxx-A2	65,—
20 µm aperture MicroLoops 20 loops	M5-Lxx-20	65,—
35 µm aperture MicroLoops 20 loops	M5-Lxx-35	65,—
50 µm aperture MicroLoops 20 loops	M5-Lxx-50	65,—
75 µm aperture MicroLoops 20 loops	M5-Lxx-75	65,—
100 µm aperture MicroLoops 20 loops	M5-Lxx-100	65,—
150 µm aperture MicroLoops 20 loops	M5-Lxx-150	65,—
200 µm aperture MicroLoops 20 loops	M5-Lxx-200	65,—
300 µm aperture MicroLoops 20 loops	M5-Lxx-300	65,—
MicroLoops HT, Small Aperture Assortment 5 each of 20, 35, 50 and 75 µm aperture loops	M5-Lxx-A1HT	90,—
MicroLoops HT, Medium Aperture Assortment 5 each of 100, 150, 200 and 300 µm aperture loops	M5-Lxx-A2HT	90,—
20 µm aperture MicroLoops HT 20 loops	M5-Lxx-20HT	90,—
35 µm aperture MicroLoops HT 20 loops	M5-Lxx-35HT	90,—
50 µm aperture MicroLoops HT 20 loops	M5-Lxx-50HT	90,—
75 µm aperture MicroLoops HT 20 loops	M5-Lxx-75HT	90,—
100 µm aperture MicroLoops HT 20 loops	M5-Lxx-100HT	90,—
150 µm aperture MicroLoops HT 20 loops	M5-Lxx-150HT	90,—
200 µm aperture MicroLoops HT 20 loops	M5-Lxx-200HT	90,—
300 µm aperture MicroLoops HT 20 loops	M5-Lxx-300HT	90,—

Upon ordering, please replace xx by the desired pin length, i. e. 11 mm (xx=11), 19 mm (xx=19), SPINE (xx=SP) and 25 mm (xx=25).



MicroLoop™ Mounts provide a superior tool in a familiar format for manipulating and mounting protein/small molecule crystals and many other small fragile samples.

MicroLoops™ have circular sample apertures which are available in eight sizes, i.e. 20, 35, 50, 75, 100, 150, 200 and 300 µm.

Choose between **two film thicknesses**: MiTeGen's standard 10 µm for the lowest background scatter, and **HT** thickness 18 µm for improved durability and rigidity in high-throughput applications.

Compared with MicroMounts™, **MicroLoops™** have a narrower neck connecting the crystal aperture to the base. They also do not have a wicking aperture. These features allow them to enter small protein drops with less disturbance to the drop. As with MicroMounts™, drop disturbances are also reduced by attaching the loops to solid rather than hollow nonmagnetic stainless steel rods. MicroLoops™ are slightly thicker than MicroMounts™ to increase their rigidity in the cryostream.

Compared with conventional nylon loop mounts and with competing lithographically fabricated mylar loop mounts, **MicroLoops™** provide:

- Much lower background X-ray scatter (roughly 1/3 that of mylar mounts).
- Much more accurate and reproducible crystal positioning in the X-ray beam.
- A more convenient and efficient scoop-like action in retrieving crystals that minimizes the chance of crystal loss or damage.
- Excellent rigidity in the cryostream and during crystal retrieval.

MicroLoops E™

Product	Cat. No.	Price (€)
Vertical MicroLoops E - Assortment 5 each of 15×150, 30×300, 50×500 and 70×700 µm aperture	M8-Lxx-VA1	85,—
Horizontal MicroLoops E - Assortment 10 each of 15 × 150 and 50×500 µm aperture	M8-Lxx-HA1	85,—
Small Molecule Vertical MicroLoops E - Assortment 5 each of 15×150, 30×300, 50×500 and 70×700 µm aperture	M8-Lxx-VA1SM	85,—
Inclined MicroLoops E - Assortment 10 each of 15×150 and 50×500 µm aperture	M8-Lxx-IA1	85,—
Small Molecule Horizontal MicroLoops E - Assortment 10 each of 15×150 and 50×500 µm aperture	M8-Lxx-HA1SM	85,—
Small Molecule Inclined MicroLoops E - Assortment 10 each of 15×150 and 50×500 µm aperture	M8-Lxx-IA1SM	85,—

Upon ordering, please replace xx by the desired pin length, i. e. 11 mm (xx=11), 19 mm (xx=19), SPINE (xx=SP) and 25 mm (xx=25).

The elongated sample apertures of the **MicroLoops E™** are particularly suitable for needle or rodshaped samples. You can choose between Vertical, Horizontal and Inclined aperture **MicroLoops E™**.

The small fingers projecting into the aperture gently support your sample. Use the inclined apertures to improve crystal orientation for the most efficient data collection.

A standard and a small molecule crystallography (**SM**) versions is available. The SM version has a larger distance between the sample aperture and steel rod, to allow data collection over a wide range of sample orientations typical in small molecule crystallography without X-ray beam scatter off of the rod. The SM version is slightly less rigid than the standard version.

MicroLoops LD™

Product	Cat. No.	Price (€)
MicroLoops LD, Small Aperture Assortment 5 each of 20, 35, 50 and 75 µm aperture loops	M5-Lxx-A1LD	90,—
MicroLoops LD, Medium Aperature Assortment 5 each of 100, 150, 200 and 300 µm aperture loops	M5-Lxx-A2LD	90,—
20 µm aperture MicroLoops LD 20 loops	M5-Lxx-20LD	90,—
35 µm aperture MicroLoops LD 20 loops	M5-Lxx-35LD	90,—
50 µm aperture MicroLoops LD 20 loops	M5-Lxx-50LD	90,—
75 µm aperture MicroLoops LD 20 loops	M5-Lxx-75LD	90,—
100 µm aperture MicroLoops LD 20 loops	M5-Lxx-100LD	90,—
150 µm aperture MicroLoops LD 20 loops	M5-Lxx-150LD	90,—
200 µm aperture MicroLoops LD 20 loops	M5-Lxx-200LD	90,—
300 µm aperture MicroLoops LD 20 loops	M5-Lxx-300LD	90,—

Upon ordering, please replace xx by the desired pin length, i. e. 11 mm (xx=11), 19 mm (xx=19), SPINE (xx=SP) and 25 mm (xx=25).

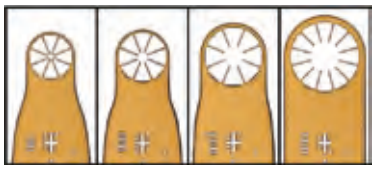
MicroLoops LD™ have a computer-optimized design with longer, thinner necks to minimize disturbance when inserted and withdrawn from small liquid drops. Thick polymer in the neck region makes these mounts rigid in, e.g., a cold gas stream, and thin polymer in the loop region ensures the lowest possible background scatter in X-ray diffraction applications. The world's most advanced loop design.

MicroLoops LD™ have aperture sizes of 20, 35, 50, 75, 100, 150, 200 and 300 µm.

MicroGrippers™

Product	Cat. No.	Price (€)
MicroGripper Mounts - Assortment 5 each of 50, 100, 200, and 300 µm aperture MicroGrippers	M7-Lxx-A1	80,—
50 µm aperture MicroGripper Mounts 20 MicroGrippers	M7-Lxx-50	80,—
100 µm aperture MicroGripper Mounts 20 MicroGrippers	M7-Lxx-100	80,—
200 µm aperture MicroGripper Mounts 20 MicroGrippers	M7-Lxx-200	80,—
300 µm aperture MicroGripper Mounts 20 MicroGrippers	M7-Lxx-300	80,—

Upon ordering, please replace xx by the desired pin length, i. e. 11 mm (xx=11), 19 mm (xx=19), SPINE (xx=SP) and 25 mm (xx=25).



MicroGripper™ Mounts provide a new approach to retrieving and mounting crystals for room and low temperature measurements.

With all conventional mounts, protein and virus crystals are held in contact with the mount by liquid capillary forces at room temperature, and by frozen liquid at cryogenic temperatures. "Dry" crystals, which give the lowest possible background scatter, tend to fall off the mount.

With a **MicroGripper™** Mount, you simply push the mount down onto your crystal. Its tiny, flexible, soft fingers then gently grab your crystal without damaging it (yes, even for protein and virus crystals), firmly holding your crystal in place.

MicroGrippers™ are ideal for data collection at and near room temperature. Because the crystal is gripped, viscous oils are no longer needed to prevent crystal slippage during rotations. Crystals can be mounted at home and shipped to the synchrotron at room temperature.

Use **MicroGrippers™** with MiTeGen's MicroRT™ system for easy and foolproof room-temperature data collection. For the lowest background scatter possible, wick away all surrounding liquid before gripping your crystal, and then rehydrate it within the MicroRT tube by injecting a small amount of mother liquor down toward the sealed end of the tube.

MicroGrippers™ are also well suited for thin plates and rods. Slip them under your crystal, and their soft, flexible fingers will provide very gentle support for the most fragile samples.

MitegenLabs™

Product	Cat. No.	Price (€)
MicroBrooms 12 per box, 3 of each design, includes holder	ML-Lxx-10	60,—
MicroPlows 8 per box, includes holder	ML-Lxx-15	60,—
Assorted MicroApertures 8 per box, 4 of each design	ML-Lxx-36	60,—

Upon ordering, please replace xx by the desired pin length, i. e. 11 mm (xx=11), 19 mm (xx=19), SPINE (xx=SP) and 25 mm (xx=25).

Feeling adventurous? Still searching for a solution to a difficult problem?

Try some of the many new products under development at Mitegen. These prototypes are still undergoing testing and evaluation, and quantities are limited. If for any reason you're not happy with these products, tell us why! We want your feedback.

MicroBrooms™

Use these to gently sweep crystals to where you want them, with minimial risk of crystal damage. Broom fingers are 200 or 400 µm long and 25 or 40 µm wide. Each box contains 12 tools, 3 of each design. Hold them in a standard 0.7 mm mechanical pencil.

MicroPlows™

Press the tip of this tool flat against a substrate, and then slide forward to gently dislodge and then guide your crystals to where you want them. Each box contains 8 tools. Hold them in a standard 0.7 mm mechanical pencil.

MicroApertures™

These tools are all designed for use with rod or needle-shaped samples. Regular MicroMesh™ Mounts can also be used. Note that unless you're able to move the tool very slowly and steadily through the liquid, you shouldn't expect the crystal to land on top of the elongated aperture. Use a MicroTip™ from Microtools™ Kit 2 or 3 to reposition the crystal once it is on the mount.

Assorted MicroApertures™

Tools with multiple apertures of different sizes and shapes. Each box contains 8 tools, 4 of each design.

MicroTools™

Product	Cat. No.	Price (€)
MicroTools™ Kit 1 19 mm pin lengths	T1-L19-A1	75,—
MicroTools™ Kit 1 25 mm pin lengths	T1-L25-A1	75,—
MicroTools™ Kit 2 25 mm pin lengths	T2-L25-A1	100,—
MicroTools™ Kit 3 25 mm pin lengths	T3-L25-A1	100,—

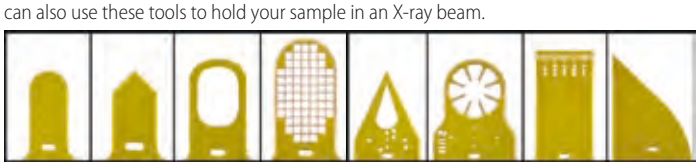
MicroTools™

These tools are designed for use with samples from a few micrometers to a millimeter in size. Unlike other microtools, Mitegen's patent-pending MicroTools™ have tips made from soft, flexible microfabricated polymer films. The curvature of the tips gives them rigidity, but they can still easily be flexed to, e.g., slide flat along the well bottom in a multiwell plate, simplifying sample retrieval. These tools are far less likely to damage fragile samples than metal microtools, and are optically and X-ray transparent. Use for protein crystals, single cells and other small samples.

Each tool is mounted on a 0.025"/ 0.64 mm diameter nonmagnetic solid stainless steel rod. Hold them in a standard 0.7 mm mechanical pencil (included with each kit), or in a micromanipulator.´

MicroTools™ Kit 1

MicroTools™ Kits 1, the original kit, contains 20 tools for common sample manipulation tasks. These include dislodging samples from slides and plates separating samples, holding and transferring samples during soaks, rigidly holding samples at room temperature, cutting protein skins, gels and lipid phases, and measuring sample dimensions. The polymer film is 10 micrometers thick and produces little background X-ray scatter, so you can also use these tools to hold your sample in an X-ray beam.

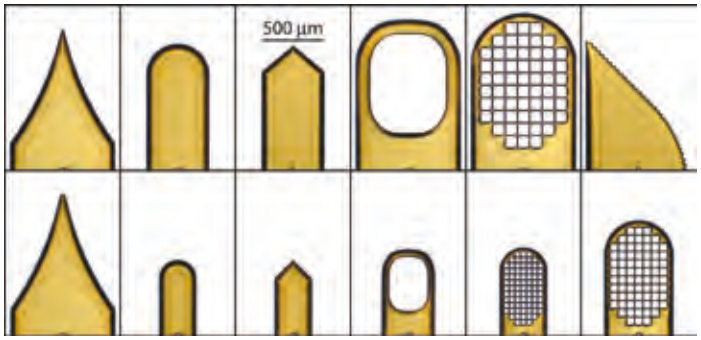


Each kit contains:

- **MicroSpoon™**: One each of small, medium and large sizes. Use to push, detach from surfaces, separate from a cluster, lift, and transfer. Push down to flatten tip and slide under your sample.
- **MicroChisel™**: One each of small, medium and large sizes. Use to push, detach from surfaces, separate from a cluster, lift, and transfer. Push down to flatten tip and slide under your sample.
- **MicroLasso™**: One each of small and large sizes. Use like a loop to lasso, pull and detach a sample from a surface.
- **MicroSieve™**: One each of small, medium and large sizes. Use to sieve samples out of solution, and to lift, transfer and soak.
- **MicroTip™**: One 50 micrometer diameter tip. Use to poke, separate and lift samples. Also use to reposition samples on a MicroMount or MicroMesh.
- **MicroGripper™**: One each of small, medium and large sizes. Push down onto your sample to firmly capture it, or slide underneath your sample to delicately support it. Holds crystals rigidly without damaging them for room temperature X-ray measurements.
- **MicroRuler™**: One 600 micrometer wide ruler, with 25 micrometer gradations.
- **MicroSaw™**: Two saws. Use in conjunction with a needle to cut and remove protein skins, gels, dense lipid phases and soft tissues from around your sample.

MicroTools™ Kit 2

MicroTools™ Kit 2 contains 20 tools for common sample manipulation tasks. These tools are 50% thicker than those in Kit 1. This makes them more durable and rigid, but also increases background X-ray scatter (but still less than other commercial X-ray sample mounting technologies).



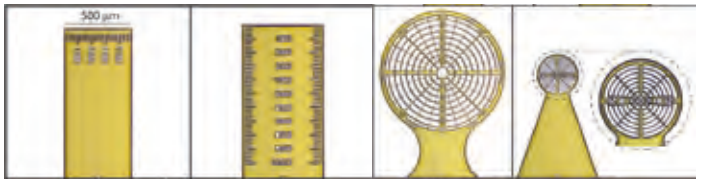
Each kit contains:

- **MicroTip™**: Two each of 25 and 50 micrometer diameter tips. Use to poke, separate and lift samples. Also use to reposition samples on a MicroMount or MicroMesh. Shape is designed to minimize disturbance of surrounding liquid while maximizing tip rigidity.
- **MicroSpoon™**: Two small and one large size. Use to push, detach from surfaces, separate from a cluster, lift, and transfer. Push down to flatten tip and slide under your sample.
- **MicroChisel™**: Two small and one large size. Use to push, detach from surfaces, separate from a cluster, lift, and transfer. Push down to flatten tip and slide under your sample.
- **MicroLassos™**: Two small and one large size. Use like a loop to lasso, pull and detach a sample from a surface.
- **MicroSieve™**: Two small, two medium and one large size. Use to sieve samples out of solution, and to lift, transfer and soak.
- **MicroSaw™**: Two saws. Use in conjunction with a needle to cut and remove protein skins, gels, dense lipid phases and soft tissues from around your sample.

MicroTools™ Kit 3

MicroTools™ Kit 3 contains 20 tools for sample measurements. Two tool designs allow measurement of linear sample dimensions, and two allow measurement of both linear and angular dimensions. Use them to accurately measure small and fragile samples with minimal chance of sample damage. The tool tips are 10 micrometers thick and are both optically and X-ray transparent.

MicroTools™ Kit 3 is also available in an X-ray fluorescent version (Kit 3F). These tools exhibit a red glow when hit by an X-ray or electron beam. Use them to measure your beam size and shape, and its position relative to your sample and telescope reticle.



Each kit contains:

- **Horizontal MicroRuler™**: Five 500 micrometer wide horizontal rulers with 25 micrometer gradations.
- **Vertical MicroRuler™**: Five 1000 micrometer long vertical rulers with 25 micrometer gradations.
- **Large MicroProtractor™**: Five 1000 micrometer diameter tools for measuring angles and radial distances/dimensions, with 15 degree and 50 micrometer gradations. Use to measure facet angles on crystals, the major and minor axes of ellipsoidal samples, or to specify the polar coordinates of multiple samples on a single tool.
- **Small MicroProtractor™**: Five 320 micrometer diameter tools for measuring angles and radial distances/dimensions, with 30 degree and 20 micrometer gradations.

MicroRT™ Tubing Kit

Product	Cat. No.	Price (€)
MicroRT™ Tubing Kit contains 20 polyester tubes	RT-T1	45,—

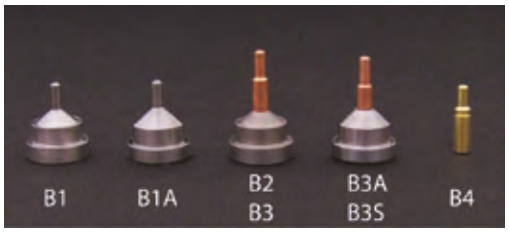
Each bottle contains 20 – 1.5'' (37 mm) long clear polyester tubes sealed at one end, an extra-keen razor blade for cutting the tubes to a desired length, and a tiny tube of grease for lubricating the base.

Features

- Ideal for both room-temperature structure determination and for diagnosing the cause of poor low-temperature diffraction.
- Easy crystal mounting for room-temperature data collection, with little risk of crystal loss or damage.
- Easy collection of both room and low-temperature data from a single crystal.
- Significantly less background scatter than glass capillaries.
- Easier crystal visualization and alignment, especially for small crystals. No liquid/wall optical distortion as in traditional capillary mounting.
- Accurate and reproducible crystal positioning relative to the goniometer base.
- Suitable for automated alignment and data collection.
- One size tubing fits all. No need to stock multiple sizes.
- Tubing is reusable / Lower cost per measurement.
- Tubing is easily cut and sealed.
- Tubing is somewhat permeable, and can not be used for long-term crystal storage.

To prepare a sample, just inject stabilizing liquid down into the tube towards its sealed end. Mount your crystal on a MicroMount™ and insert the MicroMount™ into the base in the usual way. Then pull the tubing down over the crystal and mount and onto the base.

Goniometer Bases



Product	Cat. No.	Amount	Price (€)
Goniometer Bases – B1, pack of 1	GB-B1-1	1 base	10,—
Goniometer Bases – B1, pack of 3	GB-B1-3	3 bases	24,—
Goniometer Bases – B1, pack of 6	GB-B1-6	6 bases	36,—
Goniometer Bases – B1, pack of 20	GB-B1-20	20 bases	100,—
Goniometer Bases – B1A, pack of 1	GB-B1A-1	1 base	10,—
Goniometer Bases – B1A, pack of 3	GB-B1A-3	3 bases	24,—
Goniometer Bases – B1A, pack of 6	GB-B1A-6	6 bases	36,—
Goniometer Bases – B1A, pack of 20	GB-B1A-20	20 bases	100,—
Goniometer Bases – B2, pack of 1 copper base – for MicroMounts or MicroMeshes on 11mm pins	GB-B2-1	1 base	10,—
Goniometer Bases – B2, pack of 3 copper base – for MicroMounts or MicroMeshes on 11mm pins	GB-B2-3	3 bases	24,—
Goniometer Bases – B2, pack of 6 copper base – for MicroMounts or MicroMeshes on 11mm pins	GB-B2-6	6 bases	36,—
Goniometer Bases – B2, pack of 20 copper base – for MicroMounts or MicroMeshes on 11mm pins	GB-B2-20	20 bases	100,—
Goniometer Bases – B3, pack of 1 copper base – for MicroMounts or MicroMeshes on 19mm pins	GB-B3-1	1 base	10,—
Goniometer Bases – B3, pack of 3 copper base – for MicroMounts or MicroMeshes on 19mm pins	GB-B3-3	3 bases	24,—
Goniometer Bases – B3, pack of 6 copper base – for MicroMounts or MicroMeshes on 19mm pins	GB-B3-6	6 bases	36,—
Goniometer Bases – B3, pack of 20 copper base – for MicroMounts or MicroMeshes on 19mm pins	GB-B3-20	20 bases	100,—
Goniometer Bases – B3A, pack of 1 copper base – for MicroMounts or MicroMeshes on 19mm pins	GB-B3A-1	1 base	10,—
Goniometer Bases – B3A, pack of 3 copper base – for MicroMounts or MicroMeshes on 19mm pins	GB-B3A-3	3 bases	24,—
Goniometer Bases – B3A, pack of 6 copper base – for MicroMounts or MicroMeshes on 19mm pins	GB-B3A-6	6 bases	36,—
Goniometer Bases – B3A, pack of 20 copper base – for MicroMounts or MicroMeshes on 19mm pins	GB-B3A-20	20 bases	100,—
Goniometer Bases – B3S, pack of 1 copper base – for MicroMounts or MicroMeshes on SPINE length pins	GB-B3S-1	1 base	10,—
Goniometer Bases – B3S, pack of 3 copper base – for MicroMounts or MicroMeshes on SPINE length pins	GB-B3S-3	3 bases	24,—
Goniometer Bases – B3S, pack of 6 copper base – for MicroMounts or MicroMeshes on Spine length pins	GB-B3S-6	6 bases	36,—
Goniometer Bases – B3S, pack of 20 copper base – for MicroMounts or MicroMeshes on SPINE length pins	GB-B3S-20	20 bases	100,—
Goniometer Bases – B4, pack of 20	GB-B4-20	20 bases	60,—
Goniometer Bases – B4, pack of 100	GB-B4-100	100 bases	200,—

MiTeGen offers several base styles to meet all your needs. Unlike other available bases, the patent-pending designs tightly capture the MicroRT™ tubing to allow seamless room-temperature and low-temperature data collection.

The B1 through B3 bases are compatible with standard cryovials, cryotools, goniometer heads and automounting hardware. Precision machined from solid 416 stainless steel, they are extremely durable.

Base style B1 is modified from the most common base style by adding a 2 mm diameter extension to capture MicroRT tubing. It can be used with any length MicroMount, MicroMesh mount or nylon loop mount.

Base B1 has the flat "ledge" used by grippers in, e.g., SSRL automounters. Base B1A has the ledge-free conical shape used by grippers in ALS-style automounters. Use base B1A at LBNL's Berkeley Center for Structural Biology, with the PXRR automounter at Brookhaven lab's NSLS, and at CHESS.

Base styles B2 and **B3** are modified from standard copper post bases by tapering the copper diameter to 2 mm to capture MicroRT™ tubing. Because only a short length of tubing must be drawn past the crystal, MicroRT tubes can be more easily taken on and off than with B1 style bases.

Base B2 is designed for use with 11 mm MicroMounts and MicroMeshes and with 10 mm nylon loop mounts. Available only with the flat ledge.

Base B3 is available in three versions: B3 for 19 mm MicroMounts™ (with the flat ledge),

B3A for 19 mm MicroMounts™ (without the ledge), and B3S for SPINE length MicroMounts (without the ledge). B3 style bases combine the convenience of longer MicroMounts and of the copper post style base in both room temperature MicroRT and cryocrystallography applications.

Base B4 is MiTeGen's version of the IUCr standard "brass pin" style base, modified for use with MicroMounts and the MicroRT system. Unlike other 3 mm / 1/8" diameter bases, our B4 has a smaller diameter central hole to tightly capture the stainless steel pins of MicroMounts, and a 2 mm diameter extension to capture our MicroRT™ tubing. Use for both room temperature and cryocrystallography applications.

Bases B1-B3 are available in packages of 1, 3, 6 and 20. Base B4 is available in packages of 20 and 100.

LV CryoOil

Product	Cat. No.	Price (€)
MiTeGen's LV CryoOil™	CC-401	40,—

LV CryoOil™ is a low viscosity, low surface tension perfluoropolyether oil with extremely low vapor pressure, excellent chemical inertness and excellent thermal stability. It is ideal for cryprotection and for protection against dehydration and oxidation, especially of very small crystals.

The ice rings seen in the diffraction patterns of flash cooled protein crystals arise primarily from crystallization of the aqueous solution surrounding the crystal, not of the internal solvent. Oils can displace and replace this surrounding solution with little risk of damage due to osmotic shock.

However, when mineral oil, Paratone oil and other high viscosity oils are used, the volume of surrounding oil can exceed the crystal volume by a factor of 10 or more, and can contribute excess drag that increases sample motion in a cryostream.

Mitegen's LV CryoOil™ has the lowest viscosity of any available perfluoro-polyether oil (1/10 that of Paratone oil and comparable to that of vegetable oil), and a very low surface tension (less than 1/3 that of water).

Consequently, a dip in this oil followed by gentle tapping to shake off excess can yield protective oil films on your crystal of as little as 10 microns thick.

Each vial contains 1.5 ml of oil, enough to protect hundreds of crystals.

NVH Oil

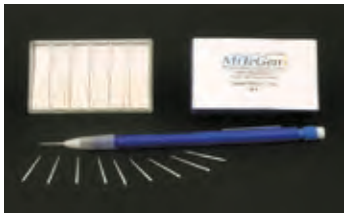
Product	Cat. No.	Amount	Price (€)
NVH Oil	NVHO-1	118 ml	25,—

NVH Oil is a very high viscosity oil suitable for room and variable-temperature diffraction measurements. Crystal motion during data collection is minimized, even when thick layers are used to prevent dehydration.

This oil is very effective in removing external solvent to prevent ice ring formation during cooling. Move your crystal back and forth in the oil, transfer to fresh oil, and repeat until you no longer see solvent trails and the crystal becomes nearly invisible.

Many protein crystals prepared in this way can be slowly cooled to 100 K without appreciable degradation of diffraction properties, allowing data collection at arbitrary temperatures. Unlike Paratone-N oil, this oil does not form diffraction rings when cooled.

Paper Wicks



Product	Cat. No.	Price (€)
W-15 Liquid Wicks Box of 300 size 15 tapered paper wicks	W-15	15,—
W-XF Liquid Wicks Box of 300 size Extra Fine tapered paper wicks	W-XF	15,—
W-F Liquid Wicks Box of 300 Fine tapered paper wicks	W-F	15,—
W-M Liquid Wicks Box of 300 size Medium tapered paper wicks	W-M	15,—

Each box contains 300 of 28mm long, high-quality, tapered **paper wicks**. Order Size 15 and Extra Fine (XF) wicks for removing liquid from around your crystal. Order Fine (F) and Medium (M) Wicks for cleaning MicroMounts™.

The size 15 wicks fit directly into a 0.7 mm pencil. The pencil grip allows you to better control the wick's position. Cut back from the widest end using a razor blade so that the diameter fits into your 0.7 mm pencil. Then dip the other end in water, a detergent solution (e.g., Alconox or PEX) or in isopropanol, and gently stroke the polyimide from base to tip.

Pin Cutters

Product	Cat. No.	Price (€)
Pin Cutters	PC-101	15,—

High quality front cutters for cutting hard/spring temper pins and rods. They provide accurate, burr-free cutting of MicroMount™ and MicroMesh™ pins.

Cryo Screens

JBScreen Cryo Pro

Product	Cat. No.	Price (€)
JBScreen Cryo Pro	CC-102	150,—

Applications: Screening for suitable cryo conditions.

Kit contents: 12 compounds, either at 3 solid aliquots or at 50 µl aliquots each

JBScreen Cryo Pro is the most convenient tool on the market for producing effective cryoprotectants from your crystallization reservoir solution. The kit contains 12 different compounds, divided into sugar/amino acid-based cryoprotectants, alcohol-based cryoprotectants, and an oil-based cryoprotectant.

Three predispensed samples of each solid and 50 µl of each liquid formulation are ready to be diluted with the reservoir solution. Crystals soaked in this reservoir-solution/cryoprotectant mixture can be directly transferred to a liquid nitrogen bath or cryogenic gas stream.

JBScreen Cryo

Product	Cat. No.	Price (€)
JBScreen Cryo 1	CC-103	150,—
JBScreen Cryo 2	CC-104	150,—
JBScreen Cryo 3	CC-105	150,—
JBScreen Cryo 4	CC-106	150,—
JBScreen Cryo 1 – 4	CC-107	450,—
JBScreen Cryo HTS S (1.0 ml per well)	CC-201S	140,—
JBScreen Cryo HTS L (1.7 ml per well)	CC-201L	225,—

Applications: Crystallization screening for proteins, peptides, nucleic acids, macromolecular complexes and water-soluble small molecules with cryo-ready reagents.

Formats:

Bulk – 1Kit contains 24 screening solutions at 10 ml aliquots

HTS – 96 solutions of **JBScreen Cryo 1–4** delivered in a 96 well masterblock
HTS S: 1.0 ml per well
HTS L: 1.7 ml per well

The employment of cryo-techniques is not only used to carefully preserve and store crystals for later analysis but also to reduce radiation damage, caused by intense X-ray sources, since the diffusion of active radicals is decelerated. Therefore, cryocooling prolongs crystal lifetime and facilitates straightforward data collection [1].

However, the use of cryoprotectants is crucial to prevent crystals from cracking and to protect them from the damaging effects of ice formation during the cryocooling process. The right cryoprotectant will guarantee that the thin layer of mother liquor, which surrounds the protein, will form an amorphous glass without the formation of water ice. Thus, X-ray data free of "ice rings" can be collected.

JBScreen Cryo is designed for efficient crystal screening in the presence of various cryoprotectants. The unique formulations of the JBScreen Cryo reagents are based on an extensive data base search [2]. and contain sufficiently high concentrations of cryoprotectants allowing direct transfer of crystals from the crystallization drop into liquid nitrogen.

References:

[1] Garman (1999) Cool data: quantity AND quality. *Acta Cryst. D* **55**:1641.

[2] http://idb.exst.jaxa.jp/db_data/protein/search-e.php

Crystal Storage

Cryo Canes™

Product	Cat. No.	Amount	Price (€)
Cryo Cane™, 5 vial holder	CC-301	12 pcs.	14,—
Cryo Cane™, 6 vial holder	CC-302	12 pcs.	16,—

CryoCanes™, made from aluminium, can hold cryo vials in order to store them in liquid nitrogen. The 5 vial CryoCane is 28 cm (11 5/16"), while the 6-vial version is 30 cm (11 13/16") long.

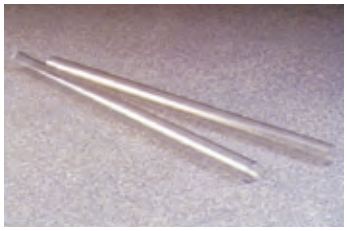
Cryo Cane™ Coders

Product	Cat. No.	Amount	Price (€)
CryoCane™ Coder, white	CC-311	12 pcs.	4,50
CryoCane™ Coder, yellow	CC-312	12 pcs.	4,50
CryoCane™ Coder, blue	CC-313	12 pcs.	4,50
CryoCane™ Coder, green	CC-314	12 pcs.	4,50
CryoCane™ Coder, red	CC-315	12 pcs.	4,50

CryoCane™ Coders are colorful aluminium tabs which are sliped onto the ends of CryoCanes™ to simplify sample indentification.

CryoCane™ Coders are available in 5 different colors.

Cryo Sleeve™



Product	Cat. No.	Amount	Price (€)
CryoSleeve™	CC-305	12 pcs.	11,—

CryoSleeves™ are clear plastic sleeves designed to enclose CryoCane™ holders for extra security during handling and storage. They allow quick location of empty spaces in the cane and easy identification of a particular vial or vials without removing the sleeve.

CryoSleeves™ are a direct replacement for cardboard sleeves and will not become brittle while frozen.

Cryoware Marker Set

Product	Cat. No.	Amount	Price (€)
Cryoware Marker Set red, green, blue, black	CC-320	4 pcs.	16,—
Cryoware Marker, black black only	CC-321	4 pcs.	16,—

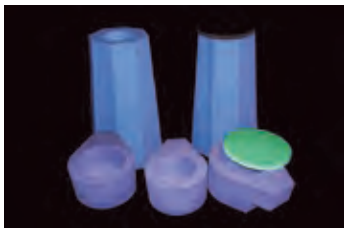
Cryoware Markers are designed for marking cardboard and polycarbonate. The smudge-proof ink will not fade at ultra-low temperatures. Each package consists of four extra-fine-point pens.

Cryoware Labels

Product	Cat. No.	Amount	Price (€)
Cryoware Labels	CC-325	200 pcs.	35,—

Cryoware labels are specifically designed for use at ultra-low temperatures. The cloth labels adhere to plastic and cardboard cryogenic storage boxes and will not peel or shrink. They accept ballpoint pens, but they are not printer compatible. Ten sheets of labels with twenty labels per sheet will be supplied.

Foam Dewars



Product	Cat. No.	Amount	Price (€)
Standard Foam Dewar 800 ml capacity, 15 cm diameter, 7 cm deep	CC-FD-800	1 pc.	70,—
Small Foam Dewar 500 ml capacity, 11.5 cm diameter, 7 cm deep	CC-FD-500	1 pc.	55,—
Large Foam Dewar 1400 ml capacity, 16 cm diameter, 9.5 cm deep	CC-FD-1400	1 pc	140,—
Tall Foam Dewar 1800 ml capacity, 9 cm diameter, 32 cm deep	CC-TD-1800	1 pc.	105,—

The **Standard Foam Dewar** can hold 800 ml of liquid nitrogen. It has been designed to replace large glass dewars, because the foam has superior durability, safety, insulating properties.

The standard vessel shape is circular, with a protruding handle. Each dewar comes with a matching foam lid to insulate the contents from ambient air.

Dimensions of the cylindrical cavity in this vessel are 15 cm in diameter by 7 cm in depth.

The **Small Foam Dewar** has the same basic shape and features as the Standard Foam Dewar but a smaller diameter cavity . Dimensions of the cylindrical cavity are 11.5 cm in diameter by 7 cm in depth, easily holding 500 ml of cryogenic liquid.

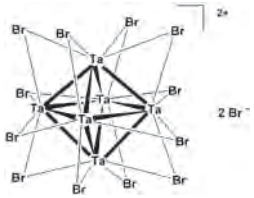
The **Tall Foam Dewar** was initially developed for short term storage of canes of protein crystallography samples. The tall vessel, like the standard vessel, offers excellent durability and safety. Its insulating properties are comparable to those of conventional stainless steel and glass Dewars, at a fraction of the cost.

This vessel has a 9 cm diameter cylindrical cavity, 32 cm deep, which gives it a capacity of 1800 ml liquid nitrogen.

Phasing

Phasing Kits

Tantalum Cluster Derivatization Kit



proteros biostructures

Product	Cat. No.	Price (€)
Tantalum Cluster Derivatization Kit	PK-103	252,—

Applications: Heavy atom derivatization of biological macromolecules for isomorphous and/or anomalous phasing methods.

Kit contents: 6 pre-weighted solid aliquots of hexatantalum tetradecabromide at 1 mg.

The **Tantalum Bromide Cluster**, manufactured by Proteros biostructures GmbH, is utilized for the preparation of heavy-atom derivatives for structure determination of biological macromolecules by X-ray analysis.

The electron-rich compound can be employed in single and multiple isomorphous replacement (SIR and MIR) experiments in order to induce measurable changes of the diffraction intensities required for phase calculation.

Furthermore, the Tantalum Bromide Cluster contains two strong anomalous scatterers suitable for multiple anomalous diffraction (MAD) experiments. Tantalum Bromide Clusters have been successfully employed in several structural studies because of their high electron-density, solubility in aqueous solutions and stability over a wide pH range [1-4].

[1] Knäblein *et al.* (1997) Ta6Br122+, a tool for phase determination of large biological assemblies by X-ray crystallography. *J.Mol.Biol.* **270**:1.

[2] Yonath *et al.* (1998) Crystallographic studies on the ribosome, a large macromolecular assembly exhibiting severe nonisomorphism, extreme beam sensitivity and no internal symmetry. *Acta Cryst. A* **54**:945.

[3] Gomis-Rüth *et al.* (2001) Solving a 300 kDa multimeric protein by low-resolution MAD phasing and averaging/phase extension. *Acta Cryst. D* **57**:800.

[4] Szczepanowski *et al.* (2005) Crystal structure of a fragment of mouse ubiquitin-activating enzyme. *J. Biol. Chem.* **280**:22006.

JBS Magic Triangle

Product	Cat. No.	Price (€)
JBS Magic Triangle	PK-104	162,75

Applications: Heavy atom derivatization of biological macromolecules for anomalous and/or isomorphous phasing methods.

Kit contents:

- 6 pre-weighted solid aliquots of I3C (33 mg each)
- 6 aliquots of lithium hydroxide solution (60 µl each)

JBS Magic Triangle is a phasing kit developed in co-operation with Tobias Beck in the research group of Prof. George M. Sheldrick, Georg-August University Göttingen.

I3C – the magic triangle – is depicted above. The three iodine atoms form an equilateral triangle with a side length of 6.0 Å and can be readily identified in the anomalous electron density map [1].

The researchers in the Sheldrick group have successfully demonstrated that I3C can be utilized for heavy-atom derivatization of biological macromolecules. Experimental phases for several proteins have been derived using single-wavelength anomalous dispersion (SAD) or single isomorphous replacement plus anomalous scattering (SIRAS) methods [1,2].

References:

[1] Beck *et al.* (2008) A magic triangle for experimental phasing of macromolecules. *Acta Cryst. D* **64**:1179.

[2] Sippel *et al.* (2008) Structure determination of the cancer-associated Mycoplasma hyorhinis protein Mh-p37. *Acta Cryst. D* **64**:1172.

JBS Halo Kits

Product	Cat. No.	Price (€)
JBS Halo-ATP Kit	PK-101	504,—
JBS Halo-GTP Kit	PK-102	320,—

Applications: Halogenated ATP and GTP analogs for incorporation of heavy atoms into nucleotide binding enzymes in order to identify nucleotide binding sites with the help of isomorphous/anomalous difference electron density.

Kit contents:

- **JBS Halo-ATP Kit** – 12 genated adenosine nucleotides in form of lyophilized sodium salts
- **JBS Halo-GTP Kit** – 6 halogenated guanosine nucleotides in form of lyophilized sodium salts

The search for suitable heavy-atom derivatives by conventional trial-and-error approaches can be quite cumbersome and binding of heavy atoms often results in disrupting the crystal lattice. Halogenated ATP and GTP analogs however, provide an alternative method that allows rational incorporation of heavy atoms into a large number of physiologically relevant enzymes, exploiting the natural affinity of the protein to these nucleotides.

The **JBS Halo-ATP Kit** contains 12 halogenated Adenosine nucleotides (50 units [1 µl of a 10 mM solution] as lyophilized sodium salts):

- 2'-Iodo-ADP, 2'-Iodo-ATP, 2'-Iodo-AppNHp (2'-Iodo-AMPPNP)
- 2'-Bromo-ADP, 2'-Bromo-ATP, 2'-Bromo-AppNHp (2'-Bromo-AMPPNP)
- 8-Iodo-ADP, 8-Iodo-ATP, 8-Iodo-AppNHp (8-Iodo-AMPPNP)
- 8-Bromo-ADP, 8-Bromo-ATP, 8-Bromo-AppNHp (8-Bromo-AMPPNP)

The **JBS Halo-GTP Kit** contains 6 halogenated Guanosine nucleotides (50 units [1 µl of a 10 mM solution] as lyophilized sodium salts):

- 8-Iodo-GDP, 8-Iodo-GTP, 8-Iodo-GppNHp (8-Iodo-GMPPNP)
- 8-Bromo-GDP, 8-Bromo-GTP, 8-Bromo-GppNHp (8-Bromo-GMPPNP)

Crystal of human TMP-kinase co-crystallized with 2'Br-ADP/ATP (courtesy of N. Ostermann)

The protein under investigation can either be co-crystallized with the respective analog, or the nucleotide can be added directly to the crystallization drops containing pre-grown crystals. Since it is difficult to predict a priori which one of the Halo-nucleotides will give the highest quality derivative crystals, it is advisable to screen them all in parallel.

References:

Gruen *et al.* (1999) 2'-Halo-ATP and -GTP analogues: Rational phasing tools for protein crystallography. *Protein Sci.* **8**:2524.

Gruen *et al.* (1999) Synthesis of 2'-iodo- and 2'-bromo-ATP and GTP analogues as potential phasing tools for X-ray crystallography. *Nucleos. Nucleot.* **18**:137.

Naber *et al.* (1995) A novel adenosine-triphosphate analog with a heavy-atom to target the nucleotide-binding site of proteins. *Protein Sci.* **4**:1824.

Halogenated and Mercurated Nucleotides and Oligonucleotides

We offer a wide variety of halogenated and mercurated nucleotides as well as modified DNA oligonucleotides suitable for phasing experiments. Please consult our General Catalog or our website **www.jenabioscience.com**

Appendix – Screen Formulations

JBScreen Family

JBScreen Classic

Classic 1		Precipitant 1	Buffer	pH	Additive
bulk	HTS I				
A 1	A 1	15% w/v PEG 400	100 mM Sodium Acetate	4.6	100 mM Calcium Chloride
A 2	—	15% w/v PEG 400	100 mM MES Sodium Salt	6.5	None
A 3	A 2	15% w/v PEG 400	100 mM HEPES Sodium Salt	7.5	200 mM Magnesium Chloride
A 4	—	15% w/v PEG 400	100 mM Tris-HCl	8.5	200 mM Sodium Citrate
A 5	A 3	25% w/v PEG 400	100 mM Sodium Acetate	4.6	100 mM Magnesium Chloride
A 6	A 4	25% w/v PEG 400	100 mM Tris-HCl	8.5	200 mM Lithium Sulfate
B 1	—	28% w/v PEG 400	100 mM HEPES Sodium Salt	7.5	200 mM Calcium Chloride
B 2	A 5	30% w/v PEG 400	100 mM Sodium Acetate	4.6	100 mM Calcium Chloride
B 3	A 6	30% w/v PEG 400	100 mM MES Sodium Salt	6.5	100 mM Sodium Acetate
B 4	—	30% w/v PEG 400	100 mM MES Sodium Salt	6.5	100 mM Magnesium Chloride
B 5	A 7	30% w/v PEG 400	100 mM HEPES Sodium Salt	7.5	200 mM Magnesium Chloride
B 6	A 8	30% w/v PEG 400	100 mM Tris-HCl	8.5	200 mM Sodium Citrate
C 1	A 9	30% w/v PEG 550 MME	100 mM Bicine	9.0	100 mM Sodium Chloride
C 2	A 10	25% w/v PEG 550 MME	100 mM MES Sodium Salt	6.5	10 mM Zinc Sulfate
C 3	A 11	25% w/v PEG 1000	100 mM HEPES Sodium Salt	7.5	None
C 4	A 12	30% w/v PEG 1000	100 mM Tris-HCl	8.5	None
C 5	B 1	15% w/v PEG 1500	None		None
C 6	B 2	20% w/v PEG 1500	100 mM HEPES Sodium Salt	7.5	None
D 1	B 3	30% w/v PEG 1500	None		None
D 2	B 4	20% w/v PEG 2000 MME	100 mM Tris-HCl	8.5	10 mM Nickel (II) Chloride
D 3	B 5	25% w/v PEG 2000 MME	None		None
D 4	—	30% w/v PEG 2000 MME	100 mM MES Sodium Salt	6.5	100 mM Sodium Acetate
D 5	B 6	20% w/v PEG 3000	100 mM HEPES Sodium Salt	7.5	200 mM Sodium Acetate
D 6	B 7	30% w/v PEG 3000	100 mM Tris-HCl	8.5	200 mM Lithium Sulfate

Classic 2		Precipitant 1	Buffer	pH	Additive
bulk	HTS I				
A 1	B 8	4% w/v PEG 4000	100 mM Sodium Acetate	4.6	None
A 2	B 9	8% w/v PEG 4000	None		None
A 3	B 10	8% w/v PEG 4000	100 mM Sodium Acetate	4.6	None
A 4	B 11	10% w/v PEG 4000	100 mM MES Sodium Salt	6.5	200 mM Magnesium Chloride
A 5	B 12	12% w/v PEG 4000	100 mM HEPES Sodium Salt	7.5	100 mM Sodium Acetate
A 6	—	12% w/v PEG 4000	100 mM Tris-HCl	8.5	None
B 1	C 1	16% w/v PEG 4000	100 mM Tris-HCl	8.5	200 mM Lithium Sulfate
B 2	C 2	16% w/v PEG 4000	100 mM Tris-HCl	8.5	200 mM Sodium Acetate
B 3	—	16% w/v PEG 4000	100 mM Tris-HCl	8.5	200 mM Magnesium Chloride
B 4	C 3	18% w/v PEG 4000	100 mM Sodium Acetate	4.6	None
B 5	C 4	20% w/v PEG 4000	100 mM Tris-HCl	8.5	200 mM Lithium Sulfate
B 6	C 5	20% w/v PEG 4000	100 mM Tris-HCl	8.5	200 mM Calcium Chloride
C 1	—	22% w/v PEG 4000	100 mM HEPES Sodium Salt	7.5	100 mM Sodium Acetate
C 2	C 6	25% w/v PEG 4000	100 mM Sodium Acetate	4.6	None
C 3	C 7	25% w/v PEG 4000	100 mM MES Sodium Salt	6.5	200 mM Magnesium Chloride
C 4	C 8	25% w/v PEG 4000	100 mM Tris-HCl	8.5	200 mM Calcium Chloride
C 5	C 9	30% w/v PEG 4000	None		None
C 6	C 10	30% w/v PEG 4000	100 mM Sodium Acetate	4.6	100 mM Magnesium Chloride
D 1	—	30% w/v PEG 4000	100 mM MES Sodium Salt	6.5	None
D 2	C 11	30% w/v PEG 4000	100 mM HEPES Sodium Salt	7.5	200 mM Calcium Chloride
D 3	—	30% w/v PEG 4000	100 mM Tris-HCl	8.5	200 mM Lithium Sulfate
D 4	C 12	30% w/v PEG 4000	100 mM Tris-HCl	8.5	200 mM Sodium Acetate
D 5	D 1	30% w/v PEG 4000	100 mM Tris-HCl	8.5	200 mM Magnesium Chloride
D 6	D 2	35% w/v PEG 4000	None		None

Classic 3		Precipitant 1	Precipitant 2	Buffer	pH	Additive
bulk	HTS I					
A 1	D 3	8% w/v PEG 4000	800 mM Lithium Chloride	100 mM Tris-HCl	8.5	None
A 2	D 4	10% w/v PEG 4000	20% w/v 2-Propanol	None		None
A 3	D 5	10% w/v PEG 4000	10% w/v 2-Propanol	100 mM Sodium Citrate	5.6	None
A 4	—	10% w/v PEG 4000	5% w/v 2-Propanol	100 mM HEPES Sodium Salt	7.5	None
A 5	D 6	10% w/v PEG 4000	20% w/v 2-Propanol	100 mM HEPES Sodium Salt	7.5	None
A 6	D 7	12% w/v PEG 4000	None	100 mM Sodium Acetate	4.6	200 mM Ammonium Sulfate
B 1	—	15% w/v PEG 4000	None	None		200 mM Ammonium Sulfate
B 2	D 8	15% w/v PEG 4000	None	100 mM Sodium Citrate	5.6	200 mM Ammonium Sulfate
B 3	D 9	16% w/v PEG 4000	10% w/v 2-Propanol	100 mM HEPES Sodium Salt	7.5	200 mM Ammonium Sulfate
B 4	D 10	20% w/v PEG 4000	None	None		200 mM Ammonium Sulfate
B 5	D 11	20% w/v PEG 4000	10% w/v Glycerol	None		200 mM Magnesium Sulfate
B 6	—	20% w/v PEG 4000	5% w/v 2-Propanol	None		100 mM Sodium Citrate
C 1	D 12	20% w/v PEG 4000	20% w/v 2-Propanol	None		100 mM Sodium Citrate
C 2	E 1	20% w/v PEG 4000	None	100 mM MES Sodium Salt	6.5	600 mM Sodium Chloride
C 3	E 2	20% w/v PEG 4000	10% w/v 2-Propanol	100 mM HEPES Sodium Salt	7.5	None
C 4	E 3	22% w/v PEG 4000	None	None		200 mM Ammonium Sulfate 100 mM Sodium Acetate
C 5	—	25% w/v PEG 4000	None	100 mM Sodium Acetate	4.6	200 mM Ammonium Sulfate
C 6	E 4	25% w/v PEG 4000	None	100 mM Sodium Citrate	5.6	200 mM Ammonium Sulfate
D 1	E 5	25% w/v PEG 4000	200 mM Lithium Sulfate	100 mM HEPES Sodium Salt	7.5	100 mM Sodium Acetate
D 2	E 6	25% w/v PEG 4000	8% w/v 2-Propanol	None		100 mM Sodium Acetate
D 3	E 7	30% w/v PEG 4000	None	None		200 mM Ammonium Sulfate
D 4	—	30% w/v PEG 4000	None	100 mM Sodium Acetate	4.6	200 mM Ammonium Sulfate
D 5	E 8	30% w/v PEG 4000	None	100 mM Sodium Citrate	5.6	100 mM Ammonium Sulfate
D 6	E 9	32% w/v PEG 4000	None	100 mM Tris-HCl	8.5	800 mM Lithium Chloride

Classic 4		Precipitant 1	Precipitant 2	Buffer	pH	Additive
bulk	HTS I					
A 1	E 10	25% w/v PEG 5000 MME	None	100 mM Tris-HCl	8.5	200 mM Lithium Sulfate
A 2	E 11	30% w/v PEG 5000 MME	None	100 mM MES Sodium Salt	6.5	200 mM Ammonium Sulfate
A 3	E 12	3% w/v PEG 6000	None	100 mM Tris-HCl	8.5	100 mM Potassium Chloride
A 4	F 1	10% w/v PEG 6000	None	None		10 mM Magnesium Chloride
A 5	F 2	12% w/v PEG 6000	2.0 M Sodium Chloride	None		None
A 6	F 3	15% w/v PEG 6000	5% w/v Glycerol	None		None
B 1	F 4	15% w/v PEG 6000	50 mM Potassium Chloride	None		10 mM Magnesium Chloride
B 2	—	16% w/v PEG 6000	None	None		10 mM Sodium Citrate
B 3	F 5	20% w/v PEG 6000	None	50 mM Imidazole-HCl	8.0	None
B 4	F 6	25% w/v PEG 6000	None	100 mM HEPES Sodium Salt	7.5	100 mM Lithium Chloride
B 5	F 7	28% w/v PEG 6000	500 mM Lithium Chloride	100 mM Tris-HCl	8.5	None
B 6	F 8	30% w/v PEG 6000	1.0 M Lithium Chloride	None		100 mM Sodium Acetate
C 1	—	33% w/v PEG 6000	None	None		10 mM Sodium Citrate
C 2	F 9	2% w/v PEG 8000	500 mM Lithium Sulfate	None		None
C 3	F 10	2% w/v PEG 8000	1.0 M Lithium Sulfate	None		None
C 4	F 11	4% w/v PEG 8000	None	None		None
C 5	F 12	8% w/v PEG 8000	200 mM Lithium Chloride	None		50 mM Magnesium Sulfate
C 6	—	8% w/v PEG 8000	None	100 mM Tris-HCl	8.5	None
D 1	G 1	10% w/v PEG 8000	None	100 mM MES Sodium Salt	6.5	200 mM Zinc Acetate
D 2	G 2	10% w/v PEG 8000	None	100 mM HEPES Sodium Salt	7.5	200 mM Calcium Acetate
D 3	G 3	10% w/v PEG 8000	None	None		50 mM Magnesium Acetate 100 mM Sodium Acetate
D 4	G 4	10% w/v PEG 8000	None	None		200 mM Magesium Acetate
D 5	G 5	10% w/v PEG 8000	10% w/v Ethylene Glycol	100 mM HEPES Sodium Salt	7.5	None
D 6	—	10% w/v PEG 8000	10% w/v PEG 1000	None		None

Classic 5		Precipitant 1	Precipitant 2	Buffer	pH	Additive
bulk	HTS I					
A 1	—	12% w/v PEG 8000	5% w/v Glycerol	None		100 mM Potassium Chloride
A 2	G 6	12% w/v PEG 8000	10% w/v Glycerol	None		500 mM Potassium Chloride
A 3	G 7	15% w/v PEG 8000	None	None		200 mM Ammonium Sulfate
A 4	G 8	15% w/v PEG 8000	500 mM Lithium Sulfate	None		None
A 5	G 9	15% w/v PEG 8000	None	100 mM MES Sodium Salt	6.5	200 mM Sodium Acetate
A 6	—	15% w/v PEG 8000	None	None		50 mM Ammonium Sulfate 100 mM Sodium Citrate
B 1	G 10	18% w/v PEG 8000	None	100 mM HEPES Sodium Salt	7.5	200 mM Calcium Acetate
B 2	G 11	18% w/v PEG 8000	2% w/v 2-Propanol	100 mM HEPES Sodium Salt	7.5	100 mM Sodium Acetate
B 3	G 12	18% w/v PEG 8000	None	100 mM Tris-HCl	8.5	200 mM Lithium Sulfate
B 4	—	20% w/v PEG 8000	None	100 mM HEPES Sodium Salt	7.5	None
B 5	H 1	20% w/v PEG 8000	None	100 mM MES Sodium Salt	6.5	200 mM Magnesium Acetate
B 6	H 2	20% w/v PEG 8000	None	100 mM CHES	9.5	None
C 1	—	22% w/v PEG 8000	None	100 mM MES Sodium Salt	6.5	200 mM Ammonium Sulfate
C 2	H 3	25% w/v PEG 8000	None	None		200 mM Lithium Chloride
C 3	H 4	30% w/v PEG 8000	None	None		200 mM Ammonium Sulfate
C 4	H 5	8% w/v PEG 10000	None	100 mM Sodium Acetate	4.6	None
C 5	H 6	14% w/v PEG 10000	None	100 mM Imidazole-HCl	8.0	None
C 6	—	16% w/v PEG 10000	None	100 mM Tris-HCl	8.5	None
D 1	H 7	18% w/v PEG 10000	20% w/v Glycerol	100 mM Tris-HCl	8.5	100 mM Sodium Chloride
D 2	H 8	20% w/v PEG 10000	None	100 mM HEPES Sodium Salt	7.5	None
D 3	H 8	30% w/v PEG 10000	None	100 mM Tris-HCl	8.5	None
D 4	H 10	10% w/v PEG 20000	None	100 mM MES Sodium Salt	6.5	None
D 5	H 11	17% w/v PEG 20000	None	100 mM Tris-HCl	8.5	100 mM Magnesium Chloride
D 6	H 12	20% w/v PEG 20000	None	None		None

Classic 6		Precipitant 1	Precipitant 2	Buffer	pH	Additive
bulk	HTS II					
A 1	A 1	500 mM Ammonium Sulfate	1.0 M Lithium Sulfate	None		100 mM Sodium Citrate
A 2	—	1.0 M Ammonium Sulfate	None	None		None
A 3	A 2	1.0 M Ammonium Sulfate	None	100 mM Sodium Acetate	4.6	None
A 4	A 3	1.0 M Ammonium Sulfate	2% w/v PEG 400	100 mM HEPES Sodium Salt	7.5	None
A 5	A 4	1.0 M Ammonium Sulfate	None	100 mM Tris-HCl	8.5	None
A 6	A 5	1.2 M Ammonium Sulfate	3% w/v 2-Propanol	None		50 mM Sodium Citrate
B 1	A 6	1.5 M Ammonium Sulfate	15% w/v Glycerol	100 mM Tris-HCl	8.5	None
B 2	—	1.6 M Ammonium Sulfate	500 mM Lithium Chloride	None		None
B 3	A 7	1.6 M Ammonium Sulfate	1.0 M Lithium Sulfate	None		None
B 4	A 8	1.6 M Ammonium Sulfate	None	100 mM HEPES Sodium Salt	7.5	200 mM Sodium Chloride
B 5	A 9	1.6 M Ammonium Sulfate	2% w/v PEG 1000	100 mM HEPES Sodium Salt	7.5	None
B 6	A 10	1.8 M Ammonium Sulfate	None	100 mM MES Sodium Salt	6.5	None
C 1	A 11	2.0 M Ammonium Sulfate	2.0 M Sodium Chloride	None		None
C 2	A 12	2.0 M Ammonium Sulfate	None	100 mM Sodium Acetate	4.6	None
C 3	B 1	2.0 M Ammonium Sulfate	5% w/v PEG 400	100 mM MES Sodium Salt	6.5	None
C 4	B 2	2.0 M Ammonium Sulfate	None	100 mM Tris-HCl	8.5	None
C 5	—	2.2 M Ammonium Sulfate	None	None		None
C 6	B 3	2.2 M Ammonium Sulfate	20% w/v Glycerol	None		None
D 1	B 4	2.4 M Ammonium Sulfate	None	None		100 mM Sodium Citrate
D 2	B 5	3.0 M Ammonium Sulfate	1% w/v MPD	None		None
D 3	B 6	3.0 M Ammonium Sulfate	10% w/v Glycerol	None		None
D 4	B 7	3.5 M Ammonium Sulfate	None	100 mM HEPES Sodium Salt	7.5	None
D 5	B 8	3.5 M Ammonium Sulfate	1% w/v MPD	100 mM MES Sodium Salt	6.5	None
D 6	—	3.5 M Ammonium Sulfate	None	None		None

Classic 7		Precipitant 1	Precipitant 2	Buffer	pH	Additive
bulk	HTS II					
A 1	B 9	10% w/v MPD	None	100 mM HEPES Sodium Salt	7.5	100 mM Sodium Citrate
A 2	B 10	12% w/v MPD	None	100 mM Tris-HCl	8.5	50 mM Magnesium Chloride
A 3	—	15% w/v MPD	None	100 mM Sodium Acetate	4.6	20 mM Calcium Chloride
A 4	B 11	15% w/v MPD	5% w/v PEG 4000	100 mM Imidazole-HCl	8.0	None
A 5	B 12	15% w/v MPD	None	100 mM Sodium Citrate	5.6	200 mM Ammonium Acetate
A 6	—	15% w/v MPD	None	100 mM MES Sodium Salt	6.5	200 mM Magnesium Acetate
B 1	C 1	15% w/v MPD	None	100 mM HEPES Sodium Salt	7.5	200 mM Sodium Citrate
B 2	C 2	20% w/v MPD	None	100 mM HEPES Sodium Salt	7.5	100 mM Sodium Citrate
B 3	C 3	20% w/v MPD	None	100 mM Imidazole-HCl	8.0	None
B 4	C 4	20% w/v MPD	4% w/v Glycerol	None		200 mM Sodium Chloride
B 5	C 5	30% w/v MPD	None	100 mM Sodium Acetate	4.6	20 mM Calcium Chloride
B 6	C 6	30% w/v MPD	None	100 mM Sodium Citrate	5.6	200 mM Ammonium Acetate
C 1	—	30% w/v MPD	None	100 mM MES Sodium Salt	6.5	200 mM Magnesium Acetate
C 2	C 7	30% w/v MPD	None	100 mM HEPES Sodium Salt	7.5	500 mM Ammonium Sulfate
C 3	C 8	30% w/v MPD	None	100 mM HEPES Sodium Salt	7.5	200 mM Sodium Citrate
C 4	—	30% w/v MPD	5% w/v PEG 4000	100 mM HEPES Sodium Salt	7.5	None
C 5	C 9	30% w/v MPD	10% w/v PEG 4000	100 mM Imidazole-HCl	8.0	None
C 6	C 10	30% w/v MPD	20% w/v Ethanol	None		None
D 1	—	35% w/v MPD	None	None		None
D 2	C 11	35% w/v MPD	None	100 mM Imidazole-HCl	8.0	None
D 3	C 12	40% w/v MPD	None	100 mM Tris-HCl	8.5	None
D 4	D 1	47% w/v MPD	None	100 mM HEPES Sodium Salt	7.5	None
D 5	D 2	47% w/v MPD	2% w/v tert-Butanol	None		None
D 6	D 3	50% w/v MPD	None	None		None

Classic 8		Precipitant 1	Precipitant 2	Buffer	pH	Additive
bulk	HTS II					
A 1	—	50% w/v MPD	15% w/v Ethanol	None		10 mM Sodium Acetate
A 2	D 4	50% w/v MPD	20% w/v 2-Propanol	None		50 mM Sodium Chloride 50 mM Sodium Acetate
A 3	D 5	50% w/v MPD	None	100 mM Tris-HCl	8.5	100 mM Ammonium dihydrogen Phosphate
A 4	D 6	55% w/v MPD	None	None		None
A 5	D 7	60% w/v MPD	None	100 mM Sodium Acetate	4.6	10 mM Calcium Chloride
A 6	—	60% w/v MPD	None	None		20 mM Sodium Acetate
B 1	D 8	70% w/v MPD	None	100 mM MES Sodium Salt	6.5	None
B 2	D 9	70% w/v MPD	None	100 mM Tris-HCl	8.5	None
B 3	D 10	20% w/v Methanol	None	100 mM Tris-HCl	8.5	10 mM Calcium Chloride
B 4	D 11	2% w/v Ethanol	None	100 mM Tris-HCl	8.5	None
B 5	—	5% w/v Ethanol	5% w/v MPD	100 mM HEPES Sodium Salt	7.5	None
B 6	D 12	5% w/v Ethanol	5% w/v MPD	100 mM Tris-HCl	8.5	200 mM Sodium Chloride
C 1	E 1	10% w/v Ethanol	None	100 mM Tris-HCl	8.5	None
C 2	E 2	12% w/v Ethanol	4% w/v PEG 400	100 mM Sodium Acetate	4.6	None
C 3	E 3	14% w/v Ethanol	5% w/v Glycerol	100 mM Tris-HCl	8.5	None
C 4	E 4	18% w/v Ethanol	None	100 mM Tris-HCl	8.5	None
C 5	—	20% w/v Ethanol	None	None		None
C 6	E 5	20% w/v Ethanol	10% w/v Glycerol	None		None
D 1	E 6	30% w/v Ethanol	10% w/v PEG 6000	None		100 mM Sodium Acetate
D 2	E 7	45% w/v Ethanol	None	None		None
D 3	E 8	50% w/v Ethanol	None	None		100 mM Sodium Acetate
D 4	E 9	60% w/v Ethanol	1.5% w/v PEG 6000	None		50 mM Sodium Acetate
D 5	E 10	60% w/v Ethanol	None	None		100 mM Sodium Chloride
D 6	—	2% w/v 2-Propanol	None	100 mM Tris-HCl	8.5	10 mM Magnesium Sulfate
D 6	—	2% w/v 2-Propanol	None	100 mM Tris-HCl	8.5	10 mM Magnesium Sulfate

Classic 9		Precipitant 1	Buffer	pH	Additive
bulk	HTS II				
A 1	E 11	5% w/v 2-Propanol	100 mM HEPES Sodium Salt	7.5	None
A 2	E 12	10% w/v 2-Propanol	100 mM Sodium Acetate	4.6	200 mM Calcium Chloride
A 3	F 1	10% w/v 2-Propanol	100 mM HEPES Sodium Salt	7.5	200 mM Sodium Citrate
A 4	F 2	10% w/v 2-Propanol	100 mM Tris-HCl	8.5	10 mM Magnesium Chloride
A 5	—	12% w/v 2-Propanol	100 mM Tris-HCl	8.5	50 mM Sodium Chloride
A 6	F 3	15% w/v 2-Propanol	100 mM MES Sodium Salt	6.5	200 mM Sodium Citrate
B 1	—	15% w/v 2-Propanol	100 mM HEPES Sodium Salt	7.5	200 mM Sodium Citrate
B 2	F 4	15% w/v 2-Propanol	100 mM HEPES Sodium Salt	7.5	200 mM Magnesium Chloride
B 3	F 5	15% w/v 2-Propanol	100 mM Tris-HCl	8.5	200 mM Ammonium Acetate
B 4	F 6	20% w/v 2-Propanol	100 mM Sodium Acetate	4.6	200 mM Calcium Chloride
B 5	—	20% w/v 2-Propanol	100 mM HEPES Sodium Salt	7.5	200 mM Sodium Citrate
B 6	F 7	25% w/v 2-Propanol	100 mM HEPES Sodium Salt	7.5	100 mM Magnesium Chloride
C 1	F 8	30% w/v 2-Propanol	100 mM MES Sodium Salt	6.5	200 mM Sodium Citrate
C 2	—	30% w/v 2-Propanol	100 mM HEPES Sodium Salt	7.5	200 mM Magnesium Chloride
C 3	F 9	30% w/v 2-Propanol	100 mM Tris-HCl	8.5	200 mM Ammonium Acetate
C 4	F 10	25% w/v tert-Butanol	100 mM Tris-HCl	8.5	100 mM Calcium Chloride
C 5	F 11	35% w/v tert-Butanol	100 mM Sodium Citrate	5.6	None
C 6	F 12	200 mM Ammonium dihydrogen Phosphate	None		None
D 1	G 1	200 mM Potassium / Sodium Tartrate	None		None
D 2	G 2	200 mM Magnesium Acetate	None		None
D 3	G 3	400 mM Ammonium dihydrogen Phosphate	None		None
D 4	—	400 mM Potassium / Sodium Tartrate	None		None
D 5	G 4	400 mM Potassium / Sodium Tartrate	100 mM Tris-HCl	8.5	None
D 6	G 5	500 mM Ammonium dihydrogen Phosphate	None		200 mM Sodium Citrate

Classic 10		Precipitant 1	Precipitant 2	Buffer	pH	Additive
bulk	HTS II					
A 1	G 6	500 mM Sodium Acetate	None	100 mM Imidazole-HCl	8.0	None
A 2	G 7	700 mM Sodium Citrate	None	100 mM HEPES Sodium Salt	7.5	None
A 3	—	700 mM Lithium Sulfate	None	100 mM Tris-HCl	8.5	None
A 4	G 8	800 mM Potassium / Sodium Chloride	None	100 mM HEPES Sodium Salt	7.5	None
A 5	G 9	1.0 M Ammonium dihydrogen Phosphate	None	100 mM Sodium Citrate	5.6	None
A 6	G 10	1.0 M Ammonium dihydrogen Phosphate	None	100 mM Tris-HCl	8.5	None
B 1	G 11	1.0 M Lithium Sulfate	None	100 mM Tris-HCl	8.5	10 mM Nickel (II) Chloride
B 2	G 12	1.0 M Sodium Acetate	None	100 mM Imidazole-HCl	8.0	None
B 3	—	1.0 M Sodium Formate	None	100 mM Sodium Acetate	4.6	None
B 4	H 1	1.4 M Sodium Acetate	None	100 mM MES Sodium Salt	6.5	None
B 5	—	1.4 M Sodium Citrate	None	100 mM HEPES Sodium Salt	7.5	None
B 6	H 2	1.5 M Lithium Sulfate	None	100 mM Tris-HCl	8.5	None
C 1	H 3	None	None	1.5 M Sodium Citrate	6.5	None
C 2	H 4	1.6 M Magnesium Sulfate	None	100 mM MES Sodium Salt	6.5	None
C 3	H 5	1.6 M Potassium / Sodium Tartrate	None	100 mM MES Sodium Salt	6.5	None
C 4	H 6	2.0 M Ammonium Formate	None	100 mM MES Sodium Salt	6.5	None
C 5	H 7	2.0 M Ammonium dihydrogen Phosphate	None	100 mM Tris-HCl	8.5	None
C 6	—	2.0 M Sodium Formate	None	None		None
D 1	—	2.0 M Magnesium Chloride	None	100 mM Tris-HCl	8.5	None
D 2	H 8	2.0 M Sodium Chloride	None	100 mM MES Sodium Salt	6.5	200 mM Sodium Acetate
D 3	H 9	2.0 M Sodium Formate	None	100 mM Sodium Acetate	4.6	None
D 4	H 10	1.0 M Ammonium dihydrogen Phosphate	30% w/v Glycerol	100 mM Tris-HCl	8.5	None
D 5	H 11	4.0 M Sodium Chloride	None	100 mM HEPES Sodium Salt	7.5	None
D 6	H 12	3.0 M Sodium Formate	None	None		None

JBScreen Basic

Basic 1		Precipitant 1	Precipitant 2	Buffer	pH	Additive
bulk	HTS					
A 1	A 1	25% v/v Ethylene Glycol	None	None		None
A 2	A 2	12% v/v Glycerol anhydrous	1.5 M Ammonium Sulfate	100 mM Tris-HCl	8.5	None
A 3	A 3	1.0 M 1,6-Hexanediol	None	100 mM Sodium Acetate	4.6	10 mM Cobalt(II) Chloride
A 4	A 4	2.5 M 1,6-Hexanediol	None	100 mM Sodium Citrate	5.6	None
A 5	A 5	3.4 M 1,6-Hexanediol	None	100 mM Tris-HCl	8.5	200 mM Magnesium Chloride
A 6	A 6	30% v/v MPD	None	100 mM Sodium Acetate	4.6	200 mM Sodium Chloride
B 1	A 7	30% v/v MPD	None	100 mM Sodium Citrate	5.6	200 mM Ammonium Acetate
B 2	A 8	30% v/v MPD	None	100 mM Sodium Acetate	4.6	20 mM Calcium Chloride
B 3	A 9	30% v/v MPD	500 mM Ammonium Sulfate	100 mM HEPES Sodium Salt	7.5	None
B 4	A 10	30% v/v MPD	None	100 mM HEPES Sodium Salt	7.5	200 mM Sodium Citrate
B 5	A 11	50% v/v MPD	None	100 mM Tris-HCl	8.5	200 mM Ammonium dihydrogen Phosphate
B 6	A 12	70% v/v MPD	None	100 mM HEPES Sodium Salt	7.5	None
C 1	B 1	2% v/v Polyethylenimine	None	100 mM Sodium Citrate	5.6	500 mM Sodium Chloride
C 2	B 2	2% v/v PEG 400	2.0 M Ammonium Sulfate	100 mM HEPES Sodium Salt	7.5	None
C 3	B 3	28% v/v PEG 400	None	100 mM HEPES Sodium Salt	7.5	200 mM Calcium Chloride
C 4	B 4	30% v/v PEG 400	None	100 mM Tris-HCl	8.5	200 mM Sodium Citrate
C 5	B 5	30% v/v PEG 400	None	100 mM HEPES Sodium Salt	7.5	200 mM Magnesium Chloride
C 6	B 6	30% v/v PEG 400	None	100 mM Sodium Acetate	4.6	100 mM Calcium Chloride
D 1	B 7	20% v/v PEG 550 MME	None	100 mM Bicine	9.5	100 mM Sodium Chloride
D 2	B 8	25% v/v PEG 550 MME	None	100 mM MES Sodium Salt	6.5	10 mM Zinc Sulfate
D 3	B 9	10% w/v PEG 1000	10% w/v PEG 8000	None		None
D 4	B 10	30% w/v PEG 1500	None	None		None
D 5	B 11	20% w/v PEG 2000 MME	None	100 mM Tris-HCl	8.5	10 mM Nickel(II) Chloride
D 6	B 12	30% w/v PEG 2000 MME	None	100 mM Sodium Acetate	4.6	200 mM Ammonium Sulfate

Basic 2		Precipitant 1	Precipitant 2	Buffer	pH	Additive
bulk	HTS					
A 1	C 1	8% w/v PEG 4000	None	100 mM Sodium Acetate	4.6	None
A 2	C 2	20% w/v PEG 4000	20% v/v 2-Propanol	100 mM Sodium Citrate	5.6	None
A 3	C 3	20% w/v PEG 4000	10% v/v 2-Propanol	100 mM HEPES Sodium Salt	7.5	None
A 4	C 4	25% w/v PEG 4000	None	100 mM Sodium Acetate	4.6	200 mM Ammonium Sulfate
A 5	C 5	30% w/v PEG 4000	None	None		200 mM Ammonium Sulfate
A 6	C 6	30% w/v PEG 4000	None	100 mM Sodium Acetate	4.6	200 mM Ammonium Acetate
B 1	C 7	30% w/v PEG 4000	None	100 mM Sodium Citrate	5.6	200 mM Ammonium Acetate
B 2	C 8	30% w/v PEG 4000	None	100 mM Tris-HCl	8.5	200 mM Sodium Acetate
B 3	C 9	30% w/v PEG 4000	None	100 mM Tris-HCl	8.5	200 mM Lithium Sulfate
B 4	C 10	30% w/v PEG 4000	None	100 mM Tris-HCl	8.5	200 mM Magnesium Chloride
B 5	C 11	30% w/v PEG 5000 MME	None	100 mM MES Sodium Salt	6.5	200 mM Ammonium Sulfate
B 6	C 12	10% w/v PEG 6000	2.0 M Sodium Chloride	None		None
C 1	D 1	10% w/v PEG 6000	5% v/v MPD	100 mM HEPES Sodium Salt	7.5	None
C 2	D 2	2% w/v PEG 8000	1.0 M Lithium Sulfate	None		None
C 3	D 3	8% w/v PEG 8000	None	100 mM Tris-HCl	8.5	None
C 4	D 4	10% w/v PEG 8000	8% v/v Ethylene Glycol	100 mM HEPES Sodium Salt	7.5	None
C 5	D 5	15% w/v PEG 8000	500 mM Lithium Sulfate	None		None
C 6	D 6	18% w/v PEG 8000	None	100 mM MES Sodium Salt	6.5	200 mM Calcium Acetate
D 1	D 7	18% w/v PEG 8000	None	100 mM MES Sodium Salt	6.5	200 mM Zinc Acetate
D 2	D 8	20% w/v PEG 8000	None	None		50 mM Potassium dihydrogen Phosphate
D 3	D 9	20% w/v PEG 8000	None	100 mM MES Sodium Salt	6.5	200 mM Magnesium Acetate
D 4	D 10	30% w/v PEG 8000	None	100 mM MES Sodium Salt	6.5	200 mM Sodium Acetate
D 5	D 11	30% w/v PEG 8000	None	None		200 mM Ammonium Sulfate
D 6	D 12	30% w/v PEG 8000	None	100 mM MES Sodium Salt	6.5	200 mM Ammonium Sulfate

Basic 3		Precipitant 1	Precipitant 2	Buffer	pH	Additive
bulk	HTS					
A 1	E 1	10% w/v PEG 10000	2% v/v 1.4-Dioxane	100 mM Bicine	9.5	None
A 2	E 2	20% w/v PEG 10000	None	100 mM HEPES Sodium Salt	7.5	None
A 3	E 3	12% w/v PEG 20000	None	100 mM MES Sodium Salt	6.5	None
A 4	E 4	5% v/v 2-Propanol	2.0 M Ammonium Sulfate	None		None
A 5	E 5	20% v/v 2-Propanol	None	100 mM HEPES Sodium Salt	7.5	200 mM Sodium Citrate
A 6	E 6	20% v/v 2-Propanol	None	100 mM Sodium Acetate	4.6	200 mM Calcium Chloride
B 1	E 7	30% v/v 2-Propanol	None	100 mM HEPES Sodium Salt	7.5	200 mM Magnesium Chloride
B 2	E 8	30% v/v 2-Propanol	None	100 mM Tris-HCl	8.5	200 mM Ammonium Acetate
B 3	E 9	10% v/v 1.4-Dioxane	1.6 M Ammonium Sulfate	100 mM MES Sodium Salt	6.5	None
B 4	E 10	35% v/v 1.4-Dioxane	None	None		None
B 5	E 11	10% v/v Ethanol	1.5 M Sodium Chloride	None		None
B 6	E 12	20% v/v Ethanol	None	100 mM Tris-HCl	8.5	None
C 1	F 1	25% v/v tert-Butanol	None	100 mM Tris-HCl	8.5	None
C 2	F 2	35% v/v tert-Butanol	None	100 mM Sodium Citrate	5.6	None
C 3	F 3	None	None	1.0 M Imidazole-HCl	7.0	None
C 4	F 4	1.0 M Lithium Sulfate	None	100 mM Tris-HCl	8.5	10 mM Nickel(II) Chloride
C 5	F 5	1.5 M Lithium Sulfate	None	100 mM HEPES Sodium Salt	7.5	None
C 6	F 6	400 mM Potassium / Sodium Tartrate	None	None		None
D 1	F 7	800 mM Potassium / Sodium Tartrate	None	100 mM HEPES Sodium Salt	7.5	None
D 2	F 8	1.4 M Sodium Citrate	None	100 mM HEPES Sodium Salt	7.5	None
D 3	F 9	None	None	1.6 M Sodium Citrate	6.5	None
D 4	F 10	10% v/v Jeffamine M-600	None	100 mM Sodium Citrate	5.6	10 mM Ferric(III) Chloride
D 5	F 11	20% v/v Jeffamine M-600	None	100 mM HEPES Sodium Salt	7.5	None
D 6	F 12	30% v/v Jeffamine M-600	None	100 mM MES Sodium Salt	6.5	50 mM Cesium Chloride

Basic 4		Precipitant 1	Precipitant 2	Buffer	pH	Additive
bulk	HTS					
A 1	G 1	800 mM Sodium dihydrogen Phosphate	800 mM Potassium dihydrogen Phosphate	100 mM HEPES Sodium Salt	7.5	None
A 2	G 2	400 mM Ammonium dihydrogen Phosphate	None	None		None
A 3	G 3	1.0 M Ammonium dihydrogen Phosphate	None	100 mM Sodium Citrate	5.6	None
A 4	G 4	2.0 M Ammonium dihydrogen Phosphate	None	100 mM Tris-HCl	8.5	None
A 5	G 5	2.0 M Ammonium Formate	None	100 mM Sodium Acetate	4.6	None
A 6	G 6	4.0 M Ammonium Formate	None	100 mM HEPES Sodium Salt	7.5	None
B 1	G 7	2.0 M Ammonium Formate	None	None		None
B 2	G 8	500 mM Ammonium Sulfate	1.0 M Lithium Sulfate	100 mM Sodium Citrate	5.6	None
B 3	G 9	1.6 M Ammonium Sulfate	None	100 mM HEPES Sodium Salt	7.5	100 mM Sodium Chloride
B 4	G 10	1.8 M Ammonium Sulfate	None	100 mM MES Sodium Salt	6.5	10 mM Cobalt(II) Chloride
B 5	G 11	2.0 M Ammonium Sulfate	None	100 mM Tris-HCl	8.5	None
B 6	G 12	2.0 M Ammonium Sulfate	None	None		None
C 1	H 1	2.0 M Ammonium Sulfate	None	100 mM Sodium Acetate	4.6	None
C 2	H 2	2.0 M Ammonium Sulfate	None	100 mM Sodium Citrate	5.6	200 mM Potassium / Sodium Tartrate
C 3	H 3	200 mM Magnesium Formate	None	None		None
C 4	H 4	1.6 M Magnesium Sulfate	None	100 mM MES Sodium Salt	6.5	None
C 5	H 5	2.0 M Magnesium Chloride	None	100 mM Bicine	9.5	None
C 6	H 6	1.0 M Sodium Acetate	None	100 mM Imidazole-HCl	6.5	None
D 1	H 7	1.0 M Sodium Acetate	None	100 mM HEPES Sodium Salt	7.5	50 mM Cadmium Sulfate
D 2	H 8	1.4 M Sodium Acetate	None	100 mM MES Sodium Salt	6.5	None
D 3	H 9	500 mM Sodium Chloride	10 mM Magnesium Chloride	None		10 mM Hexadectyltrimethylammonium Bromide
D 4	H 10	2.0 M Sodium Chloride	None	100 mM Sodium Acetate	4.6	None
D 5	H 11	2.0 M Sodium Chloride	None	100 mM MES Sodium Salt	6.5	200 mM Sodium/Potassium dihydrogen Phosphate
D 6	H 12	4.3 M Sodium Chloride	None	100 mM HEPES Sodium Salt	7.5	None

JBScreen Membrane

Membrane 1		Precipitant 1	Precipitant 2	Buffer	pH	Additive
bulk	HTS					
A 1	A 1	15% w/v PEG 400	15% w/v Glycerol	100 mM HEPES Sodium Salt	7.5	200 mM Calcium Chloride
A 2	A 2	20% w/v PEG 400	100 mM Sodium Chloride	100 mM Sodium Citrate	5.6	20 mM Magnesium Chloride
A 3	A 3	25% w/v PEG 400	None	50 mM Sodium Acetate	4.6	50 mM Magnesium Acetate
A 4	A 4	30% w/v PEG 400	50 mM Sodium Sulfate	50 mM Tris-HCl	8.5	50 mM Lithium Sulfate
A 5	A 5	48% w/v PEG 400	None	100 mM HEPES Sodium Salt	7.5	200 mM Calcium Chloride
A 6	A 6	20% w/v PEG 550 MME	None	10 mM Tris-HCl	7.5	None
B 1	A 7	30% w/v PEG 550 MME	None	50 mM Tris-HCl	8.5	100 mM Magnesium Chloride
B 2	A 8	35% w/v PEG 600	None	None		None
B 3	A 9	28% w/v PEG 1000	10% w/v Glycerol	100 mM Tricine	8.0	350 mM Sodium Chloride
B 4	A 10	10% w/v PEG 1500	5% w/v Ethanol	100 mM Sodium Chloride		100 mM Magnesium Chloride
B 5	A 11	30% w/v PEG 1500	None	None		None
B 6	A 12	5% w/v PEG 2000	None	None		None
C 1	B 1	10% w/v PEG 2000	None	50 mM Tris-HCl	8.5	500 mM Magnesium Chloride
C 2	B 2	15% w/v PEG 2000	None	None		None
C 3	B 3	15% w/v PEG 2000	None	None		100 mM Lithium Chloride
C 4	B 4	15% w/v PEG 2000	None	100 mM Sodium Phosphate	6.2	20 mM Sodium Citrate
C 5	B 5	15% w/v PEG 2000	None	100 mM Sodium Phosphate	6.8	500 mM Sodium Chloride
C 6	B 6	15% w/v PEG 2000	None	20 mM Bis Tris	7.0	None
D 1	B 7	15% w/v PEG 2000	None	50 mM HEPES Sodium Salt	7.5	100 mM Magnesium Chloride
D 2	B 8	20% w/v PEG 2000	2% w/v MPD	100 mM Tris-HCl	8.0	300 mM Magnesium Nitrate
D 3	B 9	25% w/v PEG 2000	15% w/v Glycerol	100 mM Bicine	9.0	300 mM Magnesium Chloride
D 4	B 10	30% w/v PEG 2000	None	200 mM Sodium Phosphate	6.2	500 mM Sodium Chloride
D 5	B 11	8% w/v PEG 2000 MME	None	100 mM Sodium Acetate	4.6	None
D 6	B 12	10% w/v PEG 2000 MME	20% w/v Glycerol	100 mM Sodium Citrate	5.6	3% w/v PEG 200

Membrane 2		Precipitant 1	Precipitant 2	Buffer	pH	Additive
bulk	HTS					
A 1	C 1	12% w/v PEG 2000 MME	None	50 mM Tris-HCl	7.5	500 mM Sodium Chloride
A 2	C 2	10% w/v PEG 3350	None	50 mM Sodium Citrate	5.6	150 mM Sodium Chloride
A 3	C 3	2% w/v PEG 4000	None	50 mM Tris-HCl	7.5	None
A 4	C 4	5% w/v PEG 4000	None	None		None
A 5	C 5	5% w/v PEG 4000	None	None		100 mM Potassium Chloride
A 6	C 6	5% w/v PEG 4000	10% w/v Glycerol	50 mM MES Sodium Salt	6.5	100 mM Sodium Chloride
B 1	C 7	5% w/v PEG 4000	None	50 mM Sodium Phosphate	6.7	None
B 2	C 8	10% w/v PEG 4000	None	50 mM Tris-HCl	8.5	500 mM Sodium Chloride
B 3	C 9	12% w/v PEG 4000	None	100 mM ADA	6.5	100 mM Lithium Sulfate
B 4	C 10	12% w/v PEG 4000	None	50 mM Sodium Phosphate	6.8	None
B 5	C 11	12% w/v PEG 4000	20% w/v Glycerol	50 mM MOPS	7.0	500 mM Potassium Chloride
B 6	C 12	15% w/v PEG 4000	None	10 mM Tris-HCl	7.5	100 mM Lithium Chloride
C 1	D 1	20% w/v PEG 4000	None	100 mM Bis Tris	7.0	500 mM Sodium Chloride
C 2	D 2	20% w/v PEG 4000	None	100 mM Sodium Phosphate	7.0	500 mM Sodium Chloride
C 3	D 3	20% w/v PEG 4000	150 mM Zinc Acetate	50 mM Tris-HCl	7.5	50 mM Zinc Chloride
C 4	D 4	22% w/v PEG 4000	None	50 mM Tricine	8.0	None
C 5	D 5	22% w/v PEG 4000	None	50 mM Tris-HCl	8.5	500 mM Sodium Chloride
C 6	D 6	30% w/v PEG 4000	None	None		None
D 1	D 7	10% w/v PEG 5000 MME	None	100 mM Sodium Citrate	5.6	100 mM Magnesium Acetate
D 2	D 8	5% w/v PEG 6000	None	None		100 mM Magnesium Sulfate
D 3	D 9	10% w/v PEG 6000	150 mM Zinc Acetate	50 mM Tris-HCl	7.5	50 mM Zinc Chloride
D 4	D 10	15% w/v PEG 6000	None	50 mM Sodium Succinate	6.5	None
D 5	D 11	12% w/v PEG 8000	10% w/v MPD	None		25 mM Potassium dihydrogen Phosphate
D 6	D 12	8% w/v PEG 10000	None	100 mM Sodium Citrate	5.6	100 mM Magnesium Acetate

Membrane 3		Precipitant 1	Precipitant 2	Buffer	pH	Additive
bulk	HTS					
A 1	E 1	700 mM Ammonium Sulfate	None	1.0 M Sodium / Potassium Phosphate	7.5	None
A 2	E 2	1.0 M Ammonium Sulfate	None	50 mM MES Sodium Salt	6.5	100 mM Zinc Acetate
A 3	E 3	1.2 M Ammonium Sulfate	None	50 mM Tris-HCl	7.5	None
A 4	E 4	1.2 M Ammonium Sulfate	None	100 mM Tris-HCl	8.5	None
A 5	E 5	1.4 M Ammonium Sulfate	4% w/v 2-Propanol	None		100 mM Ammonium Acetate
A 6	E 6	2.0 M Ammonium Sulfate	None	None		None
B 1	E 7	2.0 M Ammonium Sulfate	None	100 mM Sodium Citrate	5.6	None
B 2	E 8	2.5 M Ammonium Sulfate	2% PEG 5000 MME	100 mM HEPES Sodium Salt	7.5	None
B 3	E 9	3.0 M Ammonium Sulfate	None	None		None
B 4	E 10	3.5 M Ammonium Sulfate	None	None		None
B 5	E 11	3.5 M Ammonium Sulfate	None	50 mM Sodium/ Potassium Phosphate	7.5	250 mM Sodium Chloride
B 6	E 12	25% w/v MPD	None	100 mM Bis Tris	7.0	None
C 1	F 1	30% w/v MPD	None	300 mM Sodium Citrate	5.6	None
C 2	F 2	25% w/v Ethylene Glycol	None	None		100 mM Ammonium Sulfate 100 mM Glycine
C 3	F 3	30% w/v 2-Propanol	20% w/v Glycerol	100 mM Sodium Acetate	4.6	200 mM Calcium Chloride
C 4	F 4	None	None	50 mM Potassium Phosphate	8.0	None
C 5	F 5	None	None	100 mM Sodium Citrate	4.8	None
C 6	F 6	1.0 M Potassium Phosphate	None	None	6.5	1% w/v 1.4-Dioxane
D 1	F 7	1.0 M Sodium Citrate	None	None		None
D 2	F 8	None	None	1.0 M Sodium Citrate	5.6	500 mM Lithium Chloride
D 3	F 9	1.5 M Sodium Chloride	None	100 mM Sodium Acetate	4.6	None
D 4	F 10	None	None	1.5 M Potassium Phosphate	7.0	None
D 5	F 11	1.5 M Lithium Sulfate	None	100 mM HEPES Sodium Salt	7.5	None
D 6	F 12	2.0 M Sodium Chloride	None	None		100 mM Sodium Formate

JBScreen Kinase

Kinase 1		Precipitant	Buffer	pH	Additive 1	Additive 2
bulk	HTS					
A 1	A 1	1.0 M Ammonium Sulfate	100 mM Sodium Citrate	5.6	200 mM Magnesium Acetate	10 mM DTT
A 2	A 2	1.3 M Ammonium Sulfate	100 mM Sodium Citrate	5.6	None	None
A 3	A 3	1.3 M Ammonium Sulfate	100 mM Tris-HCl	8.5	None	None
A 4	A 4	1.8 M Ammonium Sulfate	100 mM MES Sodium Salt	6.5	25 mM Cobalt (II) Chloride	None
A 5	A 5	2.0 M Ammonium Sulfate	100 mM Citric Acid	3.1	200 mM Sodium Chloride	None
A 6	A 6	2.0 M Ammonium Sulfate	100 mM Sodium Acetate	4.6	50 mM Magnesium Chloride	None
B 1	A 7	2.0 M Ammonium Sulfate	100 mM Sodium Acetate	4.6	None	None
B 2	A 8	2.0 M Ammonium Sulfate	100 mM HEPES Sodium Salt	7.5	2% v/v PEG 550 MME	None
B 3	A 9	2.0 M Ammonium Sulfate	100 mM HEPES Sodium Salt	7.5	None	None
B 4	A 10	2.0 M Ammonium Sulfate	100 mM Tris-HCl	8.5	6 mM Magnesium Chloride	None
B 5	A 11	1.5 M Lithium Sulfate	100 mM Tris-HCl	8.5	10 mM Nickel Sulfate	None
B 6	A 12	1.0 M Lithium Chloride	100 mM Citric Acid	4.2	None	None
C 1	B 1	2.0 M Sodium Chloride	100 mM Sodium Acetate	4.6	None	None
C 2	B 2	2.0 M Sodium Chloride	100 mM MES Sodium Salt	6.5	200 mM Sodium/Potassium Phosphate	None
C 3	B 3	3.3 M Sodium Chloride	100 mM HEPES Sodium Salt	7.5	1% v/v Glycerol	None
C 4	B 4	1.2 M Sodium Acetate	100 mM MES Sodium Salt	6.5	6.25 mM Calcium Chloride	None
C 5	B 5	3.7 M Sodium Formate	100 mM Bicine	9.5	2% w/v PEG 3000	None
C 6	B 6	500 mM Sodium Malonate	50 mM PIPES	6.0	1.6% v/v Glycerol	10 mM DTT
D 1	B 7	500 mM di-Sodium hydrogen Phosphate	100 mM CAPS	10.0	500 mM di-Potassium hydrogen Phosphate	100 mM Lithium Sulfate
D 2	B 8	1.2 M Sodium Tartrate	100 mM Tris-HCl	8.5	5 mM DTT	None
D 3	B 9	1.0 M Potassium / Sodium Tartrate	100 mM MES Sodium Salt	6.5	None	None
D 4	B 10	30% v/v Jeffamine M-600	100 mM MES Sodium Salt	6.5	50 mM Cesium Chloride	None
D 5	B 11	40% v/v MPD	100 mM MES Sodium Salt	6.5	None	None
D 6	B 12	50% v/v MPD	100 mM HEPES Sodium Salt	7.5	None	None

Kinase 2		Precipitant	Buffer	pH	Additive 1	Additive 2	Additive 3
bulk	HTS						
A 1	C 1	10% v/v PEG 400	50 mM Tris-HCl	8.5	300 mM Sodium Chloride	1 mM DTT	1mM EDTA
A 2	C 2	15% v/v PEG 400	100 mM HEPES Sodium Salt	7.5	200 mM Calcium Chloride	None	None
A 3	C 3	25% v/v PEG 400	100 mM MES Sodium Salt	6.5	10% v/v 2-Propanol	None	None
A 4	C 4	25% v/v PEG 400	100 mM Tris-HCl	8.5	150 mM Sodium Citrate	None	None
A 5	C 5	15% v/v PEG 550 MME	100 mM Sodium Acetate	4.6	5% v/v Ethylene Glycol	None	None
A 6	C 6	20% v/v PEG 550 MME	100 mM Bicine	9.0	100 mM Sodium Chloride	None	None
B 1	C 7	20% w/v PEG 1000	100 mM Tris-HCl	8.5	1 mM DTT	None	None
B 2	C 8	35% w/v PEG 1000	100 mM HEPES Sodium Salt	7.5	50 mM Lithium Sulfate	None	None
B 3	C 9	12% w/v PEG 2000	100 mM MES Sodium Salt	6.5	200 mM Magnesium Acetate	None	None
B 4	C 10	25% w/v PEG 2000	100 mM Sodium Acetate	4.6	100 mM Magnesium Chloride	None	None
B 5	C 11	30% w/v PEG 2000	100 mM Sodium Acetate	4.6	50 mM Magnesium Chloride	None	None
B 6	C 12	24% w/v PEG 2000 MME	100 mM Citrate/Phosphate	5.0	None	None	None
C 1	D 1	12% w/v PEG 3350	100 mM MES Sodium Salt	6.5	500 mM Sodium Chloride	None	None
C 2	D 2	12% w/v PEG 3350	50 mM Sodium Citrate	5.6	200 mM Ammonium Sulfate	50 mM Magnesium Sulfate	None
C 3	D 3	15% w/v PEG 3350	100 mM Imidazole-HCl	7.5	250 mM Ammonium Sulfate	10 mM Cadmium Chloride	None
C 4	D 4	20% w/v PEG 3350	150 mM D,L-Malic Acid	7.0	None	None	None
C 5	D 5	20% w/v PEG 3350	100 mM HEPES Sodium Salt	7.5	200 mM Sodium Chloride	20 mM Glutathione	None
C 6	D 6	20% w/v PEG 3350	100 mM Tris-HCl	8.5	120 mM Sodium Chloride	5 mM DTT	None
D 1	D 7	20% w/v PEG 3350	None		200 mM Potassium Nitrate	None	None
D 2	D 8	22% w/v PEG 3350	None		100 mM Ammonium Formate	None	None
D 3	D 9	24% w/v PEG 3350	100 mM Citric Acid	5.0	None	None	None
D 4	D 10	30% w/v PEG 3350	100 mM Sodium Acetate	4.6	200 mM Ammonium Acetate	None	None
D 5	D 11	30% w/v PEG 3350	200 mM Ammonium Acetate	5.6	20% v/v 2-Propanol	200 mM Calcium Chloride	None
D 6	D 12	32.5% w/v PEG 3350	100 mM Tris-HCl	8.5	200 mM Magnesium Chloride	500 mM Sodium Chloride	None

Kinase 3		Precipitant	Buffer	pH	Additive 1	Additive 2	Additive 3
bulk	HTS						
A 1	E 1	8% w/v PEG 4000	50 mM MES Sodium Salt	6.5	10 mM Magnesium Chloride	10 mM DTT	None
A 2	E 2	10% w/v PEG 4000	50 mM PIPES	7.0	10 mM DTT	None	None
A 3	E 3	10% w/v PEG 4000	100 mM HEPES Sodium Salt	7.5	200 mM Magnesium Chloride	15% v/v Ethylene Glycol	10% v/v 2-Propanol
A 4	E 4	10% w/v PEG 4000	100 mM HEPES Sodium Salt	7.5	None	None	None
A 5	E 5	15% w/v PEG 4000	100 mM HEPES Sodium Salt	7.5	10% v/v 2-Propanol	None	None
A 6	E 6	15% w/v PEG 4000	75 mM Tris-HCl	8.5	75 mM Sodium Acetate	200 mM Sodium Chloride	1% w/v PEG 6000
B 1	E 7	15% w/v PEG 4000	100 mM L-Malic Acid	5.5	200 mM Ammonium Sulfate	None	None
B 2	E 8	20% w/v PEG 4000	100 mM Bis-Tris	6.5	100 mM Sodium Chloride	None	None
B 3	E 9	20% w/v PEG 4000	100 mM HEPES Sodium Salt	7.5	200 mM Magnesium Chloride	None	None
B 4	E 10	20% w/v PEG 4000	100 mM Tris-HCl	8.5	200 mM Magnesium Chloride	None	None
B 5	E 11	25% w/v PEG 4000	100 mM MES Sodium Salt	6.5	200 mM Magnesium Chloride	None	None
B 6	E 12	25% w/v PEG 4000	100 mM Tris-HCl	8.5	100 mM Lithium Sulfate	None	None
C 1	F 1	28% w/v PEG 4000	200 mM Lithium Acetate	7.5	None	None	None
C 2	F 2	30% w/v PEG 4000	100 mM MES Sodium Salt	6.5	200 mM Sodium Acetate	None	None
C 3	F 3	30% w/v PEG 4000	150 mM Tris-HCl	8.5	200 mM Ammonium Sulfate	None	None
C 4	F 4	8% w/v PEG 5000 MME	100 mM HEPES Sodium Salt	7.5	10% v/v 2-Propanol	None	None
C 5	F 5	25% w/v PEG 5000 MME	100 mM MES Sodium Salt	6.5	200 mM Ammonium Sulfate	None	None
C 6	F 6	30% w/v PEG 5000 MME	100 mM HEPES Sodium Salt	7.5	200 mM Ammonium Sulfate	None	None
D 1	F 7	30% w/v PEG 5000 MME	100 mM ADA	6.5	100 mM Ammonium Sulfate	None	None
D 2	F 8	20% w/v PEG 6000	100 mM MES Sodium Salt	6.5	None	None	None
D 3	F 9	28% w/v PEG 6000	100 mM MES Sodium Salt	6.5	10 mM DTT	None	None
D 4	F 10	30% w/v PEG 6000	100 mM HEPES Sodium Salt	7.5	175 mM Lithium Sulfate	None	None
D 5	F 11	30% w/v PEG 6000	100 mM PIPES	7.0	10 mM DTT	None	None
D 6	F 12	32% w/v PEG 6000	100 mM MES Sodium Salt	6.5	None	None	None

Kinase 4		Precipitant	Buffer	pH	Additive 1	Additive 2
bulk	HTS					
A 1	G 1	7% w/v PEG 8000	100 mM MES Sodium Salt	6.5	20% v/v Ethylene Glycol	None
A 2	G 2	7% w/v PEG 8000	100 mM MES Sodium Salt	6.5	150 mM Calcium Acetate	16% v/v Ethylene Glycol
A 3	G 3	10% w/v PEG 8000	100 mM Tris-HCl	8.5	10% v/v PEG 200	None
A 4	G 4	12% w/v PEG 8000	100 mM HEPES Sodium Salt	7.5	None	None
A 5	G 5	12% w/v PEG 8000	100 mM Tris-HCl	8.5	250 mM Sodium Tartrate	None
A 6	G 6	16% w/v PEG 8000	100 mM HEPES Sodium Salt	7.5	100 mM Potassium dihydrogen Phosphate	None
B 1	G 7	16% w/v PEG 8000	100 mM HEPES Sodium Salt	7.5	150 mM Sodium Chloride	2% v/v Ethylene Glycol
B 2	G 8	18% w/v PEG 8000	100 mM MES Sodium Salt	6.5	200 mM Magnesium Acetate	None
B 3	G 9	18% w/v PEG 8000	100 mM MES Sodium Salt	6.5	None	None
B 4	G 10	18% w/v PEG 8000	100 mM Tris-HCl	8.5	None	None
B 5	G 11	20% w/v PEG 8000	100 mM Citric Acid	5.0	100 mM Magnesium Acetate	None
B 6	G 12	20% w/v PEG 8000	100 mM Tris-HCl	8.5	200 mM Magnesium Chloride	2% v/v Ethylene Glycol
C 1	H 1	22% w/v PEG 8000	100 mM Tris-HCl	8.5	2% v/v Ethylene Glycol	None
C 2	H 2	25% w/v PEG 8000	100 mM Sodium Acetate	4.6	50 mM Magnesium Chloride	None
C 3	H 3	30% w/v PEG 8000	100 mM MES Sodium Salt	6.5	200 mM Ammonium Sulfate	4% v/v 1,3-Propanediol
C 4	H 4	30% w/v PEG 8000	100 mM HEPES Sodium Salt	7.5	10 mM DTT	20% v/v Glycerol
C 5	H 5	9% w/v PEG 8000	100 mM MES Sodium Salt	6.5	200 mM Zinc Acetate	None
C 6	H 6	16% w/v PEG 10000	100 mM Bis-Tris	6.5	300 mM Ammonium Sulfate	5% v/v Ethylene Glycol
D 1	H 7	10% w/v PEG 10000	100 mM HEPES Sodium Salt	7.5	8% v/v Ethylene Glycol	None
D 2	H 8	15% w/v PEG 10000	100 mM HEPES Sodium Salt	7.5	5 mM DTT	None
D 3	H 9	15% w/v PEG 10000	100 mM Tris-HCl	8.5	None	None
D 4	H 10	12% w/v PEG 20000	100 mM MES Sodium Salt	6.5	None	None
D 5	H 11	10% w/v PEG 20000	100 mM HEPES Sodium Salt	7.5	100 mM Ammonium Formate	None
D 6	H 12	15% w/v PEG 20000	None		10 mM Potassium Tartrate	None

JBScreen Phosphatase

Phosphatase 1		Precipitant 1	Precipitant 2	Buffer	pH	Additive 1	Additive 2
bulk	HTS						
A1	A1	15 % v/v PEG 400	None	50 mM Sodium Citrate	5.6	200 mM Sodium Tartrate	200 mM Ammonium Sulfate
A2	A2	22 % v/v PEG 400	None	100 mM Tris-HCl	8.5	200 mM Lithium Sulfate	None
A3	A3	25 % v/v PEG 400	None	100 mM HEPES Sodium Salt	7.5	200 mM Calcium Chloride	None
A4	A4	25 % v/v PEG 550 MME	None	100 mM MES Sodium Salt	6.5	10 mM Zinc Sulfate	None
A5	A5	27 % w/v PEG 1500	10 % v/v MPD	10 mM Imidazole-HCl	7.0	220 mM Sodium Nitrate	None
A6	A6	30% w/v PEG 1500	None	100 mM Bis-Tris	6.5	400 mM Potassium Fluoride	None
B1	A7	8 % w/v PEG 2000 MME	None	10 mM Tris-HCl	7.0	10 mM Nickel (II) Chloride	None
B2	A8	16% w/v PEG 2000 MME	None	100 mM Sodium Acetate	4.6	400 mM Ammonium Sulfate	None
B3	A9	8 % w/v PEG 3350	None	None		100 mM Sodium Acetate	None
B4	A10	10 % w/v PEG 3350	None	100 mM HEPES Sodium Salt	7.5	200 mM Ammonium Acetate	None
B5	A11	10 % w/v PEG 3350	None	100 mM HEPES Sodium Salt	7.5	50 mM Ammonium Acetate	15 mM Sodium Chloride
B6	A12	10 % w/v PEG 3350	None	100 mM MES Sodium Salt	6.5	20 mM Zinc Acetate	None
C1	B1	15 % w/v PEG 3350	None	None		200 mM Sodium Fluoride	None
C2	B2	15 % w/v PEG 3350	None	100 mM Bis-Tris	6.5	50 mM Glycine	200 mM Sodium Formate
C3	B3	15 % w/v PEG 3350	5 % v/v Glycerol	100 mM Bis-Tris	7.0	200 mM Magnesium Formate	None
C4	B4	20 % w/v PEG 3350	None	None		200 mM Potassium Fluoride	None
C5	B5	20 % w/v PEG 3350	None	100 mM MES Sodium Salt	6.5	100 mM Ammonium Chloride	None
C6	B6	20 % w/v PEG 3350	None	10 mM Tris-HCl	8.0	200 mM Potassium Sulfate	None
D1	B7	20 % w/v PEG 3350	None	None		100 mM Sodium Citrate	None
D2	B8	22 % w/v PEG 3350	None	100 mM HEPES Sodium Salt	7.5	200 mM Calcium Chloride	None
D3	B9	25 % w/v PEG 3350	None	100 mM Tris-HCl	8.5	200 mM Magnesium Chloride	None
D4	B10	25 % w/v PEG 3350	10 % v/v 2-Propanol	100 mM Sodium Citrate	4.8	100 mM Lithium Chloride	None
D5	B11	30 % w/v PEG 3350	None	None		200 mM Ammonium Nitrate	None
D6	B12	30 % w/v PEG 3350	None	None		200 mM Ammonium dihydrogen Phosphate	None

Phosphatase 2		Precipitant 1	Precipitant 2	Buffer	pH	Additive 1	Additive 2
bulk	HTS						
A1	C1	8 % w/v PEG 4000	None	50 mM HEPES Sodium Salt	7.0	22 mM Lithium Sulfate	0.1 % v/v ß-Mercaptoethanol
A2	C2	10 % w/v PEG 4000	None	100 mM HEPES Sodium Salt	7.5	50 mM Ammonium Acetate	None
A3	C3	10 % w/v PEG 4000	10 % v/v Glycerol	50 mM Sodium Succinate	5.5	3 mM Magnesium Chloride	50 mM Tris-Phosphate pH 7.5
A4	C4	12 % w/v PEG 4000	10 % v/v 2-Propanol	100 mM Sodium Citrate	5.6	None	None
A5	C5	12 % w/v PEG 4000	None	200 mM Imidazole Malate	6.0	2 mM Zinc Acetate	None
A6	C6	15 % w/v PEG 4000	None	100 mM HEPES Sodium Salt	7.0	200 mM Magnesium Chloride	None
B1	C7	15 % w/v PEG 4000	15 % v/v PEG 400	50 mM MES Sodium Salt	6.5	200 mM Magnesium Sulfate	50 mM Ammonium Sulfate
B2	C8	15 % w/v PEG 4000	None	85 mM MES Sodium Salt	6.5	170 mM Sodium Acetate	None
B3	C9	20 % w/v PEG 4000	5 % v/v 2-Propanol	100 mM Bicine	9.0	None	None
B4	C10	22 % w/v PEG 4000	10 % v/v 2-Propanol	100 mM Tris-HCl	8.5	200 mM Llithium Sulfate	0.5 % v/v ß-Mercaptoethanol
B5	C11	25 % w/v PEG 4000	None	100 mM Bis-Tris Propane	6.5	200 mM di-Ammonium Tartrate	None
B6	C12	30 % w/v PEG 4000	None	100 mM Sodium Acetate	4.6	None	None
C1	D1	30 % w/v PEG 4000	None	100 mM Sodium Citrate	5.6	200 mM Ammonium Acetate	None
C2	D2	30 % w/v PEG 4000	None	100 mM Tris-HCl	7.5	100 mM Cesium Chloride	250 mM Lithium Sulfate
C3	D3	35 % w/v PEG 4000	None	100 mM MES Sodium Salt	6.0	None	None
C4	D4	42 % w/v PEG 4000	None	50 mM Tris-HCl	8.0	100 mM Sodium Perchlorate	None
C5	D5	8 % w/v PEG 6000	10 % v/v 2-Propanol	100 mM Citric Acid	4.0	50 mM Ammonium dihydrogen Phosphate	None
C6	D6	10 % w/v PEG 6000	4 % v/v MPD	100 mM HEPES Sodium Salt	7.5	None	None
D1	D7	10 % w/v PEG 6000	None	100 mM MES Sodium Salt	6.5	None	None
D2	D8	12 % w/v PEG 6000	None	100 mM Sodium Acetate	4.6	None	None
D3	D9	12 % w/v PEG 6000	None	100 mM Tris-Acetate	8.0	None	None
D4	D10	12 % w/v PEG 6000	2% v/v Glycerol	None		25 mM Sodium Phosphate	None
D5	D11	15 % w/v PEG 6000	None	50 mM Sodium Phosphate	7.0	25 mM Potassium Chloride	5 mM Magnesium Sulfate
D6	D12	20 % w/v PEG 6000	None	100 mM Bicine	9.0	None	None

Phosphatase 3		Precipitant 1	Precipitant 2	Buffer	pH	Additive 1	Additive 2
bulk	HTS						
A1	E1	8 % w/v PEG 8000	None	None		100 mM Potassium Phosphate	0.2 % v/v ß-Mercaptoethanol
A2	E2	10 % w/v PEG 8000	None	100 mM HEPES Sodium Salt	7.5	200 mM Magnesium Acetate	None
A3	E3	10 % w/v PEG 8000	None	100 mM MES Sodium Salt	6.5	200 mM Potassium Chloride	100 mM Magnesium Acetate
A4	E4	10 % w/v PEG 8000	None	100 mM Tris-HCl	8.5	50 mM Sodium Chloride	None
A5	E5	12 % w/v PEG 8000	None	50 mM Sodium Acetate	5.0	300 mM Ammonium Acetate	None
A6	E6	12 % w/v PEG 8000	None	100 mM Tris-HCl	6.3	200 mM Lithium Sulfate	None
B1	E7	12 % w/v PEG 8000	None	100 mM HEPES Sodium Salt	7.5	200 mM Sodium Acetate	None
B2	E8	13 % w/v PEG 8000	15 % v/v Glycerol	100 mM MOPS	7.0	500 mM Ammonium Sulfate	None
B3	E9	15 % w/v PEG 8000	None	100 mM Potassium Phopshate	4.6	None	None
B4	E10	15 % w/v PEG 8000	None	100 mM Sodium Phosphate	4.6	None	None
B5	E11	15 % w/v PEG 8000	None	100 mM Sodium Succinate	5.5	250 mM Lithium Sulfate	None
B6	E12	18 % w/v PEG 8000	None	100 mM HEPES Sodium Salt	7.0	100 mM Potassium dihydrogen Phosphate	None
C1	F1	18 % w/v PEG 8000	None	None		200 mM Lithium Sulfate	None
C2	F2	18 % w/v PEG 8000	5 % v/v 1,4-Dioxane	100 mM Tris-HCl	8.0	200 mM Sodium Fluoride	None
C3	F3	25 % w/v PEG 8000	5 % v/v Jeffamine M600	90 mM MES Sodium Salt	6.0	90 mM Magnesium Acetate	None
C4	F4	25 % w/v PEG 8000	None	100 mM Tris-HCl	8.5	200 mM Magnesium Sulfate	None
C5	F5	5 % w/v PEG 10000	None	100 mM HEPES Sodium Salt	7.5	200 mM Magnesium Chloride	None
C6	F6	10 % w/v PEG 10000	None	50 mM Sodium Acetate	5.0	None	None
D1	F7	10 % w/v PEG 10000	None	100 mM HEPES Sodium Salt	7.5	None	None
D2	F8	15 % w/v PEG 10000	None	100 mM Bis-Tris	5.5	100 mM Ammonium Acetate	5 mM LDAO
D3	F9	15 % w/v PEG 10000	None	60 mM Glycine	9.0	20 mM Sodium Citrate	None
D4	F10	20 % w/v PEG 10000	5 % v/v PEG 550 MME	100 mM Sodium Citrate	5.6	None	None
D5	F11	12 % w/v PEG 20000	None	100 mM MES Sodium Salt	6.5	None	None
D6	F12	17 % w/v PEG 20000	None	100 mM Tris-HCl	8.5	100 mM Magnesium Chloride	None

Phosphatase 4		Precipitant 1	Precipitant 2	Buffer	pH	Additive 1	Additive 2
bulk	HTS						
A1	G1	500 mM Ammonium Sulfate	None	100 mM HEPES Sodium Salt	7.5	200 mM Lithium Sulfate	None
A2	G2	1.0 M Ammonium Sulfate	None	100 mM MES Sodium Salt	6.5	100 mM Potassium Chloride	None
A3	G3	1.0 M Ammonium Sulfate	800 mM Potassium Chloride	100 mM HEPES Sodium Salt	7.0	None	None
A4	G4	1.3 M Ammonium Sulfate	None	100 mM CHES	9.5	200 mM Sodium Chloride	None
A5	G5	1.3 M Ammonium Sulfate	None	100 mM Sodium Acetate	5.5	None	None
A6	G6	1.3 M Ammonium Sulfate	5 % v/v Glycerol	100 mM Maleic Acid	6.5	1 mM Magnesium Chloride	5 mM Zinc Chloride
B1	G7	1.5 M Ammonium Sulfate	None	100 mM Tris-HCl	8.5	200 mM Lithium Sulfate	None
B2	G8	1.7 M Ammonium Sulfate	None	100 mM MES Sodium Salt	6.0	None	None
B3	G9	1.7 M Ammonium Sulfate	4 % v/v MPD	100 mM HEPES Sodium Salt	7.5	None	None
B4	G10	1.7 M Ammonium Sulfate	2 % v/v PEG 400	100 mM Tris-HCl	7.5	None	None
B5	G11	2.0 M Ammonium Sulfate	None	100 mM Tris-HCl	8.5	None	None
B6	G12	2.0 M Ammonium Sulfate	10 % v/v PEG 400	50 mM HEPES Sodium Salt	7.0	50 mM Zinc Sulfate	None
C1	H1	2.0 M Ammonium Sulfate	None	100 mM Sodium Citrate	5.6	200 mM Potassium/Sodium Tartrate	None
C2	H2	2.2 M Ammonium Sulfate	6 % v/v PEG 400	100 mM Bis-Tris	6.5	None	None
C3	H3	2.4 M Ammonium Sulfate	None	100 mM HEPES Sodium Salt	7.0	None	None
C4	H4	2.4 M Ammonium Sulfate	None	100 mM Tris-HCl	8.0	10 mM Magnesium Chloride	5 mM Zinc Sulfate
C5	H5	500 mM Lithium Sulfate	10 % v/v PEG 400	100 mM Imidazole-HCl	8.0	None	None
C6	H6	1.5 M Lithium Sulfate	None	100 mM HEPES Sodium Salt	7.5	None	None
D1	H7	2.0 M Lithium Sulfate	2 % v/v PEG 400	100 mM Tris-Acetate	8.0	0.1 % v/v β-Mercaptoethanol	None
D2	H8	20 % v/v MPD	None	100 mM MES Sodium Salt	6.5	None	None
D3	H9	35 % v/v MPD	None	100 mM Sodium Acetate	4.6	None	None
D4	H10	1.4 M Sodium Formate	None	100 mM MES Sodium Salt	6.0	None	None
D5	H11	3.0 M Sodium Formate	None	100 mM Tris-HCl	8.0	None	None
D6	H12	1.0 M Sodium Tartrate	None	100 mM Tris-HCl	8.5	None	None

JBScreen Nuc-Pro

Nuc-Pro 1		Precipitant 1	Precipitant 2	Buffer	pH	Additive 1	Additive 2
bulk	HTS						
A1	A1	20 % v/v PEG 200	None	50 mM HEPES Sodium Salt	7.5	200 mM Potassium Chloride	25 mM Magnesium Sulfate
A2	A2	50 % v/v PEG 200	None	100 mM Tris-HCl	8.0	None	None
A3	A3	5 % v/v PEG 400	None	50 mM PIPES	7.0	30 mM Magnesium Chloride	None
A4	A4	5 % v/v PEG 400	None	20 mM MES Sodium Salt	5.8	15 mM Magnesium Formate	2 mM Cobalt (II) Chloride
A5	A5	10 % v/v PEG 400	None	50 mM HEPES Sodium Salt	7.0	100 mM Potassium Chloride	None
A6	A6	15 % v/v PEG 400	None	50 mM MES Sodium Salt	6.5	80 mM Magnesium Acetate	15 mM Magnesium Chloride
B1	A7	15 % v/v PEG 400	None	100 mM Tris-HCl	8.0	80 mM Calcium Chloride	20 mM Sodium Chloride
B2	A8	20 % v/v PEG 400	None	50 mM Bis-Tris-Propane	6.8	60 mM Magnesium Chloride	None
B3	A9	25% v/v PEG 400	None	100 mM Sodium Citrate	5.6	130 mM Sodium Chloride	60 mM Magnesium Chloride
B4	A10	30 % v/v PEG 400	None	100 mM HEPES Sodium Salt	7.5	200 mM Calcium Chloride	None
B5	A11	30 % v/v PEG 400	None	50 mM Tris-HCl	8.5	100 mM Potassium Chloride	10 mM Magnesium Chloride
B6	A12	25 % v/v PEG 550 MME	None	50 mM HEPES Sodium Salt	7.0	10 mM Magnesium Chloride	None
C1	B1	20 % w/v PEG 1000	None	50 mM MES Sodium Salt	6.5	200 mM Magnesium Chloride	100 mM Sodium Chloride
C2	B2	30 % w/v PEG 2000 MME	None	100 mM Sodium Acetate	4.6	200 mM Ammonium Sulfate	None
C3	B3	10 % w/v PEG 3350	None	100 mM MES Sodium Salt	6.5	100 mM Calcium Chloride	13 % v/v Glycerol
C4	B4	25 % w/v PEG 3350	None	50 mM MES Sodium Salt	6.0	200 mM Sodium Formate	10 % v/v Glycerol
C5	B5	30 % w/v PEG 3350	None	50 mM Sodium Succinate	5.5	100 mM Sodium Chloride	None
C6	B6	35 % w/v PEG 3350	None	50 mM Tris-HCl	7.5	50 mM Potassium Chloride	None
D1	B7	5 % w/v PEG 4000	None	50 mM HEPES Sodium Salt	7.0	200 mM Ammonium Sulfate	20 mM Magnesium Acetate
D2	B8	5 % w/v PEG 4000	None	50 mM MES Sodium Salt	6.0	5 mM Magnesium Sulfate	None
D3	B9	10 % w/v PEG 4000	None	50 mM MES Sodium Salt	6.5	200 mM Ammonium Acetate	10 mM Calcium Chloride
D4	B10	10 % w/v PEG 4000	None	50 mM Imidazole-HCl	7.2	20 mM Zinc Sulfate	None
D5	B11	15 % w/v PEG 4000	None	50 mM Tris-HCl	7.5	150 mM Potassium Chloride	20 mM Magnesium Chloride
D6	B12	15 % w/v PEG 4000	None	50 mM Sodium Citrate	5.0	100 mM Sodium Chloride	20 mM Ammonium Sulfate

Nuc-Pro 2		Precipitant 1	Precipitant 2	Buffer	pH	Additive 1	Additive 2
bulk	HTS						
A1	C1	20 % w/v PEG 4000	None	100 mM Sodium Citrate	5.6	100 mM Potassium Chloride	10 % v/v 2-Propanol
A2	C2	20 % w/v PEG 4000	None	50 mM MOPS	7.0	100 mM Sodium Chloride	None
A3	C3	20 % w/v PEG 4000	None	100 mM HEPES Sodium Salt	7.5	None	None
A4	C4	24 % w/v PEG 4000	None	50 mM Sodium Succinate	5.5	60 mM Magnesium Chloride	30 mM Sodium Chloride
A5	C5	25 % w/v PEG 4000	None	50 mM Sodium Citrate	5.0	50 mM Ammonium Sulfate	None
A6	C6	30 % w/v PEG 4000	None	50 mM MES Sodium Salt	6.5	80 mM Magnesium Acetate	None
B1	C7	30 % w/v PEG 4000	None	50 mM Tris-HCl	8.5	150 mM Ammonium Chloride	10 mM Calcium Chloride
B2	C8	32 % w/v PEG 4000	None	100 mM Tris-HCl	8.5	5 % v/v Glycerol	None
B3	C9	36% w/v PEG 4000	None	50 mM Sodium Acetate	5.0	None	None
B4	C10	5 % w/v PEG 6000	None	20 mM Bis-Tris	6.0	60 mM Ammonium Citrate	20 mM Magnesium Chloride
B5	C11	10 % w/v PEG 6000	None	50 mM Citric Acid	4.0	100 mM Sodium Chloride	None
B6	C12	10 % w/v PEG 6000	None	50 mM HEPES Sodium Salt	7.0	200 mM Ammonium Acetate	150 mM Magnesium Acetate
C1	D1	15 % w/v PEG 6000	None	10 mM Tris-HCl	7.5	None	None
C2	D2	18 % w/v PEG 6000	None	50 mM Sodium Acetate	5.0	None	None
C3	D3	20 % w/v PEG 6000	None	50 mM Bis-Tris-Propane	7.0	7 % v/v MPD	5 % v/v Tert-Butanol
C4	D4	20 % w/v PEG 6000	None	50 mM L-Malic Acid	5.0	30 mM Calcium Chloride	None
C5	D5	5 % w/v PEG 8000	None	50 mM HEPES Sodium Salt	7.5	20 mM Magnesium Chloride	None
C6	D6	10 % w/v PEG 8000	None	100 mM Tris-HCl	8.0	10 % v/v Glycerol	1 mM TCEP
D1	D7	10 % w/v PEG 8000	None	50 mM MES Sodium Salt	6.5	200 mM Potassium Chloride	100 mM Magnesium Acetate
D2	D8	15 % w/v PEG 8000	None	50 mM Bis-Tris-Propane	6.8	100 mM Ammonium Sulfate	10 % v/v Glycerol
D3	D9	15 % w/v PEG 8000	None	100 mM MES Sodium Salt	6.5	200 mM Calcium Acetate	None
D4	D10	18 % w/v PEG 8000	None	100 mM Tris-HCl	8.0	200 mM Magnesium Formate	None
D5	D11	20 % w/v PEG 8000	None	10 mM Tris-HCl	7.5	10 mM Calcium Chloride	None
D6	D12	15 % w/v PEG 20000	None	100 mM MES Sodium Salt	6.5	80 mM Mangan (II) Chloride	None

Nuc-Pro 3		Precipitant 1	Precipitant 2	Buffer	pH	Additive 1	Additive 2
bulk	HTS						
A1	E1	1.2 M Ammonium Sulfate	None	100 mM HEPES Sodium Salt	7.5	2 % w/v PEG 400	None
A2	E2	20 mM Calium Chloride	None	100 mM Glycine	8.0	None	None
A3	E3	2 M Lithium Chloride	None	50 mM MES Sodium Salt	6.0	200 mM Calcium Acetate	1 mM Cobalt (II) Chloride
A4	E4	600 mM Lithium Sulfate	None	50 mM MES Sodium Salt	6.0	10 mM Magnesium Chloride	None
A5	E5	1 M Lithium Sulfate	8 % w/v PEG 400	50 mM HEPES Sodium Salt	7.5	None	None
A6	E6	1 M Lithium Sulfate	None	None		50 mM Sodium Citrate	3 % v/v 2-Propanol
B1	E7	1.2 M Lithium Sulfate	None	50 mM MES Sodium Salt	6.5	30 mM Magnesium Chloride	None
B2	E8	1.2 M Lithium Sulfate	None	50 mM MES Sodium Salt	6.5	50 mM Magnesium Chloride	2 mM Cobalt (II) Chloride
B3	E9	1.5 M Lithium Sulfate	None	50 mM Tris-HCl	8.5	5 % w/v Glycerol	None
B4	E10	1.6 M Lithium Sulfate	2 % w/v PEG 1000	50 mM HEPES Sodium Salt	7.5	None	None
B5	E11	1.7 M Lithium Sulfate	None	50 mM HEPES Sodium Salt	7.0	50 mM Magnesium Sulfate	None
B6	E12	1.7 M Lithium Sulfate	None	None		10 % w/v Glycerol	None
C1	F1	2 M Lithium Sulfate	None	None		3 % w/v MPD	None
C2	F2	5 mM Magnesium Chloride	None	50 mM MES Sodium Salt	6.5	2.5 mM Cobalt (II) Chloride	None
C3	F3	40 mM Magnesium Chloride	None	50 mM MES Sodium Salt	6.0	None	None
C4	F4	80 mM Magnesium Chloride	None	50 mM HEPES Sodium Salt	7.5	None	None
C5	F5	200 mM Sodium Chloride	None	50 mM Bis-Tris-Propane	7.0	None	None
C6	F6	400 mM Sodium Chloride	None	50 mM Bis-Tris-Propane	6.8	None	None
D1	F7	600 mM Sodium Chloride	None	50 mM MES Sodium Salt	6.0	100 mM Ammonium Acetate	5 mM Magnesium Sulfate
D2	F8	2.5 M Sodium Chloride	None	50 mM Tris-HCl	7.5	200 mM Magnesium Chloride	None
D3	F9	1.8 M Sodium Formate	None	100 mM Tris-HCl	8.0	None	None
D4	F10	2 M Sodium Formate	None	100 mM Sodium Acetate	4.6	None	None
D5	F11	100 mM Sodium Phosphate anhydrous	None	None		80 mM Sodium Chloride	None
D6	F12	1 M Sodium Tartrate	None	50 mM Tris-HCl	7.5	30 mM Magnesium Chloride	None

Nuc-Pro 4		Precipitant 1	Precipitant 2	Buffer	pH	Additive 1	Additive 2
bulk	HTS						
A1	G1	10 % w/v 1.6 Hexandiol	None	50 mM MES Sodium Salt	6.5	20 mM Magnesium Chloride	None
A2	G2	20 % w/v 1.6 Hexandiol	None	50 mM HEPES Sodium Salt	7.0	50 mM Ammonium Chloride	10 mM Magnesium Chloride
A3	G3	35 % w/v 1.6 Hexandiol	None	50 mM Tris-HCl	8.5	75 mM Magnesium Sulfate	None
A4	G4	10 % v/v MPD	None	50 mM Tris-HCl	7.5	50 mM Ammonium Acetate	None
A5	G5	10 % v/v MPD	None	50 mM HEPES Sodium Salt	7.0	80 mM Potassium Chloride	10 mM Magnesium Sulfate
A6	G6	15 % v/v MPD	None	50 mM ADA	6.5	100 mM Sodium Acetate	None
B1	G7	15 % v/v MPD	None	50 mM Sodium Succinate	5.5	10 mM Magnesium Acetate	None
B2	G8	18 % v/v MPD	None	20 mM MES Sodium Salt	5.8	10 mM Magnesium Chloride	None
B3	G9	23 % v/v MPD	None	50 mM MES Sodium Salt	6.0	100 mM Sodium Chloride	None
B4	G10	26 % v/v MPD	None	50 mM PIPES	7.0	65 mM Magnesium Chloride	1 mM Cobalt (III) Hexamine
B5	G11	27 % v/v MPD	None	20 mM MES Sodium Salt	5.8	400 mM Sodium Chloride	120 mM Calcium Chloride
B6	G12	35 % v/v MPD	None	20 mM Bis-Tris	6.0	50 mM Sodium Chloride	10 mM Calcium Chloride
C1	H1	50 % v/v MPD	None	100 mM Sodium Citrate	5.6	10 mM Magnesium Chloride	None
C2	H2	5 % v/v 2-Propanol	None	50 mM Tris-HCl	7.5	10 mM Magnesium Chloride	None
C3	H3	5 % v/v 2-Propanol	None	50 mM MES Sodium Salt	6.5	100 mM Calcium Acetate	None
C4	H4	9 % v/v 2-Propanol	None	50 mM Imidazole	7.2	15 mM Magnesium Acetate	15 mM Magnesium Chloride
C5	H5	10 % v/v 2-Propanol	None	50 mM MES Sodium Salt	6.5	80 mM Ammonium Acetate	None
C6	H6	10 % v/v 2-Propanol	None	50 mM Sodium Succinate	5.5	2 mM Cobalt (II) Chloride	None
D1	H7	13 % v/v 2-Propanol	None	50 mM MOPS	7.0	200 mM Potassium Chloride	6 mM Cobalt (III) Hexamine
D2	H8	15 % v/v 2-Propanol	None	50 mM MES Sodium Salt	6.0	20 mM Magnesium Chloride	None
D3	H9	10 % v/v 1.4-Dioxane	None	50 mM HEPES Sodium Salt	7.5	None	None
D4	H10	10 % v/v Ethanol	None	50 mM MES Sodium Salt	6.5	20 mM Magnesium Chloride	1 mM Cobalt (II) Chloride
D5	H11	20 % v/v Ethylen Glycol	5 % w/v PEG 3350	None		20 mM Magnesium Chloride	None
D6	H12	15 % v/v Glycerol	None	100 mM Sodium Acetate	4.6	200 mM Sodium Chloride	None

JBScreen PEG/Salt

PEG/Salt 1		Precipitant	Salt
bulk	HTS		
A 1	A 1	20% w/v PEG 3350	200 mM Ammonium Acetate
A 2	A 2	20% w/v PEG 3350	200 mM Ammonium Chloride
A 3	A 3	20% w/v PEG 3350	200 mM Ammonium Fluoride
A 4	A 4	20% w/v PEG 3350	200 mM Ammonium Formate
A 5	A 5	20% w/v PEG 3350	200 mM Ammonium Iodide
A 6	A 6	20% w/v PEG 3350	200 mM Ammonium Nitrate
B 1	A 7	20% w/v PEG 3350	200 mM Ammonium dihydrogen Phosphate
B 2	A 8	20% w/v PEG 3350	200 mM di-Ammonium hydrogen Phosphate
B 3	A 9	20% w/v PEG 3350	200 mM Ammonium Sulfate
B 4	A 10	20% w/v PEG 3350	200 mM Ammonium Sulfite
B 5	A 11	20% w/v PEG 3350	200 mM Calcium Acetate
B 6	A 12	20% w/v PEG 3350	200 mM Calcium Chloride
C 1	B 1	20% w/v PEG 3350	200 mM di-Ammonium Tartrate
C 2	B 2	20% w/v PEG 3350	200 mM Potassium Formate
C 3	B 3	20% w/v PEG 3350	200 mM Lithium Acetate
C 4	B 4	20% w/v PEG 3350	200 mM Lithium Chloride
C 5	B 5	20% w/v PEG 3350	200 mM Lithium Citrate
C 6	B 6	20% w/v PEG 3350	200 mM Lithium Nitrate
D 1	B 7	20% w/v PEG 3350	200 mM Lithium Sulfate
D 2	B 8	20% w/v PEG 3350	200 mM Magnesium Acetate
D 3	B 9	20% w/v PEG 3350	200 mM Magnesium Chloride
D 4	B 10	20% w/v PEG 3350	200 mM Magnesium Formate
D 5	B 11	20% w/v PEG 3350	200 mM Magnesium Nitrate
D 6	B 12	20% w/v PEG 3350	200 mM Magnesium Sulfate

PEG/Salt 2		Precipitant	Salt
bulk	HTS		
A 1	C 1	20% w/v PEG 3350	200 mM Potassium Acetate
A 2	C 2	20% w/v PEG 3350	200 mM Potassium Chloride
A 3	C 3	20% w/v PEG 3350	200 mM Potassium Fluoride
A 4	C 4	20% w/v PEG 3350	200 mM Potassium Iodide
A 5	C 5	20% w/v PEG 3350	200 mM Potassium Nitrate
A 6	C 6	20% w/v PEG 3350	200 mM Potassium dihydrogen Phosphate
B 1	C 7	20% w/v PEG 3350	200 mM di-Potassium hydrogen Phosphate
B 2	C 8	20% w/v PEG 3350	200 mM Potassium Sulfate
B 3	C 9	20% w/v PEG 3350	200 mM Potassium Thiocyanate
B 4	C 10	20% w/v PEG 3350	200 mM Potassium / Sodium Tartrate
B 5	C 11	20% w/v PEG 3350	200 mM Sodium Acetate
B 6	C 12	20% w/v PEG 3350	200 mM Sodium Chloride
C 1	D 1	20% w/v PEG 3350	200 mM Sodium Citrate
C 2	D 2	20% w/v PEG 3350	200 mM Sodium Fluoride
C 3	D 3	20% w/v PEG 3350	200 mM Sodium Formate
C 4	D 4	20% w/v PEG 3350	200 mM Sodium Iodide
C 5	D 5	20% w/v PEG 3350	200 mM Sodium Isothiocyanate
C 6	D 6	20% w/v PEG 3350	200 mM Sodium Nitrate
D 1	D 7	20% w/v PEG 3350	200 mM Sodium dihydrogen Phosphate
D 2	D 8	20% w/v PEG 3350	200 mM di-Sodium hydrogen Phosphate
D 3	D 9	20% w/v PEG 3350	200 mM Sodium Sulfate
D 4	D 10	20% w/v PEG 3350	200 mM di-Sodium Tartrate
D 5	D 11	20% w/v PEG 3350	200 mM tri-Potassium Citrate
D 6	D 12	20% w/v PEG 3350	200 mM Zinc Acetate

PEG/Salt 3		Precipitant	Salt
bulk	HTS		
A 1	E 1	20% w/v PEG 5000 MME	200 mM Ammonium Acetate
A 2	E 2	20% w/v PEG 5000 MME	200 mM Ammonium Chloride
A 3	E 3	20% w/v PEG 5000 MME	200 mM Ammonium Fluoride
A 4	E 4	20% w/v PEG 5000 MME	200 mM Ammonium Formate
A 5	E 5	20% w/v PEG 5000 MME	200 mM Ammonium Iodide
A 6	E 6	20% w/v PEG 5000 MME	200 mM Ammonium Nitrate
B 1	E 7	20% w/v PEG 5000 MME	200 mM Ammonium dihydrogen Phosphate
B 2	E 8	20% w/v PEG 5000 MME	200 mM di-Ammonium hydrogen Phosphate
B 3	E 9	20% w/v PEG 5000 MME	200 mM Ammonium Sulfate
B 4	E 10	20% w/v PEG 5000 MME	200 mM Ammonium Sulfite
B 5	E 11	20% w/v PEG 5000 MME	200 mM Calcium Acetate
B 6	E 12	20% w/v PEG 5000 MME	200 mM Calcium Chloride
C 1	F 1	20% w/v PEG 5000 MME	200 mM di-Ammonium Tartrate
C 2	F 2	20% w/v PEG 5000 MME	200 mM Potassium Formate
C 3	F 3	20% w/v PEG 5000 MME	200 mM Lithium Acetate
C 4	F 4	20% w/v PEG 5000 MME	200 mM Lithium Chloride
C 5	F 5	20% w/v PEG 5000 MME	200 mM Lithium Citrate
C 6	F 6	20% w/v PEG 5000 MME	200 mM Lithium Nitrate
D 1	F 7	20% w/v PEG 5000 MME	200 mM Lithium Sulfate
D 2	F 8	20% w/v PEG 5000 MME	200 mM Magnesium Acetate
D 3	F 9	20% w/v PEG 5000 MME	200 mM Magnesium Chloride
D 4	F 10	20% w/v PEG 5000 MME	200 mM Magnesium Formate
D 5	F 11	20% w/v PEG 5000 MME	200 mM Magnesium Nitrate
D 6	F 12	20% w/v PEG 5000 MME	200 mM Magnesium Sulfate

PEG/Salt 4		Precipitant	Salt
bulk	HTS		
A 1	G 1	20% w/v PEG 5000 MME	200 mM Potassium Acetate
A 2	G 2	20% w/v PEG 5000 MME	200 mM Potassium Chloride
A 3	G 3	20% w/v PEG 5000 MME	200 mM Potassium Fluoride
A 4	G 4	20% w/v PEG 5000 MME	200 mM Potassium Iodide
A 5	G 5	20% w/v PEG 5000 MME	200 mM Potassium Nitrate
A 6	G 6	20% w/v PEG 5000 MME	200 mM Potassium dihydrogen Phosphate
B 1	G 7	20% w/v PEG 5000 MME	200 mM di-Potassium hydrogen Phosphate
B 2	G 8	20% w/v PEG 5000 MME	200 mM Potassium Sulfate
B 3	G 9	20% w/v PEG 5000 MME	200 mM Potassium Thiocyanate
B 4	G 10	20% w/v PEG 5000 MME	200 mM Potassium / Sodium Tartrate
B 5	G 11	20% w/v PEG 5000 MME	200 mM Sodium Acetate
B 6	G 12	20% w/v PEG 5000 MME	200 mM Sodium Chloride
C 1	H 1	20% w/v PEG 5000 MME	200 mM Sodium Citrate
C 2	H 2	20% w/v PEG 5000 MME	200 mM Sodium Fluoride
C 3	H 3	20% w/v PEG 5000 MME	200 mM Sodium Formate
C 4	H 4	20% w/v PEG 5000 MME	200 mM Sodium Iodide
C 5	H 5	20% w/v PEG 5000 MME	200 mM Sodium Isothiocyanate
C 6	H 6	20% w/v PEG 5000 MME	200 mM Sodium Nitrate
D 1	H 7	20% w/v PEG 5000 MME	200 mM Sodium dihydrogen Phosphate
D 2	H 8	20% w/v PEG 5000 MME	200 mM di-Sodium hydrogen Phosphate
D 3	H 9	20% w/v PEG 5000 MME	200 mM Sodium Sulfate
D 4	H 10	20% w/v PEG 5000 MME	200 mM di-Sodium Tartrate
D 5	H 11	20% w/v PEG 5000 MME	200 mM tri-Potassium Citrate
D 6	H 12	20% w/v PEG 5000 MME	200 mM Zinc Acetate

JBScreen Pentaerythritol

Pentaerythritol 1		Precipitant	Buffer	pH	Additive
bulk	HTS				
A 1	A 1	25 % w/v PEP 426	100 mM Sodium Acetate	4.6	None
A 2	A 2	35 % w/v PEP 426	100 mM Sodium Acetate	4.6	None
A 3	A 3	45 % w/v PEP 426	100 mM Sodium Acetate	4.6	None
A 4	A 4	25 % w/v PEP 426	100 mM MES	6.5	None
A 5	A 5	35 % w/v PEP 426	100 mM MES	6.5	None
A 6	A 6	45 % w/v PEP 426	100 mM MES	6.5	None
B 1	A 7	25 % w/v PEP 426	100 mM HEPES	7.5	None
B 2	A 8	35 % w/v PEP 426	100 mM HEPES	7.5	None
B 3	A 9	45 % w/v PEP 426	100 mM HEPES	7.5	None
B 4	A 10	25 % w/v PEP 426	100 mM Tris	8.5	None
B 5	A 11	35 % w/v PEP 426	100 mM Tris	8.5	None
B 6	A 12	45 % w/v PEP 426	100 mM Tris	8.5	None
C 1	B 1	25 % w/v PEP 426	100 mM Sodium Acetate	4.6	50 mM Magnesium Chloride
C 2	B 2	35 % w/v PEP 426	100 mM Sodium Acetate	4.6	200 mM Ammonium Sulfate
C 3	B 3	45 % w/v PEP 426	100 mM Sodium Acetate	4.6	400 mM Potassium Chloride
C 4	B 4	25 % w/v PEP 426	100 mM MES	6.5	50 mM Magnesium Chloride
C 5	B 5	35 % w/v PEP 426	100 mM MES	6.5	200 mM Ammonium Sulfate
C 6	B 6	45 % w/v PEP 426	100 mM MES	6.5	400 mM Potassium Chloride
D 1	B 7	25 % w/v PEP 426	100 mM HEPES	7.5	50 mM Magnesium Chloride
D 2	B 8	35 % w/v PEP 426	100 mM HEPES	7.5	200 mM Ammonium Sulfate
D 3	B 9	45 % w/v PEP 426	100 mM HEPES	7.5	400 mM Potassium Chloride
D 4	B 10	25 % w/v PEP 426	100 mM Tris	8.5	50 mM Magnesium Chloride
D 5	B 11	35 % w/v PEP 426	100 mM Tris	8.5	200 mM Ammonium Sulfate
D 6	B 12	45 % w/v PEP 426	100 mM Tris	8.5	400 mM Potassium Chloride

Pentaerythritol 2		Precipitant	Buffer	pH	Additive
bulk	HTS				
A 1	C 1	25 % w/v PEP 629	100 mM Sodium Acetate	4.6	None
A 2	C 2	35 % w/v PEP 629	100 mM Sodium Acetate	4.6	None
A 3	C 3	45 % w/v PEP 629	100 mM Sodium Acetate	4.6	None
A 4	C 4	25 % w/v PEP 629	100 mM MES	6.5	None
A 5	C 5	35 % w/v PEP 629	100 mM MES	6.5	None
A 6	C 6	45 % w/v PEP 629	100 mM MES	6.5	None
B 1	C 7	25 % w/v PEP 629	100 mM HEPES	7.5	None
B 2	C 8	35 % w/v PEP 629	100 mM HEPES	7.5	None
B 3	C 9	45 % w/v PEP 629	100 mM HEPES	7.5	None
B 4	C 10	25 % w/v PEP 629	100 mM Tris	8.5	None
B 5	C 11	35 % w/v PEP 629	100 mM Tris	8.5	None
B 6	C 12	45 % w/v PEP 629	100 mM Tris	8.5	None
C 1	D 1	25 % w/v PEP 629	100 mM Sodium Acetate	4.6	50 mM Magnesium Chloride
C 2	D 2	35 % w/v PEP 629	100 mM Sodium Acetate	4.6	200 mM Ammonium Sulfate
C 3	D 3	45 % w/v PEP 629	100 mM Sodium Acetate	4.6	300 mM Potassium Chloride
C 4	D 4	25 % w/v PEP 629	100 mM MES	6.5	50 mM Magnesium Chloride
C 5	D 5	35 % w/v PEP 629	100 mM MES	6.5	200 mM Ammonium Sulfate
C 6	D 6	45 % w/v PEP 629	100 mM MES	6.5	300 mM Potassium Chloride
D 1	D 7	25 % w/v PEP 629	100 mM HEPES	7.5	50 mM Magnesium Chloride
D 2	D 8	35 % w/v PEP 629	100 mM HEPES	7.5	200 mM Ammonium Sulfate
D 3	D 9	45 % w/v PEP 629	100 mM HEPES	7.5	300 mM Potassium Chloride
D 4	D 10	25 % w/v PEP 629	100 mM Tris	8.5	50 mM Magnesium Chloride
D 5	D 11	35 % w/v PEP 629	100 mM Tris	8.5	200 mM Ammonium Sulfate
D 6	D 12	45 % w/v PEP 629	100 mM Tris	8.5	300 mM Potassium Chloride

Pentaerythritol 3		Precipitant	Buffer	pH	Additive
bulk	HTS				
A 1	E 1	25 % w/v PEE 270	100 mM Sodium Acetate	4.6	None
A 2	E 2	35 % w/v PEE 270	100 mM Sodium Acetate	4.6	None
A 3	E 3	45 % w/v PEE 270	100 mM Sodium Acetate	4.6	None
A 4	E 4	25 % w/v PEE 270	100 mM MES	6.5	None
A 5	E 5	35 % w/v PEE 270	100 mM MES	6.5	None
A 6	E 6	45 % w/v PEE 270	100 mM MES	6.5	None
B 1	E 7	25 % w/v PEE 270	100 mM HEPES	7.5	None
B 2	E 8	35 % w/v PEE 270	100 mM HEPES	7.5	None
B 3	E 9	45 % w/v PEE 270	100 mM HEPES	7.5	None
B 4	E 10	25 % w/v PEE 270	100 mM Tris	8.5	None
B 5	E 11	35 % w/v PEE 270	100 mM Tris	8.5	None
B 6	E 12	45 % w/v PEE 270	100 mM Tris	8.5	None
C 1	F 1	25 % w/v PEE 270	100 mM Sodium Acetate	4.6	50 mM Magnesium Chloride
C 2	F 2	35 % w/v PEE 270	100 mM Sodium Acetate	4.6	200 mM Ammonium Sulfate
C 3	F 3	45 % w/v PEE 270	100 mM Sodium Acetate	4.6	400 mM Potassium Chloride
C 4	F 4	25 % w/v PEE 270	100 mM MES	6.5	50 mM Magnesium Chloride
C 5	F 5	35 % w/v PEE 270	100 mM MES	6.5	200 mM Ammonium Sulfate
C 6	F 6	45 % w/v PEE 270	100 mM MES	6.5	400 mM Potassium Chloride
D 1	F 7	25 % w/v PEE 270	100 mM HEPES	7.5	50 mM Magnesium Chloride
D 2	F 8	35 % w/v PEE 270	100 mM HEPES	7.5	200 mM Ammonium Sulfate
D 3	F 9	45 % w/v PEE 270	100 mM HEPES	7.5	400 mM Potassium Chloride
D 4	F 10	25 % w/v PEE 270	100 mM Tris	8.5	50 mM Magnesium Chloride
D 5	F 11	35 % w/v PEE 270	100 mM Tris	8.5	200 mM Ammonium Sulfate
D 6	F 12	45 % w/v PEE 270	100 mM Tris	8.5	400 mM Potassium Chloride

Pentaerythritol 4		Precipitant	Buffer	pH	Additive
bulk	HTS				
A 1	G 1	25 % w/v PEE 797	100 mM Sodium Acetate	4.6	None
A 2	G 2	35 % w/v PEE 797	100 mM Sodium Acetate	4.6	None
A 3	G 3	45 % w/v PEE 797	100 mM Sodium Acetate	4.6	None
A 4	G 4	25 % w/v PEE 797	100 mM MES	6.5	None
A 5	G 5	35 % w/v PEE 797	100 mM MES	6.5	None
A 6	G 6	45 % w/v PEE 797	100 mM MES	6.5	None
B 1	G 7	25 % w/v PEE 797	100 mM HEPES	7.5	None
B 2	G 8	35 % w/v PEE 797	100 mM HEPES	7.5	None
B 3	G 9	45 % w/v PEE 797	100 mM HEPES	7.5	None
B 4	G 10	25 % w/v PEE 797	100 mM Tris	8.5	None
B 5	G 11	35 % w/v PEE 797	100 mM Tris	8.5	None
B 6	G 12	45 % w/v PEE 797	100 mM Tris	8.5	None
C 1	H 1	25 % w/v PEE 797	100 mM Sodium Acetate	4.6	50 mM Magnesium Chloride
C 2	H 2	35 % w/v PEE 797	100 mM Sodium Acetate	4.6	200 mM Ammonium Sulfate
C 3	H 3	45 % w/v PEE 797	100 mM Sodium Acetate	4.6	400 mM Potassium Chloride
C 4	H 4	25 % w/v PEE 797	100 mM MES	6.5	50 mM Magnesium Chloride
C 5	H 5	35 % w/v PEE 797	100 mM MES	6.5	200 mM Ammonium Sulfate
C 6	H 6	45 % w/v PEE 797	100 mM MES	6.5	400 mM Potassium Chloride
D 1	H 7	25 % w/v PEE 797	100 mM HEPES	7.5	50 mM Magnesium Chloride
D 2	H 8	35 % w/v PEE 797	100 mM HEPES	7.5	200 mM Ammonium Sulfate
D 3	H 9	45 % w/v PEE 797	100 mM HEPES	7.5	400 mM Potassium Chloride
D 4	H 10	25 % w/v PEE 797	100 mM Tris	8.5	50 mM Magnesium Chloride
D 5	H 11	35 % w/v PEE 797	100 mM Tris	8.5	200 mM Ammonium Sulfate
D 6	H 12	45 % w/v PEE 797	100 mM Tris	8.5	400 mM Potassium Chloride

JBScreen Cryo

Cryo 1		Cryoprotectant 1	Cryoprotectant 2	Cryoprotectant 3	Buffer	pH	Additive 1	Additive 2
bulk	HTS							
A 1	A 1	2.8% v/v Glycerol	32% w/v PEG 8000	None	100 mM Tris-HCl	8.5	200 mM Cesium Chloride	None
A 2	A 2	5.0% v/v Glycerol	None	None	100 mM Sodium Citrate	5.6	3.2 M Sodium Formate	None
A 3	A 3	5.0% v/v Glycerol	20% w/v PEG 4000	None	None		None	None
A 4	A 4	10% v/v Glycerol	15% w/v PEG 5000 MME	10% w/v Xylitol	None		None	None
A 5	A 5	10% v/v Glycerol	28% w/v PEG 8000	None	50 mM MES Sodium Salt	6.5	100 mM Ammonium Acetate	None
A 6	A 6	10% v/v Glycerol	25% w/v PEG 4000	4.5% v/v 2-Propanol	18 mM MES Sodium Salt	6.5	None	None
B 1	A 7	10% v/v Glycerol	20% v/v PEG 400	10% w/v PEG 8000	50 mM Tris-HCl	8.5	100 mM Sodium Chloride	None
B 2	A 8	10% v/v Glycerol	15% w/v PEG 6000	None	100 mM MES Sodium Salt	6.5	1.0 M Lithium Chloride	None
B 3	A 9	15% v/v Glycerol	15% w/v PEG 5000 MME	None	None		None	None
B 4	A 10	15% v/v Glycerol	20% w/v PEG 6000	None	100 mM MES Sodium Salt	6.5	None	None
B 5	A 11	15% v/v Glycerol	30% w/v PEG 8000	None	100 mM MES Sodium Salt	6.5	200 mM Sodium Acetate	None
B 6	A 12	15% v/v Glycerol	None	None	100 mM Tris-HCl	8.5	2.5 M Sodium Chloride	200 mM Lithium Sulfate
C 1	B 1	15% v/v Glycerol	15% w/v PEG 20000	None	None		None	None
C 2	B 2	15% v/v Glycerol	35% w/v PEG 4000	None	100 mM Tris-Acetate	8.0	100 mM Sodium Citrate	None
C 3	B 3	15% v/v Glycerol	15% w/v PEG 8000	None	None		500 mM Lithium Sulfate	None
C 4	B 4	20% v/v Glycerol	16% v/v Ethylene Glycol	20% w/v PEG 6000	30 mM Tris-HCl	8.5	100 mM Sodium Acetate	None
C 5	B 5	20% v/v Glycerol	None	None	None		2.0 M Ammonium Sulfate	None
C 6	B 6	20% v/v Glycerol	20% w/v PEG 4000	10% v/v 2-Propanol	50 mM Sodium Acetate	4.6	100 mM Sodium Chloride	None
D 1	B 7	20% v/v Glycerol	None	None	100 mM MES Sodium Salt	6.5	2.5 M Ammonium Sulfate	None
D 2	B 8	20% v/v Glycerol	15% w/v PEG 8000	None	100 mM MES Sodium Salt	6.5	160 mM Zinc Acetate	None
D 3	B 9	20% v/v Glycerol	15% w/v PEG 8000	None	80 mM Tris-HCl	8.5	920 mM Sodium Chloride	None
D 4	B 10	20% v/v Glycerol	6% v/v 2-Propanol	None	None		1.8 M Ammonium Sulfate	None
D 5	B 11	20% v/v Glycerol	None	None	100 mM MES Sodium Salt	6.5	1.8 M Ammonium Sulfate	None
D 6	B 12	20% v/v Glycerol	20% w/v PEG 6000	None	100 mM MES Sodium Salt	6.5	None	None

Cryo 2		Cryoprotectant 1	Cryoprotectant 2	Cryoprotectant 3	Buffer	pH	Additive 1	Additive 2
bulk	HTS							
A 1	C 1	20% v/v Glycerol	16% w/v PEG 8000	None	80 mM MES Sodium Salt	6.5	160 mM Magnesium Acetate	None
A 2	C 2	20% v/v Glycerol	7% w/v PEG 8000	None	100 mM MES Sodium Salt	6.5	None	None
A 3	C 3	24% v/v Glycerol	None	None	None		2.3 M Ammonium Sulfate	None
A 4	C 4	25% v/v Glycerol	None	None	None		750 mM Sodium Bromide	None
A 5	C 5	25% v/v Glycerol	None	None	100 mM Sodium Citrate	5.6	1.2 M Ammonium dihydrogen Phosphate	None
A 6	C 6	25% v/v Glycerol	None	None	None		1.5 M Ammonium Sulfate	None
B 1	C 7	25% v/v Glycerol	None	None	100 mM MES Sodium Salt	6.5	2.2 M Ammonium Sulfate	None
B 2	C 8	25% v/v Glycerol	None	None	100 mM Sodium / Potassium Phosphate	6.5	2.5 M Ammonium Sulfate	None
B 3	C 9	30% v/v Glycerol	None	None	None		1.26 M Ammonium dihydrogen Phosphate	None
B 4	C 10	30% v/v Glycerol	None	None	100 mM Sodium Acetate	4.6	2.0 M Ammonium Sulfate	None
B 5	C 11	30% v/v Glycerol	None	None	50 mM MES Sodium Salt	6.5	2.3 M Ammonium Sulfate	None
B 6	C 12	30% v/v Glycerol	None	None	None		2.0 M Ammonium Sulfate	None
C1	D 1	30% v/v Glycerol	15% w/v PEG 4000	5% v/v 2-Propanol	100 mM HEPES Sodium Salt	7.5	None	None
C 2	D 2	30% v/v Glycerol	20% w/v PEG 4000	20% v/v 2-Propanol	100 mM Tris-HCl	8.5	None	None
C 3	D 3	30% v/v Glycerol	None	None	50 mM MES Sodium Salt	6.5	1.2 M Ammonium Sulfate	None
C 4	D 4	30% v/v Glycerol	15% w/v PEG 6000	None	500 mM Tris-HCl	8.5	None	None
C 5	D 5	30% v/v Glycerol	None	None	None		2.0 M Ammonium Sulfate	None
C 6	D 6	30% v/v Glycerol	30% w/v PEG 1500	None	50 mM MES Sodium Salt	6.5	None	None
D 1	D 7	30% v/v Glycerol	None	None	100 mM Sodium / Potassium Phosphate	6.5	1.0 M Ammonium Sulfate	None
D 2	D 8	30% v/v Glycerol	30% w/v PEG 4000	None	100 mM Sodium Acetate	4.6	None	None
D 3	D 9	30% v/v Glycerol	None	None	100 mM MES Sodium Salt	6.5	1.4 M Sodium Acetate	None
D 4	D 10	30% v/v Glycerol	None	None	150 mM HEPES Sodium Salt	7.5	1.6 M Sodium dihydrogen Phosphate	450 mM di-Potassium hydrogen Phosphate
D 5	D 11	35% v/v Glycerol	None	None	20 mM HEPES Sodium Salt	7.5	None	None
D 6	D 12	35% v/v Glycerol	7% w/v PEG 6000	None	50 mM MES Sodium Salt	6.5	None	None

Cryo 3		Cryoprotectant 1	Cryoprotectant 2	Cryoprotectant 3	Buffer	pH	Additive 1	Additive 2
bulk	HTS							
A 1	E 1	10% v/v PEG 200	24% w/v PEG 3000	None	100 mM Sodium Citrate	5.6	None	None
A 2	E 2	20% v/v PEG 200	20% w/v PEG 4000	10% v/v 2-Propanol	100 mM HEPES Sodium Salt	7.5	None	None
A 3	E 3	30% v/v PEG 200	5% w/v PEG 3000	None	100 mM MES Sodium Salt	6.5	None	None
A 4	E 4	40% v/v PEG 300	5% w/v PEG 1000	None	100 mM Tris-HCl	8.5	None	None
A 5	E 5	20% v/v PEG 400	30% w/v PEG 4000	None	100 mM Sodium Citrate	5.6	50 mM Ammonium Acetate	None
A 6	E 6	30% v/v PEG 400	11% w/v PEG 20000	None	100 mM Potassium Phosphate	8.0	None	None
B 1	E 7	10% v/v PEG 400	20% w/v PEG 5000 MME	None	None		None	None
B 2	E 8	34% v/v PEG 400	None	None	100 mM HEPES Sodium Salt	7.5	100 mM Sodium Chloride	200 mM Calcium Chloride
B 3	E 9	40% v/v PEG 400	5% w/v PEG 3000	None	100 mM MES Sodium Salt	6.5	None	None
B 4	E 10	35% v/v PEG 600	None	None	100 mM PIPES	7.0	100 mM Sodium Chloride	None
B 5	E 11	30% w/v PEG 1000	None	None	100 mM Phosphate / Citrate	4.4	110 mM Lithium Sulfate	None
B 6	E 12	40% w/v PEG 1500	None	None	100 mM ADA	6.0	None	None
C 1	F 1	17% w/v PEG 1500	10% v/v MPD	None	50 mM PIPES	7.0	None	None
C 2	F 2	35% w/v PEG 3350	None	None	None		300 mM Potassium Thiocyanate	None
C 3	F 3	25% w/v PEG 4000	18% v/v MPD	None	100 mM Sodium Acetate	4.6	200 mM Ammonium Sulfate	None
C 4	F 4	25% w/v PEG 4000	30% v/v Ethylene Glycol	None	None		None	None
C 5	F 5	20% w/v PEG 4000	20% v/v MPD	10% v/v 2-Propanol	50 mM Sodium Citrate	5.6	None	None
C 6	F 6	10% w/v PEG 4000	20% v/v Ethylene Glycol	None	55 mM ADA	6.0	105 mM Sodium Chloride	None
D 1	F 7	2% w/v PEG 4000	25% v/v MPD	None	100 mM HEPES Sodium Salt	7.5	None	None
D 2	F 8	20% w/v PEG 8000	20% v/v MPD	None	100 mM HEPES Sodium Salt	7.5	200 mM Rubidium Bromide	None
D 3	F 9	28% w/v PEG 8000	None	None	100 mM Glycine	9.5	10 mM Calcium Chloride	None
D 4	F 10	10% w/v PEG 8000	15% v/v MPD	None	100 mM MES Sodium Salt	6.5	550 mM Ammonium Sulfate	None
D 5	F 11	25% w/v PEG 8000	30% v/v Ethylene Glycol	None	150 mM ADA	6.0	80 mM Ammonium Sulfate	None
D 6	F 12	10% w/v PEG 20000	5.6% v/v Ethylene Glycol	30% v/v 2,3-Butanediol	100 mM HEPES Sodium Salt	7.5	None	None

Cryo 4		Cryoprotectant 1	Buffer	pH	Additive 1
bulk	HTS				
A 1	G 1	20% v/v Ethylene Glycol	100 mM HEPES Sodium Salt	7.5	1.6 M Lithium Sulfate
A 2	G 2	25% v/v Ethylene Glycol	100 mM HEPES Sodium Salt	7.5	200 mM Sodium / Potassium Phosphate
A 3	G 3	25% v/v Ethylene Glycol	100 mM HEPES Sodium Salt	7.5	1.0 M Potassium / Sodium Tartrate
A 4	G 4	40% v/v Ethylene Glycol	100 mM Sodium Acetate	4.6	None
A 5	G 5	40% v/v Ethylene Glycol	100 mM Tris-HCl	8.5	None
A 6	G 6	40% v/v Ethylene Glycol	100 mM Imidazole-HCl	9.0	200 mM Calcium Acetate
B 1	G 7	40% v/v Ethylene Glycol	100 mM MES Sodium Salt	6.5	200 mM Zinc Acetate
B 2	G 8	50% v/v Ethylene Glycol	100 mM Tris-HCl	8.5	200 mM Magnesium Chloride
B 3	G 9	50% v/v Ethylene Glycol	100 mM HEPES Sodium Salt	7.5	200 mM Lithium Sulfate
B 4	G 10	35% v/v 2-Propanol	100 mM Tris-HCl	8.5	None
B 5	G 11	35% v/v 2-Propanol	100 mM Sodium Acetate	4.6	None
B 6	G 12	35% v/v 2-Propanol	100 mM Imidazole-HCl	9.0	200 mM Zinc Acetate
C 1	H 1	40% v/v 1,2-Propanediol	100 mM Imidazole-HCl	9.0	None
C 2	H 2	40% v/v 1,2-Propanediol	100 mM Sodium Acetate	4.6	None
C 3	H 3	40% v/v 1,2-Propanediol	100 mM Sodium Citrate	5.6	200 mM Sodium Chloride
C 4	H 4	40% v/v 1,2-Propanediol	100 mM Sodium Acetate	4.6	50 mM Calcium Acetate
C 5	H 5	35% v/v MPD	100 mM Tris-HCl	8.5	None
C 6	H 6	30% v/v MPD	100 mM Sodium Acetate	4.6	20 mM Calcium Chloride
D 1	H 7	30% v/v MPD	100 mM HEPES Sodium Salt	7.5	200 mM Sodium Citrate
D 2	H 8	30% v/v MPD	100 mM Sodium Citrate	5.6	200 mM Ammonium Acetate
D 3	H 9	35% v/v MPD	100 mM MES Sodium Salt	6.5	200 mM Ammonium Sulfate
D 4	H 10	40% v/v MPD	100 mM Sodium Citrate	5.6	None
D 5	H 11	40% v/v MPD	100 mM MES Sodium Salt	6.5	200 mM Ammonium Sulfate
D 6	H 12	40% v/v MPD	100 mM Imidazole-HCl	9.0	200 mM Magnesium Chloride

JBScreen PACT ++

PACT++ 1		Precipitant 1	Buffer	pH	Salt
bulk	HTS				
A 1	A1	25% w/v PEG 1500	100 mM SPG Buffer	4.0	None
A 2	A2	25% w/v PEG 1500	100 mM SPG Buffer	5.0	None
A 3	A3	25% w/v PEG 1500	100 mM SPG Buffer	6.0	None
A 4	A4	25% w/v PEG 1500	100 mM SPG Buffer	7.0	None
A 5	A5	25% w/v PEG 1500	100 mM SPG Buffer	8.0	None
A 6	A6	25% w/v PEG 1500	100 mM SPG Buffer	9.0	None
B 1	A7	20% w/v PEG 6000	100 mM Sodium Acetate	5.0	200 mM Sodium Chloride
B 2	A8	20% w/v PEG 6000	100 mM Sodium Acetate	5.0	200 mM Ammonium Chloride
B 3	A9	20% w/v PEG 6000	100 mM Sodium Acetate	5.0	200 mM Lithium Chloride
B 4	A10	20% w/v PEG 6000	100 mM Sodium Acetate	5.0	200 mM Magnesium Chloride
B 5	A11	20% w/v PEG 6000	100 mM Sodium Acetate	5.0	200 mM Calcium Chloride
B 6	A12	20% w/v PEG 6000	100 mM Sodium Acetate	5.0	10 mM Zinc Chloride
C 1	B1	25% w/v PEG 1500	100 mM MIB Buffer	4.0	None
C 2	B2	25% w/v PEG 1500	100 mM MIB Buffer	5.0	None
C 3	B3	25% w/v PEG 1500	100 mM MIB Buffer	6.0	None
C 4	B4	25% w/v PEG 1500	100 mM MIB Buffer	7.0	None
C 5	B5	25% w/v PEG 1500	100 mM MIB Buffer	8.0	None
C 6	B6	25% w/v PEG 1500	100 mM MIB Buffer	9.0	None
D 1	B7	20% w/v PEG 6000	100 mM MES Sodium Salt	6.0	200 mM Sodium Chloride
D 2	B8	20% w/v PEG 6000	100 mM MES Sodium Salt	6.0	200 mM Ammonium Chloride
D 3	B9	20% w/v PEG 6000	100 mM MES Sodium Salt	6.0	200 mM Lithium Chloride
D 4	B10	20% w/v PEG 6000	100 mM MES Sodium Salt	6.0	200 mM Magnesium Chloride
D 5	B11	20% w/v PEG 6000	100 mM MES Sodium Salt	6.0	200 mM Calcium Chloride
D 6	B12	20% w/v PEG 6000	100 mM MES Sodium Salt	6.0	10 mM Zinc Chloride

PACT++ 2		Precipitant 1	Buffer	pH	Salt
bulk	HTS				
A 1	C1	25% w/v PEG 1500	100 mM TBG Buffer	4.0	None
A 2	C2	25% w/v PEG 1500	100 mM TBG Buffer	5.0	None
A 3	C3	25% w/v PEG 1500	100 mM TBG Buffer	6.0	None
A 4	C4	25% w/v PEG 1500	100 mM TBG Buffer	7.0	None
A 5	C5	25% w/v PEG 1500	100 mM TBG Buffer	8.0	None
A 6	C6	25% w/v PEG 1500	100 mM TBG Buffer	9.0	None
B 1	C7	20% w/v PEG 6000	100 mM HEPES Sodium Salt	7.0	200 mM Sodium Chloride
B 2	C8	20% w/v PEG 6000	100 mM HEPES Sodium Salt	7.0	200 mM Ammonium Chloride
B 3	C9	20% w/v PEG 6000	100 mM HEPES Sodium Salt	7.0	200 mM Lithium Chloride
B 4	C10	20% w/v PEG 6000	100 mM HEPES Sodium Salt	7.0	200 mM Magnesium Chloride
B 5	C11	20% w/v PEG 6000	100 mM HEPES Sodium Salt	7.0	200 mM Calcium Chloride
B 6	C12	20% w/v PEG 6000	100 mM HEPES Sodium Salt	7.0	10 mM Zinc Chloride
C 1	D1	25% w/v PEG 1500	100 mM MMT Buffer	4.0	None
C 2	D2	25% w/v PEG 1500	100 mM MMT Buffer	5.0	None
C 3	D3	25% w/v PEG 1500	100 mM MMT Buffer	6.0	None
C 4	D4	25% w/v PEG 1500	100 mM MMT Buffer	7.0	None
C 5	D5	25% w/v PEG 1500	100 mM MMT Buffer	8.0	None
C 6	D6	25% w/v PEG 1500	100 mM MMT Buffer	9.0	None
D 1	D7	20% w/v PEG 6000	100 mM Tris HCl	8.0	200 mM Sodium Chloride
D 2	D8	20% w/v PEG 6000	100 mM Tris HCl	8.0	200 mM Ammonium Chloride
D 3	D9	20% w/v PEG 6000	100 mM Tris HCl	8.0	200 mM Lithium Chloride
D 4	D10	20% w/v PEG 6000	100 mM Tris HCl	8.0	200 mM Magnesium Chloride
D 5	D11	20% w/v PEG 6000	100 mM Tris HCl	8.0	200 mM Calcium Chloride
D 6	D12	20% w/v PEG 6000	100 mM Tris HCl	8.0	10 mM Zinc Chloride

PACT++ 3		Precipitant 1	Buffer	pH	Salt
bulk	HTS				
A 1	E1	20% w/v PEG 3350	None		200 mM Sodium Fluoride
A 2	E2	20% w/v PEG 3350	None		200 mM Sodium Bromide
A 3	E3	20% w/v PEG 3350	None		200 mM Sodium Iodide
A 4	E4	20% w/v PEG 3350	None		200 mM Potassium Thiocyanate
A 5	E5	20% w/v PEG 3350	None		200 mM Sodium Nitrate
A 6	E6	20% w/v PEG 3350	None		200 mM Sodium Formate
B 1	E7	20% w/v PEG 3350	None		200 mM Sodium Acetate
B 2	E8	20% w/v PEG 3350	None		200 mM Sodium Sulfate
B 3	E9	20% w/v PEG 3350	None		200 mM Potassium/Sodium Tartrate
B 4	E10	20% w/v PEG 3350	None		200 mM Sodium/Potassium Phosphate
B 5	E11	20% w/v PEG 3350	None		200 mM Sodium Citrate
B 6	E12	20% w/v PEG 3350	None		200 mM Sodium Malonate
C 1	F1	20% w/v PEG 3350	100 mM Bis-Tris Propane	6.5	200 mM Sodium Fluoride
C 2	F2	20% w/v PEG 3350	100 mM Bis-Tris Propane	6.5	200 mM Sodium Bromide
C 3	F3	20% w/v PEG 3350	100 mM Bis-Tris Propane	6.5	200 mM Sodium Iodide
C 4	F4	20% w/v PEG 3350	100 mM Bis-Tris Propane	6.5	200 mM Potassium Thiocyanate
C 5	F5	20% w/v PEG 3350	100 mM Bis-Tris Propane	6.5	200 mM Sodium Nitrate
C 6	F6	20% w/v PEG 3350	100 mM Bis-Tris Propane	6.5	200 mM Sodium Formate
D 1	F7	20% w/v PEG 3350	100 mM Bis-Tris Propane	6.5	200 mM Sodium Acetate
D 2	F8	20% w/v PEG 3350	100 mM Bis-Tris Propane	6.5	200 mM Sodium Sulfate
D 3	F9	20% w/v PEG 3350	100 mM Bis-Tris Propane	6.5	200 mM Potassium/Sodium Tartrate
D 4	F10	20% w/v PEG 3350	100 mM Bis-Tris Propane	6.5	200 mM Sodium/Potassium Phosphate
D 5	F11	20% w/v PEG 3350	100 mM Bis-Tris Propane	6.5	200 mM Sodium Citrate
D 6	F12	20% w/v PEG 3350	100 mM Bis-Tris Propane	6.5	200 mM Sodium Malonate

PACT++ 4		Precipitant 1	Buffer	pH	Salt
bulk	HTS				
A 1	G1	20% w/v PEG 3350	100 mM Bis-Tris Propane	7.5	200 mM Sodium Fluoride
A 2	G2	20% w/v PEG 3350	100 mM Bis-Tris Propane	7.5	200 mM Sodium Bromide
A 3	G3	20% w/v PEG 3350	100 mM Bis-Tris Propane	7.5	200 mM Sodium Iodide
A 4	G4	20% w/v PEG 3350	100 mM Bis-Tris Propane	7.5	200 mM Potassium Thiocyanate
A 5	G5	20% w/v PEG 3350	100 mM Bis-Tris Propane	7.5	200 mM Sodium Nitrate
A 6	G6	20% w/v PEG 3350	100 mM Bis-Tris Propane	7.5	200 mM Sodium Formate
B 1	G7	20% w/v PEG 3350	100 mM Bis-Tris Propane	7.5	200 mM Sodium Acetate
B 2	G8	20% w/v PEG 3350	100 mM Bis-Tris Propane	7.5	200 mM Sodium Sulfate
B 3	G9	20% w/v PEG 3350	100 mM Bis-Tris Propane	7.5	200 mM Potassium/Sodium Tartrate
B 4	G10	20% w/v PEG 3350	100 mM Bis-Tris Propane	7.5	200 mM Sodium/Potassium Phosphate
B 5	G11	20% w/v PEG 3350	100 mM Bis-Tris Propane	7.5	200 mM Sodium Citrate
B 6	G12	20% w/v PEG 3350	100 mM Bis-Tris Propane	7.5	200 mM Sodium Malonate
C 1	H1	20% w/v PEG 3350	100 mM Bis-Tris Propane	8.5	200 mM Sodium Fluoride
C 2	H2	20% w/v PEG 3350	100 mM Bis-Tris Propane	8.5	200 mM Sodium Bromide
C 3	H3	20% w/v PEG 3350	100 mM Bis-Tris Propane	8.5	200 mM Sodium Iodide
C 4	H4	20% w/v PEG 3350	100 mM Bis-Tris Propane	8.5	200 mM Potassium Thiocyanate
C 5	H5	20% w/v PEG 3350	100 mM Bis-Tris Propane	8.5	200 mM Sodium Nitrate
C 6	H6	20% w/v PEG 3350	100 mM Bis-Tris Propane	8.5	200 mM Sodium Formate
D 1	H7	20% w/v PEG 3350	100 mM Bis-Tris Propane	8.5	200 mM Sodium Acetate
D 2	H8	20% w/v PEG 3350	100 mM Bis-Tris Propane	8.5	200 mM Sodium Sulfate
D 3	H9	20% w/v PEG 3350	100 mM Bis-Tris Propane	8.5	200 mM Potassium/Sodium Tartrate
D 4	H10	20% w/v PEG 3350	100 mM Bis-Tris Propane	8.5	200 mM Sodium/Potassium Phosphate
D 5	H11	20% w/v PEG 3350	100 mM Bis-Tris Propane	8.5	200 mM Sodium Citrate
D 6	H12	20% w/v PEG 3350	100 mM Bis-Tris Propane	8.5	200 mM Sodium Malonate

JBScreen JCSG ++

JCSG++ 1		Precipitant 1	Precipitant 2	Buffer	pH	Salt	pH
bulk	HTS						
A 1	A1	50% v/v PEG 400	None	100 mM Sodium Acetate	4.5	200 mM Lithium Sulfate	
A 2	A2	20% w/v PEG 3000	None	100 mM Sodium Citrate	5.5	None	
A 3	A3	20% w/v PEG 3350	None	None		200 mM di-Ammonium hydrogen Citrate	5.0
A 4	A4	30% v/v MPD	None	100 mM Sodium Acetate	4.6	20 mM Calcium Chloride	
A 5	A5	20% w/v PEG 3350	None	None		200 mM Magnesium Formate	5.9
A 6	A6	20% w/v PEG 1000	None	100 mM Phosphate / Citrate	4.2	200 mM Lithium Sulfate	
B 1	A7	20% w/v PEG 8000	None	100 mM CHES	9.5	None	
B 2	A8	20% w/v PEG 3350	None	None		200 mM Ammonium Formate	6.6
B 3	A9	20% w/v PEG 3350	None	None		200 mM Ammonium Chloride	6.3
B 4	A10	20% w/v PEG 3350	None	None		200 mM Potassium Formate	7.3
B 5	A11	50% v/v MPD	None	100 mM Tris-HCl	8.5	200 mM Ammonium dihydrogen Phosphate	
B 6	A12	20% w/v PEG 3350	None	None		200 mM Potassium Nitrate	6.9
C 1	B1	None	None	100 mM Citric Acid	4.0	800 mM Ammonium Sulfate	
C 2	B2	20% w/v PEG 3350	None	None		200 mM Sodium Thiocyanate	6.9
C 3	B3	20% w/v PEG 6000	None	100 mM Bicine	9.0	None	
C 4	B4	10% w/v PEG 8000	8% v/v Ethylene Glycol	100 mM HEPES Sodium Salt	7.5	None	
C 5	B5	40% v/v MPD	5% w/v PEG 8000	100 mM MES Sodium Salt	6.5	None	
C 6	B6	40% v/v Ethanol	5% w/v PEG 1000	100 mM Phosphate / Citrate	4.2	None	
D 1	B7	8% w/v PEG 4000	None	100 mM Sodium Acetate	4.6	None	
D 2	B8	10% w/v PEG 8000	None	100 mM Tris-HCl	7.0	200 mM Magnesium Chloride	
D 3	B9	20% w/v PEG 6000	None	100 mM Citric Acid	5.0	None	
D 4	B10	50% v/v PEG 200	None	100 mM MES Sodium Salt	6.5	200 mM Magnesium Chloride	
D 5	B11	None	None	None		1.6 M Sodium Citrate	
D 6	B12	20% w/v PEG 3350	None	None		200 mM Potassium Citrate	8.3

JCSG++ 2		Precipitant 1	Precipitant 2	Buffer	pH	Salt	pH
bulk	HTS						
A 1	C1	20% w/v PEG 8000	None	100 mM Phosphate / Citrate	4.2	200 mM Sodium Chloride	
A 2	C2	20% w/v PEG 6000	None	100 mM Citric Acid	4.0	1.0 M Lithium Chloride	
A 3	C3	20% w/v PEG 3350	None	None		200 mM Ammonium Nitrate	6.3
A 4	C4	10% w/v PEG 6000	None	100 mM HEPES Sodium Salt	7.0	None	
A 5	C5	800 mM Sodium dihydrogen Phosphate	800 mM Potassium dihydrogen Phosphate	100 mM HEPES Sodium Salt	7.5	None	
A 6	C6	40% v/v PEG 300	None	100 mM Phosphate / Citrate	4.2	None	
B 1	C7	10% w/v PEG 3000	None	100 mM Sodium Acetate	4.5	200 mM Zinc Acetate	
B 2	C8	20% v/v Ethanol	None	100 mM Tris-HCl	8.5	None	
B 3	C9	25% v/v 1,2-Propanediol	10% v/v Glycerol	100 mM Sodium / Potassium Phosphate	6.2	None	
B 4	C10	10% w/v PEG 20000	2% v/v 1,4-Dioxane	100 mM Bicine	9.0	None	
B 5	C11	None	None	100 mM Sodium Acetate	4.6	2.0 M Ammonium Sulfate	
B 6	C12	10% w/v PEG 1000	10% w/v PEG 8000	None		None	
C 1	D1	24% w/v PEG 1500	20% v/v Glycerol	None		None	
C 2	D2	30% v/v PEG 400	None	100 mM HEPES Sodium Salt	7.5	200 mM Magnesium Chloride	
C 3	D3	50% v/v PEG 200	None	100 mM Sodium / Potassium Phosphate	6.2	200 mM Sodium Chloride	
C 4	D4	30% w/v PEG 8000	None	100 mM Sodium Acetate	4.5	200 mM Lithium Sulfate	
C 5	D5	70% v/v MPD	None	100 mM HEPES Sodium Salt	7.5	None	
C 6	D6	20% w/v PEG 8000	None	100 mM Tris-HCl	8.5	200 mM Magnesium Chloride	
D 1	D7	40% v/v PEG 400	None	100 mM Tris-HCl	8.5	200 mM Lithium Sulfate	
D 2	D8	40% v/v MPD	None	100 mM Tris-HCl	8.0	None	
D 3	D9	25.5% w/v PEG 4000	15% v/v Glycerol	None		170 mM Ammonium Sulfate	
D 4	D10	40% v/v PEG 300	None	100 mM MES Sodium Salt	6.5	200 mM Calcium Acetate	
D 5	D11	14% v/v 2-Propanol	30% v/v Glycerol	70 mM Sodium Acetate	4.6	140 mM Calcium Chloride	
D 6	D12	16% w/v PEG 8000	20% v/v Glycerol	None		40 mM Potassium dihydrogen Phosphate	

JCSG++ 3		Precipitant 1	Precipitant 2	Buffer	pH	Salt	pH
bulk	HTS						
A 1	E1	None	None	100 mM MES Sodium Salt	6.5	1.0 M Sodium Citrate	
A 2	E2	2.0 M Ammonium Sulfate	None	100 mM MES Sodium Salt	6.5	200 mM Sodium Chloride	
A 3	E3	10% v/v 2-Propanol	None	100 mM HEPES Sodium Salt	7.5	200 mM Sodium Chloride	
A 4	E4	1.26 M Ammonium Sulfate	None	100 mM Tris-HCl	8.5	200 mM Lithium Sulfate	
A 5	E5	40% v/v MPD	None	100 mM CAPS	10.5	None	
A 6	E6	20% w/v PEG 3000	None	100 mM Imidazole-HCl	8.0	200 mM Zinc Acetate	
B 1	E7	10% v/v 2-Propanol	None	100 mM MES Sodium Salt	6.5	200 mM Zinc Acetate	
B 2	E8	None	None	100 mM Sodium Acetate	4.5	1.0 M di-Ammonium hydrogen Phosphate	
B 3	E9	None	None	100 mM MES Sodium Salt	6.5	1.6 M Magnesium Sulfate	
B 4	E10	10% w/v PEG 6000	None	100 mM Bicine	9.0	None	
B 5	E11	14.4% w/v PEG 8000	20% v/v Glycerol	80 mM MES Sodium Salt	6.5	160 mM Calcium Acetate	
B 6	E12	10% w/v PEG 8000	None	100 mM Imidazole-HCl	8.0	None	
C 1	F1	30% v/v Jeffamine M-600	None	100 mM MES Sodium Salt	6.5	50 mM Cesium Chloride	
C 2	F2	None	None	100 mM Citric Acid	5.0	3.15 M Ammonium Sulfate	
C 3	F3	20% v/v MPD	None	100 mM Tris-HCl	8.0	None	
C 4	F4	20% v/v Jeffamine M-600	None	100 mM HEPES Sodium Salt	7.5	None	
C 5	F5	50% v/v Ethylene Glycol	None	100 mM Tris-HCl	8.5	200 mM Magnesium Chloride	
C 6	F6	10% v/v MPD	None	100 mM Bicine	9.0	None	
D 1	F7	None	None	None		800 mM Succinic Acid	7.0
D 2	F8	None	None	None		2.1 M D,L-Malic Acid	7.0
D 3	F9	None	None	None		2.4 M Sodium Malonate	7.0
D 4	F10	0.5% w/v Jeffamine ED-2001 pH 7.0	None	100 mM HEPES Sodium Salt	7.0	1.1 M Sodium Malonate	7.0
D 5	F11	1%w/v PEG 2000 MME	None	100 mM HEPES Sodium Salt	7.0	1.0 M Succinic Acid	7.0
D 6	F12	30 %v/v Jeffamine M-600 pH 7.0	None	100 mM HEPES Sodium Salt	7.0	None	

JCSG++ 4		Precipitant 1	Buffer	pH	Salt	pH
bulk	HTS					
A 1	G1	30% w/v Jeffamine ED-2001 pH 7.0	100 mM HEPES Sodium Salt	7.0	None	
A 2	G2	22% w/v Polyacrylic Acid 5100 Sodium Salt	100 mM HEPES Sodium Salt	7.5	200 mM Magnesium Chloride	
A 3	G3	20% w/v Polyvinylpyrrolidone K 15	100 mM Tris-HCl	8.5	100 mM Cobalt Chloride	
A 4	G4	20% w/v PEG 2000 MME	100 mM Tris-HCl	8.5	200 mM Trimethylamine N-oxide	
A 5	G5	12% w/v PEG 3350	100 mM HEPES Sodium Salt	7.5	5 mM Cobalt Chloride, 5 mM Cadmium Chloride, 5 mM Magnesium Chloride, 5 mM Nickel Chloride	
A 6	G6	20% w/v PEG 3350	None		200 mM Sodium Malonate	7.0
B 1	G7	15% w/v PEG 3350	None		100 mM Succinic Acid	7.0
B 2	G8	20% w/v PEG 3350	None		150 mM D,L-Malic Acid	7.0
B 3	G9	30% w/v PEG 2000 MME	None		100 mM Potassium Thiocyanate	
B 4	G10	30% w/v PEG 2000 MME	None		150 mM Potassium Bromide	
B 5	G11	None	100 mM Bis-Tris	5.5	2.0 M Ammonium Sulfate	
B 6	G12	None	100 mM Bis-Tris	5.5	3.0 M Sodium Chloride	
C 1	H1	None	100 mM Bis-Tris	5.5	300 mM Magnesium Formate	
C 2	H2	1% w/v PEG 3350	100 mM Bis-Tris	5.5	1.0 M Ammonium Sulfate	
C 3	H3	25% w/v PEG 3350	100 mM Bis-Tris	5.5	None	
C 4	H4	45% v/v MPD	100 mM Bis-Tris	5.5	200 mM Calcium Chloride	
C 5	H5	45% v/v MPD	100 mM Bis-Tris	5.5	200 mM Ammonium Acetate	
C 6	H6	17% w/v PEG 10000	100 mM Bis-Tris	5.5	100 mM Ammonium Acetate	
D 1	H7	25% w/v PEG 3350	100 mM Bis-Tris	5.5	200 mM Ammonium Sulfate	
D 2	H8	25% w/v PEG 3350	100 mM Bis-Tris	5.5	200 mM Sodium Chloride	
D 3	H9	25% w/v PEG 3350	100 mM Bis-Tris	5.5	200 mM Lithium Sulfate	
D 4	H10	25% w/v PEG 3350	100 mM Bis-Tris	5.5	200 mM Ammonium Acetate	
D 5	H11	25% w/v PEG 3350	100 mM Bis-Tris	5.5	200 mM Magnesium Chloride	
D 6	H12	45% v/v MPD	100 mM HEPES	7.5	200 mM Ammonium Acetate	

Emerald BioSystems Crystal Growth Matrices

Wizard™ I

	crystallant	buffer (0.1 M)	salt (0.2 M)
1	20% (w/v) PEG 8000	CHES pH 9.5	none
2	10% (v/v) 2-propanol	HEPES pH 7.5	NaCl
3	15% (v/v) ethanol	CHES pH 9.5	none
4	35% (v/v) 2-methyl-2,4-pentanediol	imidazole pH 8.0	MgCl2
5	30% (v/v) PEG 400	CAPS pH 10.5	none
6	20% (w/v) PEG 3000	citrate pH 5.5	none
7	10% (w/v) PEG 8000	MES pH 6.0	Zn(OAc)2
8	2.0 M (NH4)2SO4	citrate pH 5.5	none
9	1.0 M (NH4)2HPO4	acetate pH 4.5	none
10	20% (w/v) PEG 2000 MME	Tris pH 7.0	none
11	20% (v/v) 1,4-butanediol	MES pH 6.0	Li2SO4
12	20% (w/v) PEG 1000	imidazole pH 8.0	Ca(OAc)2
13	1.26 M (NH4)2SO4	cacodylate pH 6.5	none
14	1.0 M sodium citrate	cacodylate pH 6.5	none
15	10% (w/v) PEG 3000	imidazole pH 8.0	Li2SO4
16	2.5 M NaCl	Na/K phosphate pH 6.2	none
17	30% (w/v) PEG 8000	acetate pH 4.5	Li2SO4
18	1.0 M K/Na tartrate	imidazole pH 8.0	NaCl
19	20% (w/v) PEG 1000	Tris pH 7.0	none
20	0.4 M NaH2PO4/1.6 M K2HPO4	imidazole pH 8.0	NaCl
21	20% (w/v) PEG 8000	HEPES pH 7.5	none
22	10% (v/v) 2-propanol	Tris pH 8.5	none
23	15% (v/v) ethanol	imidazole pH 8.0	MgCl2
24	35% (v/v) 2-methyl-2,4-pentanediol	Tris pH 7.0	NaCl
25	30% (v/v) PEG 400	Tris pH 8.5	MgCl2
26	10% (w/v) PEG 3000	CHES pH 9.5	none
27	1.2 M NaH2PO4/0.8 M K2HPO4	CAPS pH 10.5	Li2SO4
28	20% (w/v) PEG 3000	HEPES pH 7.5	NaCl
29	10% (w/v) PEG 8000	CHES pH 9.5	NaCl
30	1.26 M (NH4)2SO4	acetate pH 4.5	NaCl
31	20% (w/v) PEG 8000	phosphate-citrate pH 4.2	NaCl
32	10% (w/v) PEG 3000	Na/K phosphate pH 6.2	none
33	2.0 M (NH4)2SO4	CAPS pH 10.5	Li2SO4
34	1.0 M (NH4)2HPO4	imidazole pH 8.0	none
35	20% (v/v) 1,4-butanediol	acetate pH 4.5	none
36	1.0 M sodium citrate	imidazole pH 8.0	none
37	2.5 M NaCl	imidazole pH 8.0	none
38	1.0 M K/Na tartrate	CHES pH 9.5	Li2SO4
39	20% (w/v) PEG 1000	phosphate-citrate pH 4.2	Li2SO4
40	10% (v/v) 2-propanol	MES pH 6.0	Ca(OAc)2
41	30% (w/v) PEG 3000	CHES pH 9.5	none
42	15% (v/v) ethanol	Tris pH 7.0	none
43	35% (v/v) 2-methyl-2,4-pentanediol	Na/K phosphate pH 6.2	none
44	30% (v/v) PEG 400	acetate pH 4.5	Ca(OAc)2
45	20% (w/v) PEG 3000	acetate pH 4.5	none
46	10% (w/v) PEG 8000	imidazole pH 8.0	Ca(OAc)2
47	1.26 M (NH4)2SO4	Tris pH 8.5	Li2SO4
48	20% (w/v) PEG 1000	acetate pH 4.5	Zn(OAc)2

Wizard™ II

	crystallant	buffer (0.1 M)	salt (0.2 M)
1	10% (w/v) PEG 3000	acetate pH 4.5	Zn(OAc)2
2	35% (v/v) 2-methyl-2,4-pentanediol	MES pH 6.0	Li2SO4
3	20% (w/v) PEG 8000	Tris pH 8.5	MgCl2
4	2.0 M (NH4)2SO4	cacodylate pH 6.5	NaCl
5	20% (v/v) 1,4-butanediol	HEPES pH 7.5	NaCl
6	10% (v/v) 2-propanol	phosphate-citrate pH 4.2	Li2SO4
7	30% (w/v) PEG 3000	Tris pH 7.0	NaCl
8	10% (w/v) PEG 8000	Na/K phosphate pH 6.2	NaCl
9	2.0 M (NH4)2SO4	phosphate-citrate pH 4.2	none
10	1.0 M (NH4)2HPO4	Tris pH 8.5	none
11	10% (v/v) 2-propanol	cacodylate pH 6.5	Zn(OAc)2
12	30% (v/v) PEG 400	cacodylate pH 6.5	Li2SO4
13	15% (v/v) ethanol	citrate pH 5.5	Li2SO4
14	20% (w/v) PEG 1000	Na/K phosphate pH 6.2	NaCl
15	1.26 M (NH4)2SO4	HEPES pH 7.5	none
16	1.0 M sodium citrate	CHES pH 9.5	none
17	2.5 M NaCl	Tris pH 7.0	MgCl2
18	20% (w/v) PEG 3000	Tris pH 7.0	Ca(OAc)2
19	1.6 M NaH2PO4/0.4 M K2HPO4	phosphate-citrate pH 4.2	none
20	15% (v/v) ethanol	MES pH 6.0	Zn(OAc)2
21	35% (v/v) 2-methyl-2,4-pentanediol	acetate pH 4.5	none
22	10% (v/v) 2-propanol	imidazole pH 8.0	none
23	15% (v/v) ethanol	HEPES pH 7.5	MgCl2
24	30% (w/v) PEG 8000	imidazole pH 8.0	NaCl
25	35% (v/v) 2-methyl-2,4-pentanediol	HEPES pH 7.5	NaCl
26	30% (v/v) PEG 400	CHES pH 9.5	none
27	10% (w/v) PEG 3000	cacodylate pH 6.5	MgCl2
28	20% (w/v) PEG 8000	MES pH 6.0	Ca(OAc)2
29	1.26 M (NH4)2SO4	CHES pH 9.5	NaCl
30	20% (v/v) 1,4-butanediol	imidazole pH 8.0	Zn(OAc)2
31	1.0 M sodium citrate	Tris pH 7.0	NaCl
32	20% (w/v) PEG 1000	Tris pH 8.5	none
33	1.0 M (NH4)2HPO4	citrate pH 5.5	NaCl
34	10% (w/v) PEG 8000	imidazole pH 8.0	none
35	0.8 M NaH2PO4/1.2 M K2HPO4	acetate pH 4.5	none
36	10% (w/v) PEG 3000	phosphate-citrate pH 4.2	NaCl
37	1.0 M K/Na tartrate	Tris pH 7.0	Li2SO4
38	2.5 M NaCl	acetate pH 4.5	Li2SO4
39	20% (w/v) PEG 8000	CAPS pH 10.5	NaCl
40	20% (w/v) PEG 3000	imidazole pH 8.0	Zn(OAc)2
41	2.0 M (NH4)2SO4	Tris pH 7.0	Li2SO4
42	30% (v/v) PEG 400	HEPES pH 7.5	NaCl
43	10% (w/v) PEG 8000	Tris pH 7.0	MgCl2
44	20% (w/v) PEG 1000	cacodylate pH 6.5	MgCl2
45	1.26 M (NH4)2SO4	MES pH 6.0	none
46	1.0 M (NH4)2HPO4	imidazole pH 8.0	NaCl
47	2.5 M NaCl	imidazole pH 8.0	Zn(OAc)2
48	1.0 M K/Na tartrate	MES pH 6.0	none

Wizard™ III

	crystallant	buffer	pH	salt/additive #1	additive #2
1	20% (w/v) PEG 3350			0.2M ammonium citrate (dibasic)	
2	30% (v/v) MPD	0.1M sodium acetate	4,6	0.02M calcium chloride	
3	20% (w/v) PEG 3350			0.2M magnesium formate	
4	20% (w/v) PEG 3350			0.2M ammonium formate	
5	20% (w/v) PEG 3350			0.2M ammonium chloride	
6	20% (w/v) PEG 3350			0.2M potassium formate	
7	50% (w/v) MPD	0.1M Tris	8,5	0.2M ammonium phosphate (monobasic)	
8	20% (w/v) PEG 3350			0.2M potassium nitrate	
9	0.8M ammonium sulfate	0.1M citric acid	4,0		
10	20% (w/v) PEG 3350			0.2M sodium thiocyanate	
11	20% (w/v) PEG 6000	0.1M bicine	9,0		
12	10% (w/v) PEG 8000	0.1M HEPES	7,5	8% (v/v) ethylene glycol	
13	8% (w/v) PEG 4000	0.1M sodium acetate	4,6		
14	20% (w/v) PEG 6000	0.1M citric acid	5,0		
15	10.6M Sodium citrate				
16	20% (w/v) PEG 3350			0.2M potassium citrate tribasic	
17	20% (w/v) PEG 4000	0.1M citrate	5,5	10% (v/v) 2-propanol	
18	20% (w/v) PEG 6000	0.1M citric acid	4,0	1M lithium chloride	
19	20% (w/v) PEG 3350			0.2M ammonium nitrate	
20	10% (w/v) PEG 6000	0.1M HEPES	7,0		
21	10.6M Na/K phosphate	0.1M HEPES	7,5		
22	20% (v/v) ethanol	0.1M Tris	8,5		
23	10% (w/v) PEG 20,000	0.1M bicine	9,0	2% (v/v) dioxane	
24	2M ammonium sulfate	0.1M sodium acetate	4,6		
25	10% (w/v) PEG 1000			10% (w/v) PEG 8000	
26	24% (w/v) PEG 1500			20% (v/v) glycerol	
27	30% (v/v) PEG 400	0.1M HEPES	7,5	0.2M magnesium chloride	
28	70% (v/v) MPD	0.1M HEPES	7,5		
29	40% (v/v) MPD	0.1M Tris	8,0		
30	50.5% (w/v) PEG 4000			0.17M ammonium sulfate	15% (v/v) glycerol
31	14% (v/v) 2-propanol	0.07M sodium acetate	4,6	0.14M calcium chloride	30% (v/v) glycerol
32	16% (w/v) PEG 8000			0.04M potassium phosphate (monobasic)	20% (v/v) glycerol
33	10.6M magnesium sulfate	0.1M MES	6,5		
34	10% (w/v) PEG 6000	0.1M bicine	9,0		
35	40.4% (w/v) PEG 8000	0.08M cacodylate	6,5	0.16M calcium acetate	20% (v/v) glycerol
36	30% (v/v) Jeffamine M-600	0.1M MES	6,5	0.05M cesium chloride	
37	30.2M ammonium sulfate	0.1M citric acid	5,0		
38	15% (w/v) PEG 10,000	0.1M citrate	5,5	2% (v/v) dioxane	
39	20% (v/v) Jeffamine M-600	0.1M HEPES	7,5		
40	10% (v/v) MPD	0.1M bicine	9,0		
41	28% (v/v) PEG 400	0.1M HEPES	7,5	0.2M calcium chloride	
42	30% (w/v) PEG 4000	0.1M Tris	8,5	0.2M lithium sulfate	
43	30% (w/v) PEG 8000			0.2M ammonium sulfate	
44	30% (w/v) PEG 5000 MME	0.1M Tris	8,0	0.2M lithium sulfate	
45	10.5M ammonium sulfate	0.1M Tris	8,5		12% (v/v) glycerol
46	50% (v/v) MPD	0.1M Tris	8,5	0.2M ammonium phosphate (monobasic)	
47	30% (w/v) PEG 5000 MME	0.1M MES	6,5	0.2M ammonium sulfate	
48	20% (w/v) PEG 10,000	0.1M HEPES	7,5		

Wizard™ IV

	crystallant	buffer (0.1 M)	pH	salt/additive #1	additive #2
1	20%(v/v) Glycerol			40mM Potassium phosphate	16%(w/v) PEG 8000
2	15%(v/v) Ethanol	Tris	8,0	100mM Sodium chloride	5%(v/v) MPD
3	40%(v/v) Ethanol	Phosphate-citrate	4,2		5%(w/v) PEG 1000
4	200mM Ammonium sulfate	BisTris	5,5		
5	2M Ammonium sulfate	Acetate	5,5		2%(v/v) PEG 400
6	800mM Ammonium Sulfate	Citrate	4,0		
7	2M Lithium sulfate	Acetate	4,5	100mM Magnesium sulfate	5%(v/v) Isopropanol
8	2M Lithium sulfate	Tris	8,5		2%(v/v) PEG 400
9	2M Lithium sulfate	Acetate	5,5	100mM Magnesium sulfate	5%(v/v) PEG 400
10	50%(v/v) PEG 200	Cacodylate	6,5	200mM Magnesium chloride	
11	40%(v/v) PEG 300	Cacodylate	6,5	200mM Calcium acetate	
12	30%(v/v) Jeffamine M600 pH 7.0	HEPES	7,0		
13	800mM Succinic Acid pH 7.0				
14	40%(v/v) PEG 400	Tris	8,5	200mM Lithium sulfate	
15	50%(v/v) PEG 400	Acetate	4,5	200mM Lithium sulfate	
16	15%(v/v) PEG 550MME	MES	6,5		
17	25%(w/v) PEG 1500	SPG Buffer/NaOH	5,5		
18	25%(w/v) PEG 1500	SPG Buffer/NaOH	8,5		
19	25%(w/v) PEG 1500	MMT Buffer/NaOH	6,5		
20	25%(w/v) PEG 1500	MMT Buffer/NaOH	9,0		
21	25%(w/v) PEG 1500	MIB Buffer/HCl	5,0		
22	25%(w/v) PEG 1500	PCB Buffer/NaOH	7,0		
23	12%(w/v) PEG 1500	Acetate	5,5	2500mM Sodium chloride	1.5%(v/v) MPD
24	2400mM Sodium Malonate				
25	30%(w/v) PEG 2000MME			150mM Potassium bromide	
26	10%(w/v) PEG 2000MME	Sodium acetate	5,5	200mM Ammonium sulfate	
27	20%(w/v) PEG 2000MME	Tris	8,5	200mM Trimethylamine n-oxide	
28	20%(w/v) PEG 3350	BisTris Propane	6,5	200mM Sodium fluoride	
29	20%(w/v) PEG 3350	Citrate	4,0	200mM Sodium citrate	
30	20%(w/v) PEG 3350	BisTris Propane	8,5	200mM Sodium malonate	
31	20%(w/v) Polyacrylic acid 5100	HEPES	7,0	20mM Magnesium chloride	
32	2100mM DL Malic acid pH 7.0				
33	800mM Potassium phosphate (dibasic)	HEPES	7,5		800mM Sodium Phosphate
34	20%(w/v) PEG 6000	MES	6,0	200mM Ammonium chloride	
35	20%(w/v) PEG 6000	HEPES	7,0	200mM Sodium chloride	
36	20%(w/v) PEG 6000	Tris	8,0	200mM Lithium chloride	
37	20%(w/v) Polyvinylpyrrolidone K15	Tris	8,5	100mM Cobalt chloride	
38	50%(v/v) Ethylene glycol	Tris	8,5	200mM Magnesium chloride	
39	20%(w/v) PEG 8000	Imidazole	6,5		3%(v/v) MPD
40	20%(w/v) PEG 8000	Tris	8,5	100mM Magnesium chloride	20%(v/v) PEG 400
41	20%(w/v) PEG 8000	HEPES	7,5	200mM Ammonium sulfate	10%(v/v) Isopropanol
42	30%(v/v) MPD	Acetate	4,5		25%(w/v) PEG 1500
43	30%(v/v) MPD	Imidazole	6,5	200mM Ammonium sulfate	10%(w/v) PEG 3350
44	30%(v/v) MPD	Tris	8,5	500mM Sodium chloride	8%(w/v) PEG 8000
45	40%(v/v) Isopropanol	Imidazole	6,5		15%(w/v) PEG 8000
46	30%(v/v) Isopropanol	Tris	8,5		30%(w/v) PEG 3350
47	17%(w/v) PEG 10000	BisTris	5,5	100mM Ammonium Acetate	
48	15%(w/v) PEG 20000	HEPES	7,0		

Ozma™

Ozma PEG 1K 48-Salt crystallization screen		
	Precipitant	**Salt**
1	30% (w/v) PEG 1000	200 mM Ammonium acetate
2	30% (w/v) PEG 1000	200 mM Ammonium chloride
3	30% (w/v) PEG 1000	200 mM Ammonium fluoride
4	30% (w/v) PEG 1000	200 mM Ammonium formate
5	30% (w/v) PEG 1000	200 mM Ammonium iodide
6	30% (w/v) PEG 1000	200 mM Ammonium nitrate
7	30% (w/v) PEG 1000	200 mM Ammonium phosphate (monobasic)
8	30% (w/v) PEG 1000	200 mM Ammonium phosphate (dibasic)
9	30% (w/v) PEG 1000	200 mM Ammonium sulfate
10	30% (w/v) PEG 1000	200 mM Ammonium sulfite
11	30% (w/v) PEG 1000	200 mM Calcium acetate
12	30% (w/v) PEG 1000	200 mM Calcium chloride
13	30% (w/v) PEG 1000	200 mM Diammonium tartrate
14	30% (w/v) PEG 1000	200 mM Formic acid potassium salt
15	30% (w/v) PEG 1000	200 mM Lithium acetate
16	30% (w/v) PEG 1000	200 mM Lithium chloride
17	30% (w/v) PEG 1000	200 mM Lithium citrate
18	30% (w/v) PEG 1000	200 mM Lithium nitrate
19	30% (w/v) PEG 1000	200 mM Lithium sulfate
20	30% (w/v) PEG 1000	200 mM Magnesium acetate
21	30% (w/v) PEG 1000	200 mM Magnesium chloride
22	30% (w/v) PEG 1000	200 mM Magnesium formate
23	30% (w/v) PEG 1000	200 mM Magnesium nitrate
24	30% (w/v) PEG 1000	200 mM Magnesium sulfate
25	30% (w/v) PEG 1000	200 mM Potassium acetate
26	30% (w/v) PEG 1000	200 mM Potassium chloride
27	30% (w/v) PEG 1000	200 mM Potassium fluoride
28	30% (w/v) PEG 1000	200 mM Potassium iodide
29	30% (w/v) PEG 1000	200 mM Potassium nitrate
30	30% (w/v) PEG 1000	50 mM Potassium phosphate (dibasic)
31	30% (w/v) PEG 1000	200 mM Potassium phosphate (monobasic)
32	30% (w/v) PEG 1000	200 mM Potassium sulfate
33	30% (w/v) PEG 1000	200 mM Potassium thiocyanate
34	30% (w/v) PEG 1000	200 mM Potassium/Sodium tartrate
35	30% (w/v) PEG 1000	200 mM Sodium acetate
36	30% (w/v) PEG 1000	150 mM Sodium chloride
37	30% (w/v) PEG 1000	200 mM Sodium citrate
38	30% (w/v) PEG 1000	200 mM Sodium fluoride
39	30% (w/v) PEG 1000	200 mM Sodium formate
40	30% (w/v) PEG 1000	200 mM Sodium iodide
41	30% (w/v) PEG 1000	200 mM Sodium isothiocyanate
42	30% (w/v) PEG 1000	200 mM Sodium nitrate
43	30% (w/v) PEG 1000	200 mM Sodium phosphate (dibasic)
44	30% (w/v) PEG 1000	200 mM Sodium phosphate (monobasic)
45	30% (w/v) PEG 1000	200 mM Sodium sulfate
46	30% (w/v) PEG 1000	200 mM Sodium tartrate (dibasic)
47	30% (w/v) PEG 1000	200 mM Tripotassium citrate
48	30% (w/v) PEG 1000	200 mM Zinc acetate

Ozma PEG 4K 48-Salt crystallization screen		
	Precipitant	**Salt**
1	20% (w/v) PEG 4000	200 mM Ammonium acetate
2	20% (w/v) PEG 4000	200 mM Ammonium chloride
3	20% (w/v) PEG 4000	200 mM Ammonium fluoride
4	20% (w/v) PEG 4000	200 mM Ammonium formate
5	20% (w/v) PEG 4000	200 mM Ammonium iodide
6	20% (w/v) PEG 4000	200 mM Ammonium nitrate
7	20% (w/v) PEG 4000	200 mM Ammonium phosphate (monobasic)
8	20% (w/v) PEG 4000	200 mM Ammonium phosphate (dibasic)
9	20% (w/v) PEG 4000	200 mM Ammonium sulfate
10	20% (w/v) PEG 4000	200 mM Ammonium sulfite
11	20% (w/v) PEG 4000	200 mM Calcium acetate
12	20% (w/v) PEG 4000	50 mM Calcium chloride
13	20% (w/v) PEG 4000	200 mM Diammonium tartrate
14	20% (w/v) PEG 4000	200 mM Formic acid potassium salt
15	20% (w/v) PEG 4000	200 mM Lithium acetate
16	20% (w/v) PEG 4000	200 mM Lithium chloride
17	20% (w/v) PEG 4000	200 mM Lithium citrate
18	20% (w/v) PEG 4000	200 mM Lithium nitrate
19	20% (w/v) PEG 4000	200 mM Lithium sulfate
20	20% (w/v) PEG 4000	200 mM Magnesium acetate
21	20% (w/v) PEG 4000	50 mM Magnesium chloride
22	20% (w/v) PEG 4000	200 mM Magnesium formate
23	20% (w/v) PEG 4000	200 mM Magnesium nitrate
24	20% (w/v) PEG 4000	200 mM Magnesium sulfate
25	20% (w/v) PEG 4000	200 mM Potassium acetate
26	20% (w/v) PEG 4000	100 mM Potassium chloride
27	20% (w/v) PEG 4000	200 mM Potassium fluoride
28	20% (w/v) PEG 4000	200 mM Potassium iodide
29	20% (w/v) PEG 4000	200 mM Potassium nitrate
30	20% (w/v) PEG 4000	200 mM Potassium phosphate (dibasic)
31	20% (w/v) PEG 4000	100 mM Potassium phosphate (monobasic)
32	20% (w/v) PEG 4000	100 mM Potassium sulfate
33	20% (w/v) PEG 4000	200 mM Potassium thiocyanate
34	20% (w/v) PEG 4000	200 mM Potassium thiocyanate
35	20% (w/v) PEG 4000	100 mM Sodium acetate
36	20% (w/v) PEG 4000	200 mM Sodium chloride
37	20% (w/v) PEG 4000	50 mM Sodium citrate
38	20% (w/v) PEG 4000	200 mM Sodium fluoride
39	20% (w/v) PEG 4000	200 mM Sodium formate
40	20% (w/v) PEG 4000	200 mM Sodium iodide
41	20% (w/v) PEG 4000	200 mM Sodium isothiocyanate
42	20% (w/v) PEG 4000	200 mM Sodium nitrate
43	20% (w/v) PEG 4000	200 mM Sodium phosphate (dibasic)
44	20% (w/v) PEG 4000	50 mM Sodium phosphate (monobasic)
45	20% (w/v) PEG 4000	200 mM Sodium sulfate
46	20% (w/v) PEG 4000	200 mM Sodium tartrate (dibasic)
47	20% (w/v) PEG 4000	100 mM Tripotassium citrate
48	20% (w/v) PEG 4000	200 mM Zinc acetate

Ozma PEG 8K 48-Salt crystallization screen		
	Precipitant	**Salt**
1	20% (w/v) PEG 8000	200 mM Ammonium acetate
2	20% (w/v) PEG 8000	200 mM Ammonium chloride
3	20% (w/v) PEG 8000	200 mM Ammonium fluoride
4	20% (w/v) PEG 8000	200 mM Ammonium formate
5	20% (w/v) PEG 8000	200 mM Ammonium iodide
6	20% (w/v) PEG 8000	200 mM Ammonium nitrate
7	20% (w/v) PEG 8000	200 mM Ammonium phosphate (monobasic)
8	20% (w/v) PEG 8000	200 mM Ammonium phosphate (dibasic)
9	20% (w/v) PEG 8000	200 mM Ammonium sulfate
10	20% (w/v) PEG 8000	200 mM Ammonium sulfite
11	20% (w/v) PEG 8000	200 mM Calcium acetate
12	20% (w/v) PEG 8000	50 mM Calcium chloride
13	20% (w/v) PEG 8000	200 mM Diammonium tartrate
14	20% (w/v) PEG 8000	200 mM Formic acid potassium salt
15	20% (w/v) PEG 8000	200 mM Lithium acetate
16	20% (w/v) PEG 8000	200 mM Lithium chloride
17	20% (w/v) PEG 8000	200 mM Lithium citrate
18	20% (w/v) PEG 8000	200 mM Lithium nitrate
19	20% (w/v) PEG 8000	200 mM Lithium sulfate
20	20% (w/v) PEG 8000	200 mM Magnesium acetate
21	20% (w/v) PEG 8000	200 mM Magnesium chloride
22	20% (w/v) PEG 8000	200 mM Magnesium formate
23	20% (w/v) PEG 8000	200 mM Magnesium nitrate
24	20% (w/v) PEG 8000	200 mM Magnesium sulfate
25	20% (w/v) PEG 8000	200 mM Potassium acetate
26	20% (w/v) PEG 8000	200 mM Potassium chloride
27	20% (w/v) PEG 8000	200 mM Potassium fluoride
28	20% (w/v) PEG 8000	200 mM Potassium iodide
29	20% (w/v) PEG 8000	200 mM Potassium nitrate
30	20% (w/v) PEG 8000	200 mM Potassium phosphate (dibasic)
31	20% (w/v) PEG 8000	100 mM Potassium phosphate (monobasic)
32	20% (w/v) PEG 8000	200 mM Potassium sulfate
33	20% (w/v) PEG 8000	200 mM Potassium thiocyanate
34	20% (w/v) PEG 8000	200 mM Potassium/Sodium tartrate
35	20% (w/v) PEG 8000	50 mM Sodium acetate
36	20% (w/v) PEG 8000	200 mM Sodium chloride
37	20% (w/v) PEG 8000	100 mM Sodium citrate
38	20% (w/v) PEG 8000	200 mM Sodium citrate
39	20% (w/v) PEG 8000	200 mM Sodium formate
40	20% (w/v) PEG 8000	200 mM Sodium iodide
41	20% (w/v) PEG 8000	200 mM Sodium isothiocyanate
42	20% (w/v) PEG 8000	200 mM Sodium nitrate
43	20% (w/v) PEG 8000	200 mM Sodium phosphate (dibasic)
44	20% (w/v) PEG 8000	100 mM Sodium phosphate (monobasic)
45	20% (w/v) PEG 8000	200 mM Sodium sulfate
46	20% (w/v) PEG 8000	200 mM Sodium tartrate (dibasic)
47	20% (w/v) PEG 8000	200 mM Tripotassium citrate
48	20% (w/v) PEG 8000	200 mM Zinc acetate

Ozma PEG 10K 48-Salt		
	Precipitant	**Salt**
1	10% (w/v) PEG 10,000	200 mM Ammonium acetate
2	10% (w/v) PEG 10,000	200 mM Ammonium chloride
3	10% (w/v) PEG 10,000	200 mM Ammonium fluoride
4	10% (w/v) PEG 10,000	200 mM Ammonium formate
5	10% (w/v) PEG 10,000	200 mM Ammonium iodide
6	10% (w/v) PEG 10,000	200 mM Ammonium nitrate
7	10% (w/v) PEG 10,000	200 mM Ammonium phosphate (monobasic)
8	10% (w/v) PEG 10,000	200 mM Ammonium phosphate (dibasic)
9	10% (w/v) PEG 10,000	200 mM Ammonium sulfate
10	10% (w/v) PEG 10,000	200 mM Ammonium sulfite
11	10% (w/v) PEG 10,000	200 mM Calcium acetate
12	10% (w/v) PEG 10,000	200 mM Calcium chloride
13	10% (w/v) PEG 10,000	200 mM Diammonium tartrate
14	10% (w/v) PEG 10,000	200 mM Formic acid potassium salt
15	10% (w/v) PEG 10,000	200 mM Lithium acetate
16	10% (w/v) PEG 10,000	200 mM Lithium chloride
17	10% (w/v) PEG 10,000	200 mM Lithium citrate
18	10% (w/v) PEG 10,000	200 mM Lithium nitrate
19	10% (w/v) PEG 10,000	200 mM Lithium sulfate
20	10% (w/v) PEG 10,000	200 mM Magnesium acetate
21	10% (w/v) PEG 10,000	200 mM Magnesium chloride
22	10% (w/v) PEG 10,000	200 mM Magnesium formate
23	10% (w/v) PEG 10,000	200 mM Magnesium nitrate
24	10% (w/v) PEG 10,000	200 mM Magnesium sulfate
25	10% (w/v) PEG 10,000	200 mM Potassium acetate
26	10% (w/v) PEG 10,000	200 mM Potassium chloride
27	10% (w/v) PEG 10,000	200 mM Potassium fluoride
28	10% (w/v) PEG 10,000	200 mM Potassium iodide
29	10% (w/v) PEG 10,000	200 mM Potassium nitrate
30	10% (w/v) PEG 10,000	200 mM Potassium phosphate (dibasic)
31	10% (w/v) PEG 10,000	50 mM Potassium phosphate (monobasic)
32	10% (w/v) PEG 10,000	200 mM Potassium sulfate
33	10% (w/v) PEG 10,000	200 mM Potassium thiocyanate
34	10% (w/v) PEG 10,000	200 mM Potassium/Sodium tartrate
35	10% (w/v) PEG 10,000	200 mM Sodium acetate
36	10% (w/v) PEG 10,000	150 mM Sodium chloride
37	10% (w/v) PEG 10,000	200 mM Sodium citrate
38	10% (w/v) PEG 10,000	200 mM Sodium fluoride
39	10% (w/v) PEG 10,000	200 mM Sodium formate
40	10% (w/v) PEG 10,000	200 mM Sodium iodide
41	10% (w/v) PEG 10,000	200 mM Sodium isothiocyanate
42	10% (w/v) PEG 10,000	200 mM Sodium nitrate
43	10% (w/v) PEG 10,000	200 mM Sodium phosphate (dibasic)
44	10% (w/v) PEG 10,000	200 mM Sodium phosphate (monobasic)
45	10% (w/v) PEG 10,000	200 mM Sodium sulfate
46	10% (w/v) PEG 10,000	200 mM Sodium tartrate (dibasic)
47	10% (w/v) PEG 10,000	200 mM Tripotassium citrate
48	10% (w/v) PEG 10,000	200 mM Zinc acetate

Precipitant Synergy™

Precipitant Synergy™ Primary 64				
	Precipitant #1	**Precipitant #2**	**Additive**	**Buffer**
1	2M ammonium sulfate	2% (v/v) PEG 400		0.1M acetate pH 5.5
2	2M ammonium sulfate	10% (v/v) glycerol	0.1M MgSO4	0.1M imidazole pH 6.5
3	2M ammonium sulfate	1% (v/v) MPD		0.1M HEPES pH 7.5
4	2M ammonium sulfate	5% (v/v) PEG 400	0.1M MgSO4	0.1M Tris base pH 8.5
5	3.9M NaCl	2% (v/v) PEG 400	0.1M MgCl2	0.1M acetate pH 5.5
6	3M NaCl	5% (v/v) MPD	0.1M CaCl2	0.1M imidazole pH 6.5
7	4M NaCl	5% (v/v) isopropanol		0.1M HEPES pH 7.5
8	5% (v/v) isopropanol			2.5M K2 H phosphate/Na H2 phosphate pH 5.5
9	2% (v/v) PEG 400			2M K2 H phosphate/Na H2 phosphate pH 6.5
10	20% (v/v) glycerol			2.5M K2 H phosphate/Na H2 phosphate pH 7.5
11	8% (v/v) MPD			1M K2 H phosphate/Na H2 phosphate pH 8.5
12	1% (v/v) MPD			2M (NH4)3 citrate/citric acid pH 4.5
13	5% (v/v) isopropanol			2M (NH4)3 citrate/citric acid pH 6.5
14	5% (v/v) PEG 400			2M (NH4)3 citrate/citric acid pH 7.5
15	2M lithium sulfate	5% (v/v) isopropanol	0.1M MgSO4	0.1M acetate pH 4.5
16	2M lithium sulfate	5% (v/v) PEG 400	0.1M MgSO4	0.1M acetate pH 5.5
17	2M lithium sulfate	8% (v/v) MPD		0.1M imidazole pH 6.5
18	2M lithium sulfate	2% (v/v) PEG 400		0.1M Tris base pH 8.5
19	1M lithium sulfate	15% (v/v) MPD	0.1M MgSO4	0.1M acetate pH 4.5
20	25% (v/v) MPD			0.75M (NH4)3 citrate/citric acid pH 5.5
21	1.5M ammonium sulfate	12% (v/v) isopropanol		0.1M imidazole pH 6.5
22	1.3M NaCl	30% (v/v) isopropanol	0.1M CaCl2	0.1M imidazole pH 6.5
23	4M NaCl	10% (v/v) PEG 400		0.1M HEPES pH 7.5
24	20% (v/v) PEG 400			0.8M K2 H phosphate/Na H2 phosphate pH 7.5
25	15% (v/v) isopropanol			1M (NH4)3 citrate/ammonium hydroxide pH 8.5
26	2M sodium formate	15% (v/v) isopropanol	2.5% (w/v) PEG 3350	0.1M Tris base pH 8.5
27	30% (v/v) MPD	25% (w/v) PEG 1500		0.1M acetate pH 4.5
28	30% (v/v) MPD	15% (w/v) PEG 8000	0.1M CaCl2	0.1M acetate pH 5.5
29	30% (v/v) MPD	10% (w/v) PEG 3350	0.2M ammonium sulfate	0.1M imidazole pH 6.5
30	30% (v/v) MPD	4% (w/v) PEG 1500		0.1M HEPES pH 7.5
31	30% (v/v) MPD	8% (w/v) PEG 8000	0.5M NaCl	0.1M Tris base pH 8.5
32	30% (v/v) isopropanol	4% (w/v) PEG 3350	0.1M CaCl2	0.1M acetate pH 4.5
33	30% (v/v) isopropanol	10% (w/v) PEG 1500	0.2M lithium sulfate	0.1M acetate pH 5.5
34	40% (v/v) isopropanol	15% (w/v) PEG 8000		0.1M imidazole pH 6.5
35	20% (v/v) isopropanol	15% (w/v) PEG 3350		0.2M (NH4)3 citrate/citric acid pH 7.5
36	30% (v/v) isopropanol	30% (w/v) PEG 3350		0.1M Tris base pH 8.5
37	40% (v/v) PEG 400	20% (w/v) PEG 8000		0.1M acetate pH 4.5
38	40% (v/v) PEG 400	5% (w/v) PEG 3350		0.1M acetate pH 5.5
39	40% (v/v) PEG 400	15% (w/v) PEG 1000		0.15M K2 H phosphate/Na H2 phosphate pH 6.5
40	40% (v/v) PEG 400	8% (w/v) PEG 8000		0.1M HEPES pH 7.5
41	25% (v/v) PEG 400	20% (w/v) PEG 3350	0.1M MgCl2	0.1M Tris base pH 8.5
42	30% (w/v) PEG 1500	3% (v/v) MPD	0.2M MgSO4	0.1M acetate pH 5.5
43	30% (w/v) PEG 1500	10% (v/v) isopropanol	0.1M CaCl2	0.1M imidazole pH 6.5
44	30% (w/v) PEG 1500	20% (v/v) PEG 400		0.1M HEPES pH 7.5
45	30% (w/v) PEG 1500	8% (v/v) MPD		0.1M Tris base pH 8.5
46	25% (w/v) PEG 3350	15% (v/v) isopropanol		0.2M (NH4)3 citrate/citric acid pH 4.5
47	25% (w/v) PEG 3350	5% (v/v) PEG 400		0.1M acetate pH 5.5
48	25% (w/v) PEG 3350	15% (v/v) MPD	0.2M lithium sulfate	0.1M imidazole pH 6.5
49	25% (w/v) PEG 3350	4% (v/v) isopropanol	0.1M CaCl2	0.1M HEPES pH 7.5
50	20% (w/v) PEG 8000	10% (v/v) PEG 400	0.5M NaCl	0.1M acetate pH 5.5
51	20% (w/v) PEG 8000	3% (v/v) MPD		0.1M imidazole pH 6.5
52	20% (w/v) PEG 8000	10% (v/v) isopropanol	0.2M ammonium sulfate	0.1M HEPES pH 7.5
53	20% (w/v) PEG 8000	20% (v/v) PEG 400	0.1M MgCl2	0.1M Tris base pH 8.5
54	2.1M sodium formate	25% (w/v) PEG 3350	0.1M CaCl2	0.1M acetate pH 4.5
55	0.75M ammonium sulfate	7.5% (w/v) PEG 3350	5% (v/v) isopropanol	0.1M acetate pH 4.5
56	1% (w/v) PEG 4000			1M (NH4)3 citrate/citric acid pH 5.5
57	2.5M NaCl	12% (w/v) PEG 1500	1.500 % (v/v) MPD	0.1M acetate pH 5.5
58	2M NaCl	20% (w/v) PEG 3350	0.1M MgCl2	0.1M imidazole pH 6.5
59	3M sodium formate	4% (w/v) PEG 8000		0.1M imidazole pH 6.5
60	0.5% (w/v) PEG 4000			1M K2 H phosphate/Na H2 phosphate pH 7.5
61	10% (w/v) PEG 3350			1.4M K2 H phosphate/Na H2 phosphate pH 7.5
62	2% (w/v) PEG 8000			0.8M (NH4)3 citrate/ammonium hydroxide pH 8.5
63	2M NaCl	5% (w/v) PEG 4000		0.1M Tris base pH 8.5
64	15% (w/v) PEG 8000			0.5M (NH4)3 citrate/ammonium hydroxide pH 8.5

Precipitant Synergy™ Expanded with Precipitants @ 67% of Primary 64				
	Precipitant #1	**Precipitant #2**	**Additive**	**Buffer**
1	1.34M ammonium sulfate	1.34%(v/v) PEG 400		0.1M acetate pH 5.5
2	1.34M ammonium sulfate	6.7%(v/v) glycerol	0.1M MgSO4	0.1M imidazole pH 6.5
3	1.34M ammonium sulfate	0.67%(v/v) MPD		0.1M HEPES pH 7.5
4	1.34M ammonium sulfate	3.35%(v/v) PEG 400	0.1M MgSO4	0.1M Tris base pH 8.5
5	2.613M NaCl	1.34%(v/v) PEG 400	0.1M MgCl2	0.1M acetate pH 5.5
6	2.01M NaCl	3.35%(v/v) MPD	0.1M CaCl2	0.1M imidazole pH 6.5
7	2.68M NaCl	3.35%(v/v) isopropanol		0.1M HEPES pH 7.5
8	3.35%(v/v) isopropanol			1.675M K2 H phosphate/Na H2 phosphate pH 5.5
9	1.34%(v/v) PEG 400			1.34M K2 H phosphate/Na H2 phosphate pH 6.5
10	13.4%(v/v) glycerol			1.675M K2 H phosphate/Na H2 phosphate pH 7.5
11	5.36%(v/v) MPD			0.67M K2 H phosphate/Na H2 phosphate pH 8.5
12	0.67%(v/v) MPD			1.34M (NH4)3 citrate/citric acid pH 4.5
13	3.35%(v/v) isopropanol			1.34M (NH4)3 citrate/citric acid pH 6.5
14	3.35%(v/v) PEG 400			1.34M (NH4)3 citrate/citric acid pH 7.5
15	1.34M lithium sulfate	3.35%(v/v) isopropanol	0.1M MgSO4	0.1M acetate pH 4.5
16	1.34M lithium sulfate	3.35%(v/v) PEG 400	0.1M MgSO4	0.1M acetate pH 5.5
17	1.34M lithium sulfate	5.36%(v/v) MPD		0.1M imidazole pH 6.5
18	1.34M lithium sulfate	1.34%(v/v) PEG 400		0.1M Tris base pH 8.5
19	0.67M lithium sulfate	10.05%(v/v) MPD	0.1M MgSO4	0.1M acetate pH 4.5
20	16.75%(v/v) MPD			0.503M (NH4)3 citrate/citric acid pH 5.5
21	1.005M ammonium sulfate	8.04%(v/v) isopropanol		0.1M imidazole pH 6.5
22	0.871M NaCl	20.1%(v/v) isopropanol	0.1M CaCl2	0.1M imidazole pH 6.5
23	2.68M NaCl	6.7%(v/v) PEG 400		0.1M HEPES pH 7.5
24	13.4%(v/v) PEG 400			0.536M K2 H phosphate/Na H2 phosphate pH 7.5
25	10.05%(v/v) isopropanol			0.67M (NH4)3 citrate/ammonium hydroxide pH 8.5
26	1.34M sodium formate	10.05%(v/v) isopropanol	1.675%(w/v) PEG 3350	0.1M Tris base pH 8.5
27	20.1%(v/v) MPD	16.75%(w/v) PEG 1500		0.1M acetate pH 4.5
28	20.1%(v/v) MPD	10.05%(w/v) PEG 8000	0.1M CaCl2	0.1M acetate pH 5.5
29	20.1%(v/v) MPD	6.7%(w/v) PEG 3350	0.2M ammonium sulfate	0.1M imidazole pH 6.5
30	20.1%(v/v) MPD	2.68%(w/v) PEG 1500		0.1M HEPES pH 7.5
31	20.1%(v/v) MPD	5.36%(w/v) PEG 8000	0.5M NaCl	0.1M Tris base pH 8.5
32	20.1%(v/v) isopropanol	2.68%(w/v) PEG 3350	0.1M CaCl2	0.1M acetate pH 4.5
33	20.1%(v/v) isopropanol	6.7%(w/v) PEG 1500	0.2M lithium sulfate	0.1M acetate pH 5.5
34	26.8%(v/v) isopropanol	10.05%(w/v) PEG 8000		0.1M imidazole pH 6.5
35	13.4%(v/v) isopropanol	10.05%(w/v) PEG 3350		0.2M (NH4)3 citrate/citric acid pH 7.5
36	20.1%(v/v) isopropanol	20.1%(w/v) PEG 3350		0.1M Tris base pH 8.5
37	26.8%(v/v) PEG 400	13.4%(w/v) PEG 8000		0.1M acetate pH 4.5
38	26.8%(v/v) PEG 400	3.35%(w/v) PEG 3350		0.1M acetate pH 5.5
39	26.8%(v/v) PEG 400	10.05%(w/v) PEG 1000		0.15M K2 H phosphate/Na H2 phosphate pH 6.5
40	26.8%(v/v) PEG 400	5.36%(w/v) PEG 8000		0.1M HEPES pH 7.5
41	16.75%(v/v) PEG 400	13.4%(w/v) PEG 3350	0.1M MgCl2	0.1M Tris base pH 8.5
42	20.1%(w/v) PEG 1500	2.01%(v/v) MPD	0.2M MgSO4	0.1M acetate pH 5.5
43	20.1%(w/v) PEG 1500	6.7%(v/v) isopropanol	0.1M CaCl2	0.1M imidazole pH 6.5
44	20.1%(w/v) PEG 1500	13.4%(v/v) PEG 400		0.1M HEPES pH 7.5
45	20.1%(w/v) PEG 1500	5.36%(v/v) MPD		0.1M Tris base pH 8.5
46	16.75%(w/v) PEG 3350	10.05%(v/v) isopropanol		0.2M (NH4)3 citrate/citric acid pH 4.5
47	16.75%(w/v) PEG 3350	3.35%(v/v) PEG 400		0.1M acetate pH 5.5
48	16.75%(w/v) PEG 3350	10.05%(v/v) MPD	0.2M lithium sulfate	0.1M imidazole pH 6.5
49	16.75%(w/v) PEG 3350	2.68%(v/v) isopropanol	0.1M CaCl2	0.1M HEPES pH 7.5
50	13.4%(w/v) PEG 8000	6.7%(v/v) PEG 400	0.5M NaCl	0.1M acetate pH 5.5
51	13.4%(w/v) PEG 8000	2.01%(v/v) MPD		0.1M imidazole pH 6.5
52	13.4%(w/v) PEG 8000	6.7%(v/v) isopropanol	0.2M ammonium sulfate	0.1M HEPES pH 7.5
53	13.4%(w/v) PEG 8000	13.4%(v/v) PEG 400	0.1M MgCl2	0.1M Tris base pH 8.5
54	1.407M sodium formate	16.75%(w/v) PEG 3350	0.1M CaCl2	0.1M acetate pH 4.5
55	0.5025M ammonium sulfate	5.025%(w/v) PEG 3350	3.35%(v/v) isopropanol	0.1M acetate pH 4.5
56	0.67%(w/v) PEG 4000			0.67M (NH4)3 citrate/citric acid pH 5.5
57	1.675M NaCl	8.04%(w/v) PEG 1500	1.005%(v/v) MPD	0.1M acetate pH 5.5
58	1.34M NaCl	13.4%(w/v) PEG 3350	0.1M MgCl2	0.1M imidazole pH 6.5
59	2.01M sodium formate	2.68%(w/v) PEG 8000		0.1M imidazole pH 6.5
60	0.34%(w/v) PEG 4000			0.67M K2 H phosphate/Na H2 phosphate pH 7.5
61	6.7%(w/v) PEG 3350			0.938M K2 H phosphate/Na H2 phosphate pH 7.5
62	1.34%(w/v) PEG 8000			0.536M (NH4)3 citrate/ammonium hydroxide pH 8.5
63	1.34M NaCl	3.35%(w/v) PEG 4000		0.1M Tris base pH 8.5
64	10.05%(w/v) PEG 8000			0.335M (NH4)3 citrate/ammonium hydroxide pH 8.5

Precipitant Synergy™ Expanded with Precipitants @ 33% of Primary 64				
	Precipitant #1	**Precipitant #2**	**Additive**	**Buffer**
1	0.66M ammonium sulfate	0.66% (v/v) PEG 400		0.1M acetate pH 5.5
2	0.66M ammonium sulfate	3.3% (v/v) glycerol	0.1M MgSO4	0.1M imidazole pH 6.5
3	0.66M ammonium sulfate	0.33% (v/v) MPD		0.1M HEPES pH 7.5
4	0.66M ammonium sulfate	1.65% (v/v) PEG 400	0.1M MgSO4	0.1M Tris base pH 8.5
5	1.287M NaCl	0.66% (v/v) PEG 400	0.1M MgCl2	0.1M acetate pH 5.5
6	0.99M NaCl	1.65% (v/v) MPD	0.1M CaCl2	0.1M imidazole pH 6.5
7	1.32M NaCl	1.65% (v/v) isopropanol		0.1M HEPES pH 7.5
8	1.65% (v/v) isopropanol			0.825M K2 H phosphate/Na H2 phosphate pH 5.5
9	0.66% (v/v) PEG 400			0.66M K2 H phosphate/Na H2 phosphate pH 6.5
10	6.6% (v/v) glycerol			0.825M K2 H phosphate/Na H2 phosphate pH 7.5
11	2.64% (v/v) MPD			0.33M K2 H phosphate/Na H2 phosphate pH 8.5
12	0.33% (v/v) MPD			0.66M (NH4)3 citrate/citric acid pH 4.5
13	1.65% (v/v) isopropanol			0.66M (NH4)3 citrate/citric acid pH 6.5
14	1.65% (v/v) PEG 400			0.66M (NH4)3 citrate/citric acid pH 7.5
15	0.66M lithium sulfate	1.65% (v/v) isopropanol	0.1M MgSO4	0.1M acetate pH 4.5
16	0.66M lithium sulfate	1.65% (v/v) PEG 400	0.1M MgSO4	0.1M acetate pH 5.5
17	0.66M lithium sulfate	2.64% (v/v) MPD		0.1M imidazole pH 6.5
18	0.66M lithium sulfate	0.66% (v/v) PEG 400		0.1M Tris base pH 8.5
19	0.33M lithium sulfate	4.95% (v/v) MPD	0.1M MgSO4	0.1M acetate pH 4.5
20	8.25% (v/v) MPD			0.2475M (NH4)3 citrate/citric acid pH 5.5
21	0.495M ammonium sulfate	3.96% (v/v) isopropanol		0.1M imidazole pH 6.5
22	0.429M NaCl	9.9% (v/v) isopropanol	0.1M CaCl2	0.1M imidazole pH 6.5
23	1.32M NaCl	3.3% (v/v) PEG 400		0.1M HEPES pH 7.5
24	6.6% (v/v) PEG 400			0.264M K2 H phosphate/Na H2 phosphate pH 7.5
25	4.95% (v/v) isopropanol			0.33M (NH4)3 citrate/ammonium hydroxide pH 8.5
26	0.66M sodium formate	4.95% (v/v) isopropanol	0.825% (w/v) PEG 3350	0.1M Tris base pH 8.5
27	9.9% (v/v) MPD	8.25% (w/v) PEG 1500		0.1M acetate pH 4.5
28	9.9% (v/v) MPD	4.95% (w/v) PEG 8000	0.1M CaCl2	0.1M acetate pH 5.5
29	9.9% (v/v) MPD	3.3% (w/v) PEG 3350	0.2M ammonium sulfate	0.1M imidazole pH 6.5
30	9.9% (v/v) MPD	1.32% (w/v) PEG 1500		0.1M HEPES pH 7.5
31	9.9% (v/v) MPD	2.64% (w/v) PEG 8000	0.5M NaCl	0.1M Tris base pH 8.5
32	9.9% (v/v) isopropanol	1.32% (w/v) PEG 3350	0.1M CaCl2	0.1M acetate pH 4.5
33	9.9% (v/v) isopropanol	3.3% (w/v) PEG 1500	0.2M lithium sulfate	0.1M acetate pH 5.5
34	13.2% (v/v) isopropanol	4.95% (w/v) PEG 8000		0.1M imidazole pH 6.5
35	6.6% (v/v) isopropanol	4.95% (w/v) PEG 3350		0.2M (NH4)3 citrate/citric acid pH 7.5
36	9.9% (v/v) isopropanol	9.9% (w/v) PEG 3350		0.1M Tris base pH 8.5
37	13.2% (v/v) PEG 400	6.6% (w/v) PEG 8000		0.1M acetate pH 4.5
38	13.2% (v/v) PEG 400	1.65% (w/v) PEG 3350		0.1M acetate pH 5.5
39	13.2% (v/v) PEG 400	4.95% (w/v) PEG 1000		0.15M K2 H phosphate/Na H2 phosphate pH 6.5
40	13.2% (v/v) PEG 400	2.64% (w/v) PEG 8000		0.1M HEPES pH 7.5
41	8.25% (v/v) PEG 400	6.6% (w/v) PEG 3350	0.1M MgCl2	0.1M Tris base pH 8.5
42	9.9% (w/v) PEG 1500	0.99% (v/v) MPD	0.2M MgSO4	0.1M acetate pH 5.5
43	9.9% (w/v) PEG 1500	3.3% (v/v) isopropanol	0.1M CaCl2	0.1M imidazole pH 6.5
44	9.9% (w/v) PEG 1500	6.6% (v/v) PEG 400		0.1M HEPES pH 7.5
45	9.9% (w/v) PEG 1500	2.64% (v/v) MPD		0.1M Tris base pH 8.5
46	8.25% (w/v) PEG 3350	4.95% (v/v) isopropanol		0.2M (NH4)3 citrate/citric acid pH 4.5
47	8.25% (w/v) PEG 3350	1.65% (v/v) PEG 400		0.1M acetate pH 5.5
48	8.25% (w/v) PEG 3350	4.95% (v/v) MPD	0.2M lithium sulfate	0.1M imidazole pH 6.5
49	8.25% (w/v) PEG 3350	1.32% (v/v) isopropanol	0.1M CaCl2	0.1M HEPES pH 7.5
50	6.6% (w/v) PEG 8000	3.3% (v/v) PEG 400	0.5M NaCl	0.1M acetate pH 5.5
51	6.6% (w/v) PEG 8000	0.99% (v/v) MPD		0.1M imidazole pH 6.5
52	6.6% (w/v) PEG 8000	3.3% (v/v) isopropanol	0.2M ammonium sulfate	0.1M HEPES pH 7.5
53	6.6% (w/v) PEG 8000	6.6% (v/v) PEG 400	0.1M MgCl2	0.1M Tris base pH 8.5
54	0.693M sodium formate	8.25% (w/v) PEG 3350	0.1M CaCl2	0.1M acetate pH 4.5
55	0.2475M ammonium sulfate	2.48 % (w/v) PEG 3350	1.65% (v/v) isopropanol	0.1M acetate pH 4.5
56	0.33% (w/v) PEG 4000			0.33M (NH4)3 citrate/citric acid pH 5.5
57	0.825M NaCl	3.96% (w/v) PEG 1500	0.495% (v/v) MPD	0.1M acetate pH 5.5
58	0.66M NaCl	6.6% (w/v) PEG 3350	0.1M MgCl2	0.1M imidazole pH 6.5
59	0.99M sodium formate	1.32% (w/v) PEG 8000		0.1M imidazole pH 6.5
60	0.17% (w/v) PEG 4000			0.33M K2 H phosphate/Na H2 phosphate pH 7.5
61	3.3% (w/v) PEG 3350			0.462M K2 H phosphate/Na H2 phosphate pH 7.5
62	0.66% (w/v) PEG 8000			0.264M (NH4)3 citrate/ammonium hydroxide pH 8.5
63	0.66M NaCl	1.65% (w/v) PEG 4000		0.1M Tris base pH 8.5
64	4.95% (w/v) PEG 8000			0.165M (NH4)3 citrate/ammonium hydroxide pH 8.5

Cryo™

Cryo™ I			
	crystallant	**buffer (0.1 M)**	**additive(s)**
1	40% (v/v) 2-methyl-2,4-pentanediol	phosphate-citrate pH 4.2	none
2	40% (v/v) ethylene glycol	acetate pH 4.5	none
3	50% (v/v) PEG 200	citrate pH 5.5	none
4	40% (v/v) PEG 300	HEPES pH 7.5	0.2 M NaCl
5	40% (v/v) PEG 400	citrate pH 5.5	0.2 M MgCl2
6	40% (v/v) PEG 600	cacodylate pH 6.5	0.2 M Ca(OAc)2
7	40% (v/v) ethanol	Tris pH 8.5	0.05 M MgCl2
8	35% (v/v) 2-ethoxyethanol	cacodylate pH 6.5	none
9	35% (v/v) 2-propanol	phosphate-citrate pH 4.2	none
10	45% (v/v) glycerol	imidazole pH 8.0	none
11	35% (v/v) 2-methyl-2,4-pentanediol	Tris pH 8.5	0.2 M (NH4)2SO4
12	50% (v/v) ethylene glycol	acetate pH 4.5	5% (w/v) PEG 1000
13	30% (v/v) PEG 200	MES pH 6.0	5% (w/v) PEG 3000
14	20% (v/v) PEG 300	phosphate-citrate pH 4.2	0.2 M (NH4)2SO4, 10% (v/v) glycerol
15	50% (v/v) PEG 400	CHES pH 9.5	0.2 M NaCl
16	30% (v/v) PEG 600	MES pH 6.0	5% (w/v) PEG 1000, 10% (v/v) glycerol
17	40% (v/v) 1,2-propanediol	HEPES pH 7.5	none
18	35% (v/v) 2-ethoxyethanol	imidazole pH 8.0	0.05 M Ca(OAc)2
19	35% (v/v) 2-propanol	Tris pH 8.5	none
20	30% (v/v) 1,2-propanediol	citrate pH 5.5	20% (v/v) 2-methyl-2,4-pentanediol
21	40% (v/v) 1,2-propanediol	acetate pH 4.5	0.05 M Ca(OAc)2
22	40% (v/v) ethylene glycol	Na/K phosphate pH 6.2	none
23	40% (v/v) 2-methyl-2,4-pentanediol	Tris pH 7.0	0.2 M (NH4)2SO4
24	40% (v/v) PEG 400	Na/K phosphate pH 6.2	0.2 M NaCl
25	30% (v/v) PEG 200	Tris pH 8.5	0.2 M (NH4)2HPO4
26	40% (v/v) PEG 300	CHES pH 9.5	0.2 M NaCl
27	30% (v/v) PEG 400	CAPS pH 10.5	0.5 M (NH4)2SO4, 10% (v/v) glycerol
28	30% (v/v) PEG 600	HEPES pH 7.5	0.05 M Li2SO4, 10% (v/v) glycerol
29	40% (v/v) PEG 300	CHES pH 9.5	0.2 M sodium citrate
30	35% (v/v) 2-ethoxyethanol	citrate pH 5.5	none
31	35% (v/v) 2-propanol	citrate pH 5.5	5% (w/v) PEG 1000
32	40% (v/v) 1,2-propanediol	CHES pH 9.5	0.2 M sodium citrate
33	25% (v/v) 1, 2-propanediol	imidazole pH 8.0	0.2 M Zn(OAc)2, 10% (v/v) glycerol
34	40% (v/v) 2-methyl-2,4-pentanediol	imidazole pH 8.0	0.2 M MgCl2
35	40% (v/v) ethylene glycol	HEPES pH 7.5	5% (w/v) PEG 3000
36	50% (v/v) PEG 200	Tris pH 7.0	0.05 M Li2SO4
37	40% (v/v) PEG 300	cacodylate pH 6.5	0.2 M Ca(OAc)2
38	40% (v/v) PEG 400	Tris pH 8.5	0.2 M Li2SO4
39	40% (v/v) PEG 600	phosphate-citrate pH 4.2	none
40	40% (v/v) ethanol	phosphate-citrate pH 4.2	5% (w/v) PEG 1000
41	25% (v/v) 1, 2-propanediol	phosphate-citrate pH 4.2	5% (w/v) PEG 3000, 10% (v/v) glycerol
42	40% (v/v) ethylene glycol	Tris pH 7.0	none
43	50% (v/v) ethylene glycol	Tris pH 8.5	0.2 M MgCl2
44	50% (v/v) PEG 200	cacodylate pH 6.5	0.2 M Zn(OAc)2
45	20% (v/v) PEG 300	Tris pH 8.5	5% (w/v) PEG 8000, 10% (v/v) glycerol
46	40% (v/v) PEG 400	MES pH 6.0	5% (w/v) PEG 3000
47	50% (v/v) PEG 400	acetate pH 4.5	0.2 M Li2SO4
48	40% (v/v) PEG 600	imidazole pH 8.0	0.2 M Zn(OAc)2

Cryo™ II			
	crystallant	**buffer (0.1 M)**	**additive(s)**
1	40% (v/v) 2-methyl-2,4-pentanediol	cacodylate pH 6.5	5% (w/v) PEG 8000
2	50% (v/v) PEG 200	CHES pH 9.5	none
3	40% (v/v) ethylene glycol	phosphate-citrate pH 4.2	0.2 M (NH4)2SO4
4	40% (v/v) PEG 400	HEPES pH 7.5	0.2 M Ca(OAc)2
5	40% (v/v) PEG 300	Tris pH 7.0	5% (w/v) PEG 1000
6	30% (v/v) PEG 600	cacodylate pH 6.5	1 M NaCl, 10% (v/v) glycerol
7	40% (v/v) ethanol	Tris pH 7.0	none
8	35% (v/v) 2-ethoxyethanol	Na/K phosphate pH 6.2	0.2 M NaCl
9	35% (v/v) 2-propanol	imidazole pH 8.0	0.05 M Zn(OAc)2
10	40% (v/v) 1,2-propanediol	acetate pH 4.5	none
11	25% (v/v) 1, 2-propanediol	Na/K phosphate pH 6.2	10% (v/v) glycerol
12	40% (v/v) 1,2-propanediol	citrate pH 5.5	0.2 M NaCl
13	35% (v/v) 2-methyl-2,4-pentanediol	cacodylate pH 6.5	0.05 M Zn(OAc)2
14	40% (v/v) ethylene glycol	imidazole pH 8.0	0.2 M Ca(OAc)2
15	50% (v/v) PEG 200	Na/K phosphate pH 6.2	0.2 M NaCl
16	20% (v/v) PEG 300	imidazole pH 8.0	1 M (NH4)2SO4, 10% (v/v) glycerol
17	50% (v/v) PEG 400	MES pH 6.0	none
18	40% (v/v) PEG 300	phosphate-citrate pH 4.2	none
19	40% (v/v) PEG 600	acetate pH 4.5	0.2 M MgCl2
20	50% (v/v) ethylene glycol	CHES pH 9.5	0.5 M K/Na tartrate
21	35% (v/v) 2-ethoxyethanol	Tris pH 8.5	0.2 M Li2SO4
22	35% (v/v) 2-propanol	cacodylate pH 6.5	0.2 M MgCl2
23	30% (v/v) 1,2-propanediol	HEPES pH 7.5	20% (v/v) PEG 400
24	25% (v/v) 1, 2-propanediol	Tris pH 8.5	0.2 M MgCl2, 10% (v/v) glycerol
25	40% (v/v) 2-methyl-2,4-pentanediol	CAPS pH 10.5	none
26	40% (v/v) ethylene glycol	MES pH 6.0	0.2 M Zn(OAc)2
27	50% (v/v) PEG 200	Tris pH 7.0	none
28	40% (v/v) PEG 300	imidazole pH 8.0	0.2 M Zn(OAc)2
29	30% (v/v) PEG 400	HEPES pH 7.5	5% (w/v) PEG 3000, 10% (v/v) glycerol
30	40% (v/v) PEG 600	citrate pH 5.5	none
31	40% (v/v) PEG 600	CHES pH 9.5	none
32	35% (v/v) 2-propanol	acetate pH 4.5	none
33	45% (v/v) glycerol	cacodylate pH 6.5	0.2 M Ca(OAc)2
34	25% (v/v) 1, 2-propanediol	Tris pH 7.0	0.2 M (NH4)2SO4, 10% (v/v) glycerol
35	40% (v/v) 2-methyl-2,4-pentanediol	citrate pH 5.5	none
36	50% (v/v) PEG 200	cacodylate pH 6.5	0.2 M MgCl2
37	50% (v/v) ethylene glycol	imidazole pH 8.0	none
38	40% (v/v) PEG 400	acetate pH 4.5	none
39	30% (v/v) PEG 600	Tris pH 7.0	0.5 M (NH4)2SO4, 10% (v/v) glycerol
40	40% (v/v) 2-methyl-2,4-pentanediol	CHES pH 9.5	none
41	50% (v/v) ethylene glycol	HEPES pH 7.5	0.2 M Li2SO4
42	30% (v/v) PEG 200	acetate pH 4.5	0.1 M NaCl
43	40% (v/v) PEG 400	imidazole pH 8.0	none
44	35% (v/v) 2-methyl-2,4-pentanediol	acetate pH 4.5	10% (v/v) glycerol
45	40% (v/v) PEG 300	acetate pH 4.5	0.2 M NaCl
46	30% (v/v) PEG 200	CAPS pH 10.5	0.2 M (NH4)2SO4
47	50% (v/v) PEG 200	HEPES pH 7.5	none
48	50% (v/v) PEG 200	phosphate-citrate pH 4.2	0.2 M NaCl

Cubic™

	crystallant	buffer (0.1 M)	salt (0.2 M)
1	10% (v/v) 2-propanol	Tris pH 7.0	Zn(OAc)2
2	10% (v/v) 2-propanol	acetate pH 4.5	Ca(OAc)2
3	10% (v/v) 2-propanol	citrate pH 5.5	Li2SO4
4	10% (v/v) 2-propanol	Tris pH 7.0	Ca(OAc)2
5	10% (v/v) 2-propanol	acetate pH 4.5	NaCl
6	10% (v/v) 2-propanol	citrate pH 5.5	MgCl2
7	10% (w/v) PEG 8000	HEPES pH 7.5	NaCl
8	10% (w/v) PEG 8000	MES pH 6.0	Zn(OAc)2
9	10% (w/v) PEG 8000	Na/K phosphate pH 6.2	Li2SO4
10	10% (w/v) PEG 8000	acetate pH 4.5	Ca(OAc)2
11	10% (w/v) PEG 8000	Tris pH 8.5	MgCl2
12	10% (w/v) PEG 8000	cacodylate pH 6.5	NaCl
13	10% (w/v) PEG 8000	citrate pH 5.5	Li2SO4
14	10% (w/v) PEG 8000	HEPES pH 7.5	MgCl2
15	20% (w/v) PEG 2000 MME	HEPES pH 7.5	NaCl
16	20% (w/v) PEG 2000 MME	MES pH 6.0	Zn(OAc)2
17	20% (w/v) PEG 2000 MME	Na/K phosphate pH 6.2	Li2SO4
18	20% (w/v) PEG 2000 MME	acetate pH 4.5	Ca(OAc)2
19	20% (w/v) PEG 2000 MME	Tris pH 8.5	MgCl2
20	20% (w/v) PEG 2000 MME	cacodylate pH 6.5	Li2SO4
21	20% (w/v) PEG 2000 MME	HEPES pH 7.5	Li2SO4
22	20% (v/v) 1,4-butanediol	Tris pH 8.5	Li2SO4
23	20% (v/v) 1,4-butanediol	cacodylate pH 6.5	Ca(OAc)2
24	20% (v/v) 1,4-butanediol	citrate pH 5.5	MgCl2
25	20% (v/v) 1,4-butanediol	Tris pH 7.0	Zn(OAc)2
26	20% (v/v) 1,4-butanediol	Tris pH 8.5	MgCl2
27	20% (v/v) 1,4-butanediol	citrate pH 5.5	NaCl
28	20% (w/v) PEG 1000	HEPES pH 7.5	NaCl
29	20% (w/v) PEG 1000	MES pH 6.0	Zn(OAc)2
30	20% (w/v) PEG 1000	Tris pH 7.0	Li2SO4
31	20% (w/v) PEG 1000	HEPES pH 7.5	MgCl2
32	20% (w/v) PEG 1000	MES pH 6.0	NaCl
33	2.5 M NaCl	HEPES pH 7.5	
34	2.5 M NaCl	MES pH 6.0	Zn(OAc)2
35	2.5 M NaCl	Tris pH 8.5	Li2SO4
36	2.5 M NaCl	cacodylate pH 6.5	Ca(OAc)2
37	2.5 M NaCl	citrate pH 5.5	MgCl2
38	2.5 M NaCl	cacodylate pH 6.5	Li2SO4
39	30% (w/v) PEG 400	Tris pH 7.0	Zn(OAc)2
40	30% (w/v) PEG 400	Imidazole pH 8.0	Li2SO4
41	30% (w/v) PEG 400	citrate pH 5.5	MgCl2
42	30% (w/v) PEG 400	citrate pH 5.5	Li2SO4
43	30% (w/v) PEG 400	Imidazole pH 8.0	Zn(OAc)2
44	30% (w/v) PEG 400	Tris pH 7.0	NaCl
45	15% (v/v) Ethanol	Na/K phosphate pH 6.2	NaCl
46	15% (v/v) Ethanol	acetate pH 4.5	Zn(OAc)2
47	15% (v/v) Ethanol	cacodylate pH 6.5	Ca(OAc)2
48	15% (v/v) Ethanol	acetate pH 4.5	MgCl2

	crystallant	buffer (0.1 M)	salt (0.2 M)
49	15% (v/v) Ethanol	cacodylate pH 6.5	NaCl
50	10% (w/v) PEG 3000	HEPES pH 7.5	NaCl
51	10% (w/v) PEG 3000	MES pH 6.0	Zn(OAc)2
52	10% (w/v) PEG 3000	Tris pH 8.5	Ca(OAc)2
53	10% (w/v) PEG 3000	citrate pH 5.5	MgCl2
54	10% (w/v) PEG 3000	Tris pH 8.5	Li2SO4
55	10% (w/v) PEG 3000	MES pH 6.0	Li2SO4
56	1.0 M (NH4)2HPO4	HEPES pH 7.5	NaCl
57	1.0 M (NH4)2HPO4	cacodylate pH 6.5	NaCl
58	1.26 M (NH4)2SO4	Na/K phosphate pH 6.2	Li2SO4
59	1.26 M (NH4)2SO4	Tris pH 7.0	MgCl2
60	1.26 M (NH4)2SO4	Imidazole pH 8.0	Li2SO4
61	1.26 M (NH4)2SO4	citrate pH 5.5	NaCl
62	20% (w/v) PEG 8000	HEPES pH 7.5	NaCl
63	20% (w/v) PEG 8000	Tris pH 7.0	Zn(OAc)2
64	20% (w/v) PEG 8000	Imidazole pH 8.0	Li2SO4
65	20% (w/v) PEG 8000	acetate pH 4.5	MgCl2
66	20% (w/v) PEG 8000	cacodylate pH 6.5	NaCl
67	20% (w/v) PEG 8000	Tris pH 7.0	MgCl2
68	1.0 M Sodium citrate	HEPES pH 7.5	NaCl
69	1.0 M Sodium citrate	MES pH 6.0	Zn(OAc)2
70	1.0 M Sodium citrate	Imidazole pH 8.0	Li2SO4
71	1.0 M Sodium citrate	acetate pH 4.5	MgCl2
72	1.0 M Sodium citrate	Tris pH 8.5	Li2SO4
73	1.0 M Sodium citrate	MES pH 6.0	MgCl2
74	10% (v/v) 2-propanol	acetate pH 4.5	Li2SO4
75	10% (v/v) 2-propanol	citrate pH 5.5	NaCl
76	10% (w/v) PEG 8000	acetate pH 4.5	MgCl2
77	10% (w/v) PEG 8000	Tris pH 8.5	NaCl
78	20% (w/v) PEG 2000 MME	acetate pH 4.5	Zn(OAc)2
79	20% (w/v) PEG 2000 MME	Tris pH 8.5	Li2SO4
80	20% (v/v) 1,4-butanediol	Tris pH 8.5	NaCl
81	20% (v/v) 1,4-butanediol	cacodylate pH 6.5	Li2SO4
82	20% (w/v) PEG 1000	HEPES pH 7.5	Li2SO4
83	20% (w/v) PEG 1000	MES pH 6.0	MgCl2
84	2.5 M NaCl	MES pH 6.0	Li2SO4
85	30% (w/v) PEG 8000	Tris pH 8.5	Li2SO4
86	30% (w/v) PEG 8000	cacodylate pH 6.5	Ca(OAc)2
87	30% (w/v) PEG 400	MES pH 6.0	MgCl2
88	30% (w/v) PEG 400	Tris pH 7.0	Li2SO4
89	10% (w/v) PEG 3000	HEPES pH 7.5	Li2SO4
90	10% (w/v) PEG 3000	MES pH 6.0	MgCl2
91	1.0 M Sodium citrate	Imidazole pH 8.0	MgCl2
92	1.0 M Sodium citrate	Tris pH 8.5	NaCl
93	2.5M Sodium Malonate	Tris pH 7.0	
94	2.5M Sodium Malonate	acetate pH 4.5	
95	2.5M Sodium Malonate	Tris pH 8.5	
96	2.5M Sodium Malonate	Imidazole pH 8.0	

Microlytic Screens

Smart Screen

MLS-1	Pos	% w/v	Polymer	M	Salt	pH	M	Buffer	Conc	Additive
1	A1	50	PEG 400	0,2	Lithium sulfate	5,1	0,1	Sodium acetate (H2O)3		
2	A2	30	PEG 4000	0,2	Magnesium chloride	8,5	0,1	TRIS		
3	B1	20	PEG 3000			5,5	0,1	Sodium citrate		
4	B2	30	PEG 4000	0,2	Ammonium acetate	4,6	0,1	Sodium acetate (H2O)3		
5	C1	20	PEG 3350			5	0,2	Ammonium citrate		
6	C2	20	PEG 8000	0,2	Magnesium acetate (H2O)4	6,5	0,1	Sodium cacodylate (H20)3		
7	D1	20	PEG 6000	1	Lithium chloride	4	0,1	Citric acid		
8	D2			1,4	Sodium citrate tribasic (H2O)2	7,5	0,1	HEPES		
9	E1	20	PEG 3350			5,9	0,2	Magnesium formate		
10	E2	2	PEG 400	2	Ammonium sulfate	7,5	0,1	HEPES		
11	F1	20	PEG 1000	0,2	Lithium sulfate	4,2	0,1	Citric acid		
12	F2	30	PEG 1500							
13	G1	20	PEG 8000			9,5	0,1	CHES		
14	G2			2	Ammonium sulfate	8,5	0,1	TRIS		
15	H1	20	PEG 3350			6,6	0,2	Ammonium formate		
16	H2	30	PEG 4000	0,2	Lithium sulfate	8,5	0,1	TRIS		
17	A6	20	PEG 3350			6,3	0,2	Ammonium chloride		
18	A7	30	PEG 8000	0,2	Ammonium sulfate					
19	B6	20	PEG 3350			7,3	0,2	Potassium formate		
20	B7	8	PEG 8000			8,5	0,1	TRIS		
21	C6			0,2	Ammonium phosphate monobasic	8,5	0,1	TRIS	50% v/v	MPD
22	C7	20	PEG 4000			7,5	0,1	HEPES	10% v/v	2-propanol
23	D6	20	PEG 3350			6,9	0,2	Potassium nitrate		
24	D7	18	PEG 8000	0,2	Zinc acetate (H2O)2	6,5	0,1	Sodium cacodylate (H20)3		
25	E6			0,8	Ammonium sulfate	4	0,1	Citric acid		
26	E7			0,02	Calcium chloride	4,6	0,1	Sodium acetate (H2O)3	30 % v/v	MPD
27	F6	20	PEG 3350			6,9	0,2	Sodium thiocyanate		
28	F7			1	Ammonium phosphate monobasic	5,6	0,1	Sodium citrate		
29	G6	20	PEG 6000			9	0,1	Bicine		
30	G7	30	PEG 400	0,2	Sodium citrate tribasic (H2O)2	8,5	0,1	TRIS		
31	H6	10	PEG 8000			7,5	0,1	HEPES	8% v/v	ethylene glycol
32	H7	28	PEG 400	0,2	Calcium chloride	7,5	0,1	HEPES		
33	A11	5	PEG 8000			7	0,1	Sodium cacodylate (H20)3	40% v/v	MPD
34	A12			1,5	Lithium sulfate	7,5	0,1	HEPES		
35	B11	5	PEG 1000			5,2	0,1	Citric acid	40% v/v	Ethanol
36	B12	25	PEG 4000	0,2	Ammonium sulfate	4,6	0,1	Sodium acetate (H2O)3		
37	C11	8	PEG 4000			4,6	0,1	Sodium acetate (H2O)3		
38	C12			0,2	Magnesium acetate (H2O)4	6,5	0,1	Sodium cacodylate (H20)3	30% v/v	MPD
39	D11	10	PEG 8000	0,2	Magnesium chloride	7	0,1	TRIS		
40	D12	30	PEG 8000	0,2	Sodium acetate (H2O)3	6,5	0,1	Sodium cacodylate (H20)3		
41	E11	20	PEG 6000			5	0,1	Citric acid		
42	E12			4	Sodium formate					
43	F11	50	PEG 200	0,2	Magnesium chloride	6,6	0,1	Sodium cacodylate (H20)3		
44	F12			2	Sodium formate	4,6	0,1	Sodium acetate (H2O)3		
45	G11					6,5	1,6	Sodium citrate		
46	G12			0,8	Sodium phosphate monobasic (H2O)	7,5	0,1	HEPES	0.8 M	Potassium phosphate monobasic
47	H11	20	PEG 3350			8,3	0,2	Tripotassium citrate monohydrate		
48	H12	20	PEG 8000	0,05	Potassium phosphate monobasic					

PurePEGs

MLY#	Position	Composition	Final pH
1	A1	0.3 M Ammonium chloride , 0.1 M Citric acid , 22.5% PurePEGs PEG 0.3-8 kD	4
2	A2	0.3 M Ammonium formate , 0.1 M Potassium nitrate, 22.5% PurePEGs PEG 0.3-8 kD	6.6
3	B1	0.3 M Ammonium nitrate , 0.1 M Sodium citrate tribasic dihydrate , 22.5% PurePEGs PEG 0.3-8 kD	5.9
4	B2	0.3 M Ammonium phosphate monobasic, 0.1 M MES monohydrate , 22.5% PurePEGs PEG 0.3-8 kD	5.7
5	C1	0.3 M Ammonium sulfate , 0.1 M BIS-TRIS , 22.5% PurePEGs PEG 0.3-8 kD	6.8
6	C2	0.3 M Di-ammonium tartrate , 0.1 M Sodium acetate trihydrate , 22.5% PurePEGs PEG 0.3-8 kD	5.8
7	D1	0.3 M Cadmium chloride , 0.1 M Sodium acetate trihydrate , 22.5% PurePEGs PEG 0.3-8 kD	3.7
8	D2	0.3 M Cadmium sulfate , 0.1 M Imidazole , 22.5% PurePEGs PEG 0.3-8 kD	4.6
9	E1	0.3 M Caesium chloride, 0.1 M HEPES , 22.5% PurePEGs PEG 0.3-8 kD	7.6
10	E2	0.3 M Calcium acetate, 0.1 M BICINE , 22.5% PurePEGs PEG 0.3-8 kD	6.4
11	F1	0.3 M Calcium chloride, 0.1 M BIS-TRIS propane , 22.5% PurePEGs PEG 0.3-8 kD	8.5
12	F2	0.3 M Cobalt(II) chloride hexahydrate, 0.1 M Ammonium citrate, 22.5% PurePEGs PEG 0.3-8 kD	3.2
13	G1	0.3 M Di-ammonium hydrogen citrate , 0.1 M Magnesium formate, 22.5% PurePEGs PEG 0.3-8 kD	4.9
14	G2	0.3 M DL- malic acid, 0.1 M Sodium cacodylate trihydrate, 22.5% PurePEGs PEG 0.3-8 kD	2.9
15	H1	0.3 M Iron(III) chloride hexahydrate, 0.1 M Potassium nitrate, 22.5% PurePEGs PEG 0.3-8 kD	1.1
16	H2	0.3 M Lithium chloride, 0.1 M Potassium formate, 22.5% PurePEGs PEG 0.3-8 kD	6.3
17	A6	0.3 M Lithium sulfate monohydrate, 0.1 M CHES, 22.5% PurePEGs PEG 0.3-8 kD	9.5
18	A7	0.3 M Magnesium acetate tetrahydrate, 0.1 M Citric acid , 22.5% PurePEGs PEG 0.3-8 kD	4.7
19	B6	0.3 M Magnesium chloride hexahydrate, 0.1 M Sodium cacodylate trihydrate, 22.5% PurePEGs PEG 0.3-8 kD	5.8
20	B7	0.3 M Magnesium nitrate hexahydrate, 0.1 M HEPES , 22.5% PurePEGs PEG 0.3-8 kD	7.4
21	C6	0.3 M Magnesium sulfate heptahydrate, 0.1 M Potassium formate, 22.5% PurePEGs PEG 0.3-8 kD	6.1
22	C7	0.3 M Nickel(II) chloride hexahydrate, 0.1 M MES monohydrate , 22.5% PurePEGs PEG 0.3-8 kD	5.7
23	D6	0.3 M Potassium bromide, 0.1 M BIS-TRIS , 22.5% PurePEGs PEG 0.3-8 kD	6.6
24	D7	0.3 M Potassium phosphate monobasic, 0.1 M Tris , 22.5% PurePEGs PEG 0.3-8 kD	6.1
25	E6	0.3 M Potassium sodium tartrate tetrahydrate, 0.1 M BICINE , 22.5% PurePEGs PEG 0.3-8 kD	8.8
26	E7	0.3 M Potassium tartrate, 0.1 M Imidazole , 22.5% PurePEGs PEG 0.3-8 kD	7.3
27	F6	0.3 M Potassium thiocyanate, 0.1 M Ammonium citrate, 22.5% PurePEGs PEG 0.3-8 kD	5.8
28	F7	0.3 M Sodium bromide, 0.1 M Sodium cacodylate trihydrate, 22.5% PurePEGs PEG 0.3-8 kD	6.5
29	G6	0.3 M Sodium chloride, 0.1 M Tris , 22.5% PurePEGs PEG 0.3-8 kD	8.1
30	G7	0.3 M Sodium fluoride, 0.1 M CHES, 22.5% PurePEGs PEG 0.3-8 kD	9.6
31	H6	0.3 M Sodium formate, 0.1 M Citric acid , 22.5% PurePEGs PEG 0.3-8 kD	4.5
32	H7	0.3 M Sodium iodide, 0.1 M Sodium acetate trihydrate , 22.5% PurePEGs PEG 0.3-8 kD	4.7
33	A11	0.3 M Sodium malonate, 0.1 M Sodium citrate tribasic dihydrate , 22.5% PurePEGs PEG 0.3-8 kD	6.8
34	A12	0.3 M Sodium nitrate, 0.1 M MES monohydrate , 22.5% PurePEGs PEG 0.3-8 kD	6.1
35	B11	0.3 M Sodium phosphate monobasic monohydrate, 0.1 M BIS-TRIS , 22.5% PurePEGs PEG 0.3-8 kD	5.8
36	B12	0.3 M Sodium sulfate, 0.1 M BIS-TRIS propane , 22.5% PurePEGs PEG 0.3-8 kD	9.3
37	C11	0.3 M Sodium thiocyanate , 0.1 M HEPES , 22.5% PurePEGs PEG 0.3-8 kD	7.8
38	C12	0.3 M Succinic acid , 0.1 M Imidazole , 22.5% PurePEGs PEG 0.3-8 kD	3.4
39	D11	0.3 M Tri-methylamine N-oxide, 0.1 M BICINE , 22.5% PurePEGs PEG 0.3-8 kD	8.6
40	D12	0.3 M Tri-potassium citrate , 0.1 M BIS-TRIS propane , 22.5% PurePEGs PEG 0.3-8 kD	9.8
41	E11	10 % Jeffamine M-600, 0.1 M HEPES , 22.5% PurePEGs PEG 0.3-8 kD	7.5
42	E12	0.3 M Zinc chloride, 0.1 M Magnesium formate, 22.5% PurePEGs PEG 0.3-8 kD	5.7
43	F11	0.3 M Zinc sulfate heptahydrate, 0.1 M Sodium citrate tribasic dihydrate , 22.5% PurePEGs PEG 0.3-8 kD	4
44	F12	0.1 M CHES, 22.5% PurePEGs PEG 0.3-8 kD	9.9
45	G11	0.1 M Imidazole , 22.5% PurePEGs PEG 0.3-8 kD	6.6
46	G12	0.1 M Magnesium formate, 22.5% PurePEGs PEG 0.3-8 kD	5.9
47	H11	0.1 M Sodium acetate trihydrate , 22.5% PurePEGs PEG 0.3-8 kD	4.7
48	H12	0.1 M Tris , 22.5% PurePEGs PEG 0.3-8 kD	8.1

JBS Optimization Screens and Reagents

JBS Solubility Kit

Buffer Kit		
No.	**Buffer**	**pH**
1	Glycine	3.0
2	Citric Acid	3.2
3	PIPPS	3.7
4	Citric Acid	4.0
5	Sodium Acetate	4.5
6	Sodium / Potassium Phosphate	5.0
7	Sodium Citrate	5.5
8	Sodium / Potassium Phosphate	6.0
9	Bis-Tris	6.0
10	MES	6.2
11	ADA	6.5
12	Bis-Tris Propane	6.5
13	Ammonium Acetate	7.0
14	MOPS	7.0
15	Sodium / Potassium Phosphate	7.0
16	HEPES	7.5
17	Tris	7.5
18	EPPS	8.0
19	Imidazole	8.0
20	Bicine	8.5
21	Tris	8.5
22	CHES	9.0
23	CHES	9.5
24	CAPS	10.0

Additive Kit		
No.	**Additive**	**Concentrated Stock Solution**
1	Sodium Chloride	80 mM
2	Sodium Chloride	200 mM
3	Sodium Chloride	400 mM
4	Glycerol	20%
5	Glycerol	40%
6	CHAPS	8 mM
7	Octyl Glucopyranoside	0.4 %
8	Octyl Glucopyranoside	4%
9	Dodecyl Maltoside	0.4 %
10	Dodecyl Maltoside	4%
11	BME	40 mM
12	DTT	4 mM
13	DTT	20 mM
14	TCEP	120 mM

JBScreen pH-2D

No	Buffer composition	Ratio	pH low	pH high
1	Succinic Acid : Sodium dihydrogen Phosphate : Glycine	2:7:7	4.0	10.0
2	Citric acid : HEPES : CHES	2:3:4	4.0	10.0
3	Malonic Acid : Imidazole : Boric Acid	2:3:3	4.0	10.0
4	Sodium Acetate : ADA : Bicine	1:1:1	4.0	9.0
5	L-Malic Acid : MES : Tris	1:2:2	4.0	9.0
6	Sodium Tartrate dihydrate : Bis-Tris : Glycylglycine	3:2:2	4.0	9.0

JBScreen Plus

JBScreen Kosmotropic			
bulk	**HTS**	**Compound**	**Classification**
A 1	A1	1.0 M Trimethylamine N-oxide	Zwitterion
A 2	A2	1.0 M Proline	Zwitterion
A 3	A3	0.1 M Ectoine	Zwitterion
A 4	A4	1.0 M Glycine	Zwitterion
A 5	A5	0.1 M Betaine monohydrate	Zwitterion
A 6	A6	0.1 M Taurine	Zwitterion
B 1	A7	2.0 M Glycerol	Polyalcohol
B 2	A8	2.0 M Erythritol	Polyalcohol
B 3	A9	2.0 M Xylitol	Polyalcohol
B 4	A10	2.0 M Adonitol	Polyalcohol
B 5	A11	0.8 M Mannitol	Polyalcohol
B 6	A12	1.0 M Sorbitol	Polyalcohol
C 1	B1	0.2 M Aluminium Chloride	Kosmotropic Cation
C 2	B2	0.2 M Magnesium Chloride	Kosmotropic Cation
C 3	B3	0.2 M Calcium Chloride	Kosmotropic Cation
C 4	B4	2.0 M Lithium Chloride	Kosmotropic Cation
C 5	B5	1.0 M Manganese (II) Chloride	Kosmotropic Cation
C 6	B6	1.0 M Zinc Chloride	Kosmotropic Cation
D 1	B7	2.0 M Sodium Malonate	Kosmotropic Anion
D 2	B8	2.0 M Sodium Citrate	Kosmotropic Anion
D 3	B9	2.0 M Sodium Fluoride	Kosmotropic Anion
D 4	B10	2.0 M Ammonium Sulfate	Kosmotropic Anion
D 5	B11	1.0 M Ammonium Phosphate dibasic	Kosmotropic Anion
D 6	B12	1.0 M Ammonium Formate	Kosmotropic Anion

JBScreen Chaotropic			
bulk	**HTS**	**Compound**	**Classification**
A 1	C1	1.0 M Urea	Non-ionic
A 2	C2	4.0 M DMSO	Non-ionic
A 3	C3	4.0 M DMF	Non-ionic
A 4	C4	1.0 M Pyridine	Non-ionic
A 5	C5	0.5 M ε-Caprolactam	Non-ionic
A 6	C6	0.1 M Phenol	Non-ionic
B 1	C7	2.0 M Trimethylammonium Chloride	Chaotropic Cation
B 2	C8	2.0.M Guanidinium Chloride	Chaotropic Cation
B 3	C9	2.0 M Tetramethylammonium Chloride	Chaotropic Cation
B 4	C10	1.0 M Cesium Chloride	Chaotropic Cation
B 5	C11	1.0 M Rubidium Chloride	Chaotropic Cation
B 6	C12	1.0 M Potassium Chloride	Chaotropic Cation
C 1	D1	2.0 M Potassium Thiocyanate	Chaotropic Anion
C 2	D2	2.0 M Potassium Cyanate	Chaotropic Anion
C 3	D3	1.0 M Potassium Nitrate	Chaotropic Anion
C 4	D4	1.0 M Potassium Acetate	Chaotropic Anion
C 5	D5	1.0 M Potassium Iodide	Chaotropic Anion
C 6	D6	1.0 M Potassium Bromide	Chaotropic Anion
D 1	D7	2.0 M Sodium trichloroacetate	Chaotropic Anion
D 2	D8	2.0 M Sodium Thiocyanate	Chaotropic Anion
D 3	D9	2.0 M Sodium Perchlorate	Chaotropic Anion
D 4	D10	2.0 M Sodium Nitrate	Chaotropic Anion
D 5	D11	1.0 M Sodium Iodide	Chaotropic Anion
D 6	D12	2.0 M Sodium Bromide	Chaotropic Anion

JBScreen Plus Salts			
bulk	**HTS**	**Compound**	**Classification**
A 1	E1	1.0 M Lithium Citrate	Lithium Salt
A 2	E2	2.0 M Lithium Acetate	Lithium Salt
A 3	E3	2.0 M Lithium Bromide	Lithium Salt
A 4	E4	2.0 M Lithium Salicylate	Lithium Salt
A 5	E5	2.0 M Lithium Nitrate	Lithium Salt
A 6	E6	2.0 M Lithium Perchlorate	Lithium Salt
B 1	E7	2.0 M Ammonium Fluoride	Ammonium Salt
B 2	E8	2.0 M Ammonium Chloride	Ammonium Salt
B 3	E9	2.0 M Ammonium Bromide	Ammonium Salt
B 4	E10	2.0 M Ammonium Nitrate	Ammonium Salt
B 5	E11	2.0 M Ammonium Thiocyanate	Ammonium Salt
B 6	E12	2.0 M Ammonium Trifluoroacetate	Ammonium Salt
C 1	F1	2.0 M Ammonium Tartrate dibasic	Ammonium Salt
C 2	F2	0.7 M Potassium Sulfate	Sulfate
C 3	F3	2.0 M Sodium Sulfate	Sulfate
C 4	F4	2.0 M Lithium Sulfate	Sulfate
C 5	F5	2.0 M Magnesium Sulfate	Sulfate
C 6	F6	1.0 M Beryllium Sulfate	Sulfate
D 1	F7	0.1 M Barium Chloride	Multivalent Cation
D 2	F8	0.1. M Strontium Chloride	Multivalent Cation
D 3	F9	0.1 M Cadmium Chloride	Multivalent Cation
D 4	F10	0.1 M Cobalt (II) Chloride	Multivalent Cation
D 5	F11	0.1 M Copper (II) Chloride	Multivalent Cation
D 6	F12	0.1. M Yttrium (III) Chloride	Multivalent Cation

JBScreen Additives			
bulk	**HTS**	**Compound**	**Classification**
A 1	G1	2.0 M 6-Aminocaproic Acid	Linker Molecule
A 2	G2	2.0 M Ethanolamine	Linker Molecule
A 3	G3	2.0 M 1,6-Diaminohexane	Linker Molecule
A 4	G4	2.0 M 1,8-Diaminooctane	Linker Molecule
A 5	G5	1.0 M 1,2,3-Hexanetriol	Polyalcohol
A 6	G6	0.1 M Spermidine trihydrochloride	Polyamine
B 1	G7	0.5 M PPG 400	Organic Hydrophilic Polymer
B 2	G8	1.0 M PEG 200	Organic Hydrophilic Polymer
B 3	G9	0.5 M PEG 600	Organic Hydrophilic Polymer
B 4	G10	0.02 M Dextran Sulfate	Organic Hydrophilic Polymer
B 5	G11	1 % w/v Polyvinyl Alcohol	Organic Hydrophilic Polymer
B 6	G12	5 % w/v Polyvinylpyrrolidone K15	Organic Hydrophilic Polymer
C 1	H1	1.0 M D,L-Fructose	Carbohydrate
C 2	H2	1.0 M D,L-Glucose	Carbohydrate
C 3	H3	1.0 M D,L-Mannose	Carbohydrate
C 4	H4	0.6 M Lactose	Carbohydrate
C 5	H5	1.0 M Sucrose	Carbohydrate
C 6	H6	1.0 M Trehalose	Carbohydrate
D 1	H7	0.1 M DTT	Reducing Agent
D 2	H8	0.1 M L-Cysteine	Reducing Agent
D 3	H9	0.1 M EDTA Sodium Salt	Chelator
D 4	H10	0.1 M ATP disodium Salt	Co-factor
D 5	H11	1.0 M Benzamidine Hydrochloride	Amphiphilic Molecule
D 6	H12	0.3 M Glycyl-glycyl-glycine	Amphiphilic Molecule

JBScreen Volatiles			
bulk	**HTS**	**Compound**	**Classification**
A 1	-	10.0 M Methanol	Small Alcohol
A 2	-	5 0 M Ethanol	Small Alcohol
A 3	-	5.0 M 2-Propanol	Small Alcohol
A 4	-	5.0 M 1-Propanol	Small Alcohol
A 5	-	1.0 M 1-Butanol	Small Alcohol
A 6	-	5.0 M tert-Butanol	Small Alcohol
B 1	-	5.0 M Ethylene Glycol	Small Alcohol
B 2	-	5.0 M 1,3-Propandiol	Small Alcohol
B 3	-	4.0 M 1,4-Butanediol	Small Alcohol
B 4	-	4.0 M 1,2-Butanediol	Small Alcohol
B 5	-	4.0 M 2,2,2-Trifluoroethanol	Small Alcohol
B 6	-	2.0 M Hexafluoro-2-propanol	Small Alcohol
C 1	-	4.0 M γ-Butyrolactone	Non-ionic Chaotrope
C 2	-	10.0 M Acetonitrile	Non-ionic Chaotrope
C 3	-	1.5 M Propionitrile	Non-ionic Chaotrope
C 4	-	0.4 M tert-Butyl Methyl Ether	Non-ionic Chaotrope
C 5	-	4.0 M Dioxane	Non-ionic Chaotrope
C 6	-	4.0 M Tetrahydrofurane	Non-ionic Chaotrope
D 1	-	5.0 M Acetone	Organic Volatile
D 2	-	2.5 M Ethyl Methyl Ketone	Organic Volatile
D 3	-	1.0 M 3-Pentanone	Organic Volatile
D 4	-	0.5 M Methyl Acetate	Organic Volatile
D 5	-	0.3 M Ethyl Acetate	Organic Volatile
D 6	-	0.05 M Dichloromethane	Organic Volatile

JBScreen Detergents

JBScreen Detergents 1				
No.	**Detergent**	**CMC(mM)**	**conc. stock solution (mM)(5 or 10 x CMC)**	**Amount**
D 1-1	3-(N,N-Dimethylpalmitylammonio)propane-sulfonate (ZWITTERGENT® 3-16)	0.06	0.6	100 µl
D 1-2	Nonaethylene glycol monododecyl ether (C12E9)	0.08	0.8	100 µl
D 1-3	Octaethylene glycol monododecyl ether (C12E8)	0.11	1.1	100 µl
D 1-4	Dodecyl-β-D-glucopyranoside	0.13	1.3	100 µl
D 1-5	3-(N,N-Dimethylmyristylammonio)propane-sulfonate (ZWITTERGENT® 3-14)	0.4	4	100 µl
D 1-6	Dodecyl-β-D-maltoside	0.6	6	100 µl
D 1-7	Decyl-β-D-maltopyranoside	1.8	18	100 µl
D 1-8	N,N-Dimethyldodecylamine N-oxide (LDAO)	2.0	20	100 µl
D 1-9	3-(Dodecyldimethylammonio)propane-sulfonate (ZWITTERGENT® 3-12)	4.0	40	100 µl
D 1-10	Nonyl-β-D-glucopyranoside	6.5	65	100 µl
D 1-11	N-Decanoyl-N-methylglucamine(MEGA-10)	7.0	70	100 µl
D 1-12	Tetraethylene glycol monooctyl ether (C8E4)	7.0	70	100 µl

JBScreen Detergents 2				
No.	**Detergent**	**CMC(mM)**	**conc. Stock solution (mM)(5 or 10 x CMC)**	**Amount**
D 2-1	Pentaethylene glycol monooctyl ether (C8E5)	7.1	71	100 µl
D 2-2	3-[(3-Cholamidopropyl)dimethylammonio]-1-propanesulfonate (CHAPS)	8.0	80	100 µl
D 2-3	3-[(3-Cholamidopropyl)dimethylammonio]-2-hydroxy-1-propanesulfonate (CHAPSO)	8.0	80	100 µl
D 2-4	Pentaethylene glycol monodecyl ether (C10E5)	0.81	8.1	100 µl
D 2-5	N,N-Dimethyldecylamine-N-oxide (DDAO)	10.4	104	100 µl
D 2-6	Octyl-β-D-glucopyranoside	25	250	100 µl
D 2-7	N-Nonanoyl-N-methylglucamine (MEGA-9)	25	250	100 µl
D 2-8	3-(Decyldimethylammonio)propane-1-sulfonate (ZWITTERGENT® 3-10)	40	400	100 µl
D 2-9	Heptyl-β-D-glucopyranoside	79	790	100 µl
D 2-10	N-Octanoyl-N-methylglucamine (MEGA-8)	79	790	100 µl
D 2-11	Hexyl-β-D-glucopyranoside	250	1250	200 µl
D 2-12	3-(N,N-Dimethyloctylammonio)propane-sulfonate (ZWITTERGENT® 3-8)	330	1650	200 µl

JBSolution Detergent Test Kit

Detergent	**Molecular Mass (g/mol)**	**Concentration (equals stock solution)**	**Critical Micellar Concentration (CMC)**
Non-ionic detergents			
Brij® 35	1199.76 g/mol	33.3 mM	0.09 mM
Deoxy-BIGCHAP	862.1 g/mol	46.4 mM	1.1 – 1.4 mM
HECAMEG	335.39 g/mol	119.3 mM	19.5 mM
MEGA-8	321.42 g/mol	124.5 mM	58 mM
MEGA-9	335.5 g/mol	119.2 mM	19 – 25 mM
n-Octyl-b-D-glucopyranoside	292.38 g/mol	136.8 mM	25 – 30 mM
Pluronic F-68	~ 8300 g/mol	4.8 mM	17.9 mM
Sucrose monolaurate	524.60 g/mol	76.3 mM	0.4 mM
Triton® X-100	~ 625 g/mol	64.0 mM	0.2 – 0.9 mM
Triton® X-114	~527 g/mol	75.9 mM	0.35 mM
Tween®20	~ 1228 g/mol	32.6 mM	0.059 mM
Tween®80	~ 1310 g/mol	30.5 mM	0.012 mM
Nonidet P40	603.3 g/mol	66.3 mM	0.05 – 0.30 mM
Anionic detergents			
N-Lauroylsarcosin-sodium salt	293.4 g/mol	136.0 mM	13.7 mM
Lithiumdodecyl sulfate	272.3 g/mol	147.0 mM	8.7 mM
Sodium cholate	430.6 g/mol	92.9 mM	14 mM
Sodium deoxycholate	414.6 g/mol	96.5 mM	10 mM
SDS (Sodiumdodecylsulfate)	288.4 g/mol	138.7 mM	7 – 10 mM

Cationic detergents			
Cetylpyridinium chloride	358.0 g/mol	111.7 mM	0.12 mM
Cetyltrimethylammonium bromide	364.5 g/mol	109.8 mM	1 mM
Zwitterionic detergents			
CHAPS	614.9 g/mol	65.1 mM	6 – 10 mM
CHAPSO	630.9 g/mol	63.4 mM	8 mM
Sulfobetaine SB8	279.6 g/mol	143.1 mM	330 mM
Sulfobetaine SB10	307.6 g/mol	130.2 mM	25 – 40 mM
Sulfobetaine SB12	335.6 g/mol	119.3 mM	2 – 4 mM
Sulfobetaine SB14	363.6 g/mol	110.0 mM	0.2 mM
Sulfobetaine SB16	391.6 g/mol	51.1 mM	0.01 – 0.06 mM

JBScreen Cryo Pro

No.	Cryoprotectant
Cryo-1	Sucrose/Xylitol
Cryo-2	Sucrose/Glucose
Cryo-3	Sucrose
Cryo-4	Xylitol
Cryo-5	Taurine
Cryo-6	Glycerol
Cryo-7	Pentaerythritol propoxylate (5/4 PO/OH)
Cryo-8	Pentaerythritol ethoxylate (15/4 EO/OH)
Cryo-9	Ethylene glycol
Cryo-10	MPD
Cryo-11	PEG 400
Cryo-12	Mineral Oil