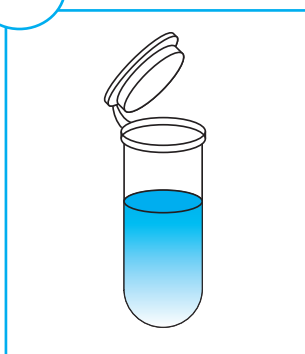


Additive Screen™

Additive Screen™ is a kit designed to allow the rapid and convenient evaluation of 96 unique additives and their ability to influence the crystallization of the sample. The screen is designed to be compatible with most popular crystallization reagents including all reagents utilized in all of the Hampton Research screens.

Each of the additives is preformulated in deionized water and sterile filtered using a 0.2 micron filter. Recommended storage for the Additive Screen kit is -20 to 4°C. Allow the kit to equilibrate to room temperature prior to removing the cap from the tube. If reagents precipitate during cold storage, warm the tube at 37°C for up to 60 minutes and invert several times to solubilize the reagents.

1



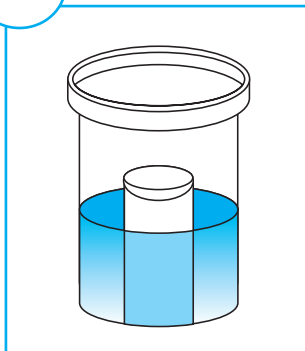
The Additive Screen™ kit is a complete reagent kit designed to provide a rapid screening method for the manipulation of sample-sample and sample solvent interactions to enhance or alter sample solubility.

The Additive Screen evaluates the manipulation factors of multivalent cations, salts, amino acid, dissociating agents, linkers, polyamines, chaotropes, co-factors, reducing agents, polymers, chelating agent, carbohydrates, polyols, non-detergents, amphiphiles, detergents, osmolyte, organic (non-volatile) and organic (volatile) reagents.

The Additive Screen kit is to be used before and during the optimization of preliminary crystallization conditions.

Each Additive Screen kit contains 1 milliliter of 96 unique additives formulated to allow one to rapidly screen with less than 100 microliters of sample.

2



This guide will describe the use of the Additive Screen kit using the Sitting Drop Vapor Diffusion method and a 1 milliliter reservoir volume. Other methods such as Hanging Drop Vapor Diffusion crystallization, and MicroBatch may also be utilized as well as smaller reservoir and drop volumes. A complete description of the Hanging, Sitting, Sandwich Drop, Dialysis and other crystallization methods are available from the Hampton Research Crystal Growth 101 Library.

Two separate methods of setup are to be used for volatile and non-volatile additives.

Reservoir setup for non-volatile Additives (A1 - G8):

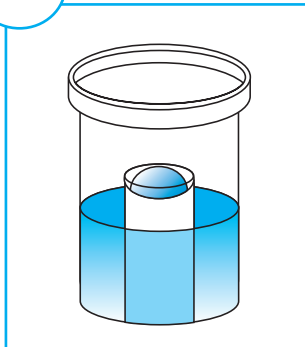
A. Pipet 1 milliliter of crystallization reagent into the reservoir only.

Reservoir setup for volatile Additives (G9 - H12):

A. Pipet 900 μl of crystallization reagent into the reservoir.

B. Pipet and mix 100 μl of the volatile additive into the reservoir.

3



Drop setup for non-volatile Additives

A. Pipet 5 μl of sample onto a sitting drop post.

B. Pipet 1 μl of additive into the sample drop.

C. Pipet 4 μl of the crystallization reagent into the sample/additive drop.

D. Seal the reservoir with tape or grease and slides.

E. Repeat for remaining additives.

Drop setup for volatile Additives

A. Pipet 5 μl of sample onto a sitting drop post.

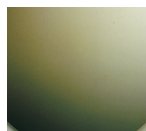
B. Pipet 5 μl of the crystallization reagent/additive mixture from the reservoir into the sample drop.

C. Seal the reservoir with tape or grease and slides.

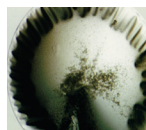
D. Repeat for the remaining additives.

Figure 1

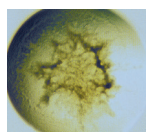
Typical observations in a crystallization experiment



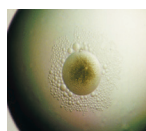
Clear Drop



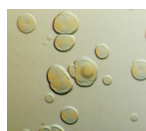
Skin/Precipitate



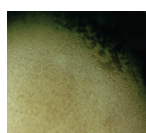
Precipitate



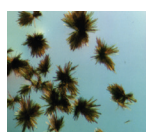
Precipitate/Phase



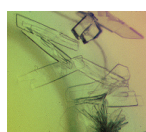
Quasi Crystals



Microcrystals



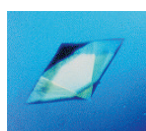
Needle Cluster



Plates



Rod Cluster



Single Crystal

4

Examine The Drop

Carefully examine the drops under a stereo microscope (10 to 100x magnification) immediately after setting up the screen. Record all observations and be particularly careful to scan the focal plane for small crystals. Observe the drops once each day for the first week, then once a week thereafter. Records should indicate whether the drop is clear, contains precipitate, and or crystals. It is helpful to describe the drop contents using descriptive terms. Adding magnitude is also helpful. Example: 4+ yellow/brown fine precipitate, 2+ small bipyramid crystals, clear drop, 3+ needle shaped crystals

5

References and Readings

1. Crystallization of membrane proteins. Edited by Hartmut Michel, CRC Press, 1991.
2. Crystallization of nucleic acids and proteins, Edited by A. Ducruix and R. Giege, The Practical Approach Series, Oxford Univ. Press, 1992 175-191.
3. Screening and optimization strategies for macromolecular crystal growth. Cudney, B. et al, Acta Cryst. (1994). D50, 414-423.
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5. Influence of divalent cations on protein crystallization. Trakhanov, S. and Quioco, F.A. (1995) Protein Science 4(9): 1914-1919.
6. Non-detergent sulphobetaines: a new class of mild solubilizing agents for protein purification. L. Vuillard, C. Braun-Breton, T. Rabilloud, Biochem. J. (1995) 305, 337-343.
7. A new additive for protein crystallization. L. Vuillard, T. Rabilloud, R. Leberman, C. Berthet-Colominas, St. Cusack. FEBS Letters, 353 (1994) 294-296.

in 1+ white precipitate. One may also employ a standard numerical scoring scheme (Clear = 0, Precipitate = 1, Crystal = 10, etc). Figure 1 (left side of page 2) shows typical examples of what one might observe in a crystallization experiment.

Technical Support

Inquiries regarding Additive Screen reagent formulation, interpretation of screen results, optimization strategies and general inquiries regarding crystallization are welcome. Please e-mail, fax, or telephone your request to Hampton Research. Fax and e-mail Technical Support are available 24 hours a day. Telephone technical support is available 8:00 a.m. to 4:00 p.m. USA Pacific Standard Time.

Hampton Research

34 Journey

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Technical Support e-mail: tech@hrmail.com

Website: hamptonresearch.com

Tube #	Salt	Tube #	Classification	Tube #	Suggested Drop Concentration
1. (A1)	0.1 M Barium chloride dihydrate	1. (A1)	Multivalent	1. (A1)	0.01 M (10 mM)
2. (A2)	0.1 M Cadmium chloride hydrate	2. (A2)	Multivalent	2. (A2)	0.01 M (10 mM)
3. (A3)	0.1 M Calcium chloride dihydrate	3. (A3)	Multivalent	3. (A3)	0.01 M (10 mM)
4. (A4)	0.1 M Cobalt(II) chloride hexahydrate	4. (A4)	Multivalent	4. (A4)	0.01 M (10 mM)
5. (A5)	0.1 M Copper(II) chloride dihydrate	5. (A5)	Multivalent	5. (A5)	0.01 M (10 mM)
6. (A6)	0.1 M Magnesium chloride hexahydrate	6. (A6)	Multivalent	6. (A6)	0.01 M (10 mM)
7. (A7)	0.1 M Manganese(II) chloride tetrahydrate	7. (A7)	Multivalent	7. (A7)	0.01 M (10 mM)
8. (A8)	0.1 M Strontium chloride hexahydrate	8. (A8)	Multivalent	8. (A8)	0.01 M (10 mM)
9. (A9)	0.1 M Yttrium(III) chloride hexahydrate	9. (A9)	Multivalent	9. (A9)	0.01 M (10 mM)
10. (A10)	0.1 M Zinc chloride	10. (A10)	Multivalent	10. (A10)	0.01 M (10 mM)
11. (A11)	0.1 M Iron(III) chloride hexahydrate	11. (A11)	Multivalent	11. (A11)	0.01 M (10 mM)
12. (A12)	0.1 M Nickel(II) chloride hexahydrate	12. (A12)	Multivalent	12. (A12)	0.01 M (10 mM)
13. (B1)	0.1 M Chromium(III) chloride hexahydrate	13. (B1)	Multivalent	13. (B1)	0.01 M (10 mM)
14. (B2)	0.1 M Praseodymium(III) acetate hydrate	14. (B2)	Multivalent	14. (B2)	0.01 M (10 mM)
15. (B3)	1.0 M Ammonium sulfate	15. (B3)	Salt	15. (B3)	0.1 M (100 mM)
16. (B4)	1.0 M Potassium chloride	16. (B4)	Salt	16. (B4)	0.1 M (100 mM)
17. (B5)	1.0 M Lithium chloride	17. (B5)	Salt	17. (B5)	0.1 M (100 mM)
18. (B6)	2.0 M Sodium chloride	18. (B6)	Salt	18. (B6)	0.2 M (200 mM)
19. (B7)	0.5 M Sodium fluoride	19. (B7)	Salt	19. (B7)	0.05 M (50 mM)
20. (B8)	1.0 M Sodium iodide	20. (B8)	Salt	20. (B8)	0.1 M (100 mM)
21. (B9)	2.0 M Sodium thiocyanate	21. (B9)	Salt	21. (B9)	0.2 M (200 mM)
22. (B10)	1.0 M Potassium sodium tartrate tetrahydrate	22. (B10)	Salt	22. (B10)	0.1 M (100 mM)
23. (B11)	1.0 M Sodium citrate tribasic dihydrate	23. (B11)	Salt	23. (B11)	0.1 M (100 mM)
24. (B12)	1.0 M Cesium chloride	24. (B12)	Salt	24. (B12)	0.1 M (100 mM)
25. (C1)	1.0 M Sodium malonate pH 7.0	25. (C1)	Salt	25. (C1)	0.1 M (100 mM)
26. (C2)	0.1 M L-Proline	26. (C2)	Amino Acid	26. (C2)	0.01 M (10 mM)
27. (C3)	0.1 M Phenol	27. (C3)	Dissociating Agent	27. (C3)	0.01 M (10 mM)
28. (C4)	30% v/v Dimethyl sulfoxide	28. (C4)	Dissociating Agent	28. (C4)	3.0%
29. (C5)	0.1 M Sodium bromide	29. (C5)	Dissociating Agent	29. (C5)	0.01 M (10 mM)
30. (C6)	30% w/v 6-Aminohexanoic acid	30. (C6)	Linker	30. (C6)	3.0%
31. (C7)	30% w/v 1,5-Diaminopentane dihydrochloride	31. (C7)	Linker	31. (C7)	3.0%
32. (C8)	30% w/v 1,6-Diaminohexane	32. (C8)	Linker	32. (C8)	3.0%
33. (C9)	30% w/v 1,8-Diaminooctane	33. (C9)	Linker	33. (C9)	3.0%
34. (C10)	1.0 M Glycine	34. (C10)	Linker	34. (C10)	0.1 M (100 mM)
35. (C11)	0.3 M Glycyl-glycyl-glycine	35. (C11)	Linker	35. (C11)	0.03 M (30 mM)
36. (C12)	0.1 M Taurine	36. (C12)	Linker	36. (C12)	0.01 M (10 mM)
37. (D1)	0.1 M Betaine hydrochloride	37. (D1)	Linker	37. (D1)	0.01 M (10 mM)
38. (D2)	0.1 M Spermidine	38. (D2)	Polyamine	38. (D2)	0.01 M (10 mM)
39. (D3)	0.1 M Spermine tetrahydrochloride	39. (D3)	Polyamine	39. (D3)	0.01 M (10 mM)
40. (D4)	0.1 M Hexamine cobalt(III) chloride	40. (D4)	Polyamine	40. (D4)	0.01 M (10 mM)
41. (D5)	0.1 M Sarcosine	41. (D5)	Polyamine / Osmolyte	41. (D5)	0.01 M (10 mM)
42. (D6)	0.1 M Trimethylamine hydrochloride	42. (D6)	Chaotrope	42. (D6)	0.01 M (10 mM)
43. (D7)	1.0 M Guanidine hydrochloride	43. (D7)	Chaotrope	43. (D7)	0.1 M (100 mM)
44. (D8)	0.1 M Urea	44. (D8)	Chaotrope	44. (D8)	0.01 M (10 mM)
45. (D9)	0.1 M β -Nicotinamide adenine dinucleotide hydrate	45. (D9)	Co-factor	45. (D9)	0.01 M (10 mM)
46. (D10)	0.1 M Adenosine-5'-triphosphate disodium salt hydrate	46. (D10)	Co-factor	46. (D10)	0.01 M (10 mM)
47. (D11)	0.1 M TCEP hydrochloride	47. (D11)	Reducing Agent	47. (D11)	0.01 M (10 mM)
48. (D12)	0.01 M GSH (L-Glutathione reduced), 0.01 M GSSG (L-Glutathione oxidized)	48. (D12)	Reducing Agent	48. (D12)	0.001 M (1 mM)

Additive Screen contains ninety-six unique reagents beginning at position A1.

To determine the formulation of each reagent, simply read across the page.

Lot 2428** where ** ≥ 20

Tube #	Salt	Tube #	Classification	Tube #	Suggested Drop Concentration
49. (E1)	0.1 M Ethylenediaminetetraacetic acid disodium salt dihydrate	49. (E1)	Chelating Agent	49. (E1)	0.01 M (10 mM)
50. (E2)	5% w/v Polyvinylpyrrolidone K15	50. (E2)	Polymer	50. (E2)	0.5%
51. (E3)	30% w/v Dextran sulfate sodium salt (M _r 5,000)	51. (E3)	Polymer	51. (E3)	3.0%
52. (E4)	40% v/v Polyethylene glycol 300	52. (E4)	Polymer	52. (E4)	4.0%
53. (E5)	10% w/v Polyethylene glycol 3,350	53. (E5)	Polymer	53. (E5)	1.0%
54. (E6)	30% w/v D-(+)-Glucose monohydrate	54. (E6)	Carbohydrate	54. (E6)	3.0%
55. (E7)	30% w/v Sucrose	55. (E7)	Carbohydrate	55. (E7)	3.0%
56. (E8)	30% w/v Xylitol	56. (E8)	Carbohydrate	56. (E8)	3.0%
57. (E9)	30% w/v D-Sorbitol	57. (E9)	Carbohydrate	57. (E9)	3.0%
58. (E10)	12% w/v myo-Inositol	58. (E10)	Carbohydrate	58. (E10)	1.2%
59. (E11)	30% w/v D-(+)-Trehalose dihydrate	59. (E11)	Carbohydrate	59. (E11)	3.0%
60. (E12)	30% w/v D-(+)-Galactose	60. (E12)	Carbohydrate	60. (E12)	3.0%
61. (F1)	30% v/v Ethylene glycol	61. (F1)	Polyol	61. (F1)	3.0%
62. (F2)	30% v/v Glycerol	62. (F2)	Polyol	62. (F2)	3.0%
63. (F3)	3.0 M NDSB-195	63. (F3)	Non-detergent	63. (F3)	0.3 M (300 mM)
64. (F4)	2.0 M NDSB-201	64. (F4)	Non-detergent	64. (F4)	0.2 M (200 mM)
65. (F5)	2.0 M NDSB-211	65. (F5)	Non-detergent	65. (F5)	0.2 M (200 mM)
66. (F6)	2.0 M NDSB-221	66. (F6)	Non-detergent	66. (F6)	0.2 M (200 mM)
67. (F7)	1.0 M NDSB-256	67. (F7)	Non-detergent	67. (F7)	0.1 M (200 mM)
68. (F8)	0.5% w/v 1,2,3-Heptanetriol	68. (F8)	Amphiphile	68. (F8)	0.05%
69. (F9)	20% w/v Benzamidine hydrochloride	69. (F9)	Amphiphile	69. (F9)	2.0%
70. (F10)	5% w/v n-dodecyl-N,N-dimethylamine-N-oxide, (LDAO, DDAO)	70. (F10)	Detergent	70. (F10)	0.5%
71. (F11)	5% w/v n-Octyl-β-D-glucoside	71. (F11)	Detergent	71. (F11)	0.5%
72. (F12)	5% w/v n-Dodecyl-β-D-maltoside	72. (F12)	Detergent	72. (F12)	0.5%
73. (G1)	30% w/v Trimethylamine N-oxide dihydrate	73. (G1)	Osmolyte	73. (G1)	3.0%
74. (G2)	30% w/v 1,6-Hexanediol	74. (G2)	Organic, Non-volatile	74. (G2)	3.0%
75. (G3)	30% v/v (+/-)-2-Methyl-2,4-pentanediol	75. (G3)	Organic, Non-volatile	75. (G3)	3.0%
76. (G4)	50% v/v Polyethylene glycol 400	76. (G4)	Organic, Non-volatile	76. (G4)	5.0%
77. (G5)	50% v/v Jeffamine® M-600® pH 7.0	77. (G5)	Organic, Non-volatile	77. (G5)	5.0%
78. (G6)	40% v/v 2,5-Hexanediol (mixture of isomers)	78. (G6)	Organic, Non-volatile	78. (G6)	4.0%
79. (G7)	40% v/v (±)-1,3-Butanediol	79. (G7)	Organic, Non-volatile	79. (G7)	4.0%
80. (G8)	40% v/v Polypropylene glycol P 400	80. (G8)	Organic, Non-volatile	80. (G8)	4.0%
81. (G9)	30% v/v 1,4-Dioxane	81. (G9)	Organic, Volatile	81. (G9)	3.0%
82. (G10)	30% v/v Ethanol	82. (G10)	Organic, Volatile	82. (G10)	3.0%
83. (G11)	30% v/v 2-Propanol	83. (G11)	Organic, Volatile	83. (G11)	3.0%
84. (G12)	30% v/v Methanol	84. (G12)	Organic, Volatile	84. (G12)	3.0%
85. (H1)	10% v/v 1,2-Butanediol	85. (H1)	Organic, Volatile	85. (H1)	1.0%
86. (H2)	40% v/v tert-Butanol	86. (H2)	Organic, Volatile	86. (H2)	4.0%
87. (H3)	40% v/v 1,3-Propanediol	87. (H3)	Organic, Volatile	87. (H3)	4.0%
88. (H4)	40% v/v Acetonitrile	88. (H4)	Organic, Volatile	88. (H4)	4.0%
89. (H5)	40% v/v Formamide	89. (H5)	Organic, Volatile	89. (H5)	4.0%
90. (H6)	40% v/v 1-Propanol	90. (H6)	Organic, Volatile	90. (H6)	4.0%
91. (H7)	5% v/v Ethyl acetate	91. (H7)	Organic, Volatile	91. (H7)	0.5%
92. (H8)	40% v/v Acetone	92. (H8)	Organic, Volatile	92. (H8)	4.0%
93. (H9)	0.25% v/v Dichloromethane	93. (H9)	Organic, Volatile	93. (H9)	0.025%
94. (H10)	7% v/v 1-Butanol	94. (H10)	Organic, Volatile	94. (H10)	0.7%
95. (H11)	40% v/v 2,2,2-Trifluoroethanol	95. (H11)	Organic, Volatile	95. (H11)	4.0%
96. (H12)	40% v/v 1,1,1,3,3,3-Hexafluoro-2-propanol	96. (H12)	Organic, Volatile	96. (H12)	4.0%

Additive Screen contains ninety-six unique reagents beginning at position A1.
To determine the formulation of each reagent, simply read across the page.

Lot 2428** where ** ≥20

34 Journey

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HAMPTON
RESEARCH

Solutions for Crystal Growth

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Sample: _____ Sample Concentration: _____
 Sample Buffer: _____ Date: _____
 Reservoir Volume: _____ Temperature: _____
 Drop Volume: Total _____ μ l Sample _____ μ l Reservoir _____ μ l Additive _____ μ l

- 1 Clear Drop
- 2 Phase Separation
- 3 Regular Granular Precipitate
- 4 Birefringent Precipitate or Microcrystals

- 5 Posettes or Spherulites
- 6 Needles (1D Growth)
- 7 Plates (2D Growth)
- 8 Single Crystals (3D Growth < 0.2 mm)
- 9 Single Crystals (3D Growth > 0.2 mm)

Additive Screen™ - HR2-428 Scoring Sheet

		Date:	Date:	Date:	Date:
1. (A1)	0.1 M Barium chloride dihydrate	Multivalent			
2. (A2)	0.1 M Cadmium chloride hydrate	Multivalent			
3. (A3)	0.1 M Calcium chloride dihydrate	Multivalent			
4. (A4)	0.1 M Cobalt(II) chloride hexahydrate	Multivalent			
5. (A5)	0.1 M Copper(II) chloride dihydrate	Multivalent			
6. (A6)	0.1 M Magnesium chloride hexahydrate	Multivalent			
7. (A7)	0.1 M Manganese(II) chloride tetrahydrate	Multivalent			
8. (A8)	0.1 M Strontium chloride hexahydrate	Multivalent			
9. (A9)	0.1 M Yttrium(III) chloride hexahydrate	Multivalent			
10. (A10)	0.1 M Zinc chloride	Multivalent			
11. (A11)	0.1 M Iron(III) chloride hexahydrate	Multivalent			
12. (A12)	0.1 M Nickel(II) chloride hexahydrate	Multivalent			
13. (B1)	0.1 M Chromium(III) chloride hexahydrate	Multivalent			
14. (B2)	0.1 M Praseodymium(III) acetate hydrate	Multivalent			
15. (B3)	1.0 M Ammonium sulfate	Salt			
16. (B4)	1.0 M Potassium chloride	Salt			
17. (B5)	1.0 M Lithium chloride	Salt			
18. (B6)	2.0 M Sodium chloride	Salt			
19. (B7)	0.5 M Sodium fluoride	Salt			
20. (B8)	1.0 M Sodium iodide	Salt			
21. (B9)	2.0 M Sodium thiocyanate	Salt			
22. (B10)	1.0 M Potassium sodium tartrate tetrahydrate	Salt			
23. (B11)	1.0 M Sodium citrate tribasic dihydrate	Salt			
24. (B12)	1.0 M Cesium chloride	Salt			
25. (C1)	1.0 M Sodium malonate pH 7.0	Salt			
26. (C2)	0.1 M L-Proline	Amino Acid			
27. (C3)	0.1 M Phenol	Dissociating Agent			
28. (C4)	30% v/v Dimethyl sulfoxide	Dissociating Agent			
29. (C5)	0.1 M Sodium bromide	Dissociating Agent			
30. (C6)	30% w/v 6-Aminohexanoic acid	Linker			
31. (C7)	30% w/v 1,5-Diaminopentane dihydrochloride	Linker			
32. (C8)	30% w/v 1,6-Diaminohexane	Linker			
33. (C9)	30% w/v 1,8-Diaminooctane	Linker			
34. (C10)	1.0 M Glycine	Linker			
35. (C11)	0.3 M Glycyl-glycyl-glycine	Linker			
36. (C12)	0.1 M Taurine	Linker			
37. (D1)	0.1 M Betaine hydrochloride	Linker			
38. (D2)	0.1 M Spermidine	Polyamine			
39. (D3)	0.1 M Spermine tetrahydrochloride	Polyamine			
40. (D4)	0.1 M Hexamine cobalt(III) chloride	Polyamine			
41. (D5)	0.1 M Sarcosine	Polyamine/Osmolyte			
42. (D6)	0.1 M Trimethylamine hydrochloride	Chaotrope			
43. (D7)	1.0 M Guanidine hydrochloride	Chaotrope			
44. (D8)	0.1 M Urea	Chaotrope			
45. (D9)	0.1 M β -Nicotinamide adenine dinucleotide hydrate	Co-factor			
46. (D10)	0.1 M Adenosine-5'-triphosphate disodium salt hydrate	Co-factor			
47. (D11)	0.1 M TCEP hydrochloride	Reducing agent			
48. (D12)	0.01 M GSH (L-Glutathione reduced), 0.01 M GSSG (L-Glutathione oxidized)	Reducing agent			



Solutions for Crystal Growth

34 Journey
 Aliso Viejo, CA 92656-3317 U.S.A.
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Lot 2428** where ** \geq 20

Sample: _____ Sample Concentration: _____
 Sample Buffer: _____ Date: _____
 Reservoir Volume: _____ Temperature: _____
 Drop Volume: Total _____ μ l Sample _____ μ l Reservoir _____ μ l Additive _____ μ l

- 1 Clear Drop
- 2 Phase Separation
- 3 Regular Granular Precipitate
- 4 Birefringent Precipitate or Microcrystals
- 5 Posettes or Spherulites
- 6 Needles (1D Growth)
- 7 Plates (2D Growth)
- 8 Single Crystals (3D Growth < 0.2 mm)
- 9 Single Crystals (3D Growth > 0.2 mm)

Additive Screen™ - HR2-428 Scoring Sheet

Date: Date: Date: Date:

Sample ID	Concentration	Compound Name	Category	Date	Date	Date	Date
49. (E1)	0.1 M	Ethylenediaminetetraacetic acid disodium salt dihydrate	Chelating Agent				
50. (E2)	5% w/v	Polyvinylpyrrolidone K15	Polymer				
51. (E3)	30% w/v	Dextran sulfate sodium salt (Mr 5,000)	Polymer				
52. (E4)	40% v/v	Polyethylene glycol 300	Polymer				
53. (E5)	10% w/v	Polyethylene glycol 3,350	Polymer				
54. (E6)	30% w/v	D-(+)-Glucose monohydrate	Carbohydrate				
55. (E7)	30% w/v	Sucrose	Carbohydrate				
56. (E8)	30% w/v	Xylitol	Carbohydrate				
57. (E9)	30% w/v	D-Sorbitol	Carbohydrate				
58. (E10)	12% w/v	myo-Inositol	Carbohydrate				
59. (E11)	30% w/v	D-(+)-Trehalose dihydrate	Carbohydrate				
60. (E12)	30% w/v	D-(+)-Galactose	Carbohydrate				
61. (F1)	30% v/v	Ethylene glycol	Polyol				
62. (F2)	30% v/v	Glycerol	Polyol				
63. (F3)	3.0 M	NDSB-195	Non-detergent				
64. (F4)	2.0 M	NDSB-201	Non-detergent				
65. (F5)	2.0 M	NDSB-211	Non-detergent				
66. (F6)	2.0 M	NDSB-221	Non-detergent				
67. (F7)	1.0 M	NDSB-256	Non-detergent				
68. (F8)	0.5% w/v	1,2,3-Heptanetriol	Amphiphile				
69. (F9)	20% w/v	Benzamidine hydrochloride	Amphiphile				
70. (F10)	5% w/v	n-dodecyl-N,N-dimethylamine-N-oxide, (LDAO, DDAO)	Detergent				
71. (F11)	5% w/v	n-Octyl-b-D-glucoside	Detergent				
72. (F12)	5% w/v	n-Dodecyl-b-D-maltoside	Detergent				
73. (G1)	30% w/v	Trimethylamine N-oxide dihydrate	Osmolyte				
74. (G2)	30% w/v	1,6-Hexanediol	Organic, Non-volatile				
75. (G3)	30% v/v	(+/-)-2-Methyl-2,4-pentanediol	Organic, Non-volatile				
76. (G4)	50% v/v	Polyethylene glycol 400	Organic, Non-volatile				
77. (G5)	50% v/v	Jeffamine® M-600® pH 7.0	Organic, Non-volatile				
78. (G6)	40% v/v	2,5-Hexanediol	Organic, Non-volatile				
79. (G7)	40% v/v	(±)-1,3-Butanediol	Organic, Non-volatile				
80. (G8)	40% v/v	Polypropylene glycol P 400	Organic, Non-volatile				
81. (G9)	30% v/v	1,4-Dioxane	Organic, Volatile				
82. (G10)	30% v/v	Ethanol	Organic, Volatile				
83. (G11)	30% v/v	2-Propanol	Organic, Volatile				
84. (G12)	30% v/v	Methanol	Organic, Volatile				
85. (H1)	10% v/v	1,2-Butanediol	Organic, Volatile				
86. (H2)	40% v/v	tert-Butanol	Organic, Volatile				
87. (H3)	40% v/v	1,3-Propanediol	Organic, Volatile				
88. (H4)	40% v/v	Acetonitrile	Organic, Volatile				
89. (H5)	40% v/v	Formamide	Organic, Volatile				
90. (H6)	40% v/v	1-Propanol	Organic, Volatile				
91. (H7)	5% v/v	Ethyl acetate	Organic, Volatile				
92. (H8)	40% v/v	Acetone	Organic, Volatile				
93. (H9)	0.25% v/v	Dichloromethane	Organic, Volatile				
94. (H10)	7% v/v	1-Butanol	Organic, Volatile				
95. (H11)	40% v/v	2,2,2-Trifluoroethanol	Organic, Volatile				
96. (H12)	40% v/v	1,1,1,3,3,3-Hexafluoro-2-propanol	Organic, Volatile				



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