

## The JCSG Core IV Suite

For initial screening using an optimized set of conditions

The JCSG Core IV Suite provides:

- Conditions giving the highest hit rates at the Joint Center for Structural Genomics
- Optimized suites based on over half a million crystallization trials
- Maximized reproducibility through online access to production reports

The JCSG Core Suites — split into four screens of 96 unique conditions — are the result of analyzing over 500,000 high-throughput crystallization experiments performed at the JCSG (1).

The 384 crystallization conditions that provided the highest hit rates in initial screening were chosen to form the screens.

1. Lesley, S.A., and Wilson, I.A. (2005) Protein production and crystallization at the joint center for structural genomics. *J. Struct. Funct. Genomics* **6**, 71.

### Location of Refill-Hit Solutions in 24-well and 96-well plate formats

	1	2	3	4	5	6
A	1	2	3	4	5	6
B	7	8	9	10	11	12
C	13	14	15	16	17	18
D	19	20	21	22	23	24

24-well plate 1 of 4

	1	2	3	4	5	6
A	25	26	27	28	29	30
B	31	32	33	34	35	36
C	37	38	39	40	41	42
D	43	44	45	46	47	48

24-well plate 2 of 4

	1	2	3	4	5	6
A	49	50	51	52	53	54
B	55	56	57	58	59	60
C	61	62	63	64	65	66
D	67	68	69	70	71	72

24-well plate 3 of 4

	1	2	3	4	5	6
A	73	74	75	76	77	78
B	79	80	81	82	83	84
C	85	86	87	88	89	90
D	91	92	93	94	95	96

24-well plate 4 of 4

	1	2	3	4	5	6	7	8	9	10	11	12
A	1	2	3	4	5	6	7	8	9	10	11	12
B	13	14	15	16	17	18	19	20	21	22	23	24
C	25	26	27	28	29	30	31	32	33	34	35	36
D	37	38	39	40	41	42	43	44	45	46	47	48
E	49	50	51	52	53	54	55	56	57	58	59	60
F	61	62	63	64	65	66	67	68	69	70	71	72
G	73	74	75	76	77	78	79	80	81	82	83	84
H	85	86	87	88	89	90	91	92	93	94	95	96

96-well plate

Table 1. The JCSG Core IV Suite composition

Number	Salt	Buffer	Precipitant	Final pH	Cat. no. (Refill-Hit Solution 4 x 12.5 ml tubes)
1	0.2 M Lithium sulfate	0.1 M CAPS pH 10.5	2.0 M Ammonium sulfate		136501
2	0.2 M Lithium sulfate	0.1 M Glycine pH 10.5	1.2 M Sodium dihydrogen phosphate; 0.8 M di-Potassium hydrogen phosphate		136502
3		0.1 M CAPS pH 10.5	40% (v/v) MPD		136503
4		0.1 M CHES pH 9.5	10% (w/v) PEG 3000		136504
5	0.2 M Lithium sulfate	0.1 M CHES pH 9.5	1.0 M Sodium/Potassium tartrate		136505
6		0.1 M CHES pH 9.5	30% (v/v) PEG 400		136506
7		0.1 M CHES pH 9.5	15% (v/v) Ethanol		136507
8	0.2 M Sodium citrate	0.1 M CHES pH 9.5	40% (v/v) PEG 300		136508
9		0.1 M CHES pH 9.5	40% (v/v) MPD		136509
10		0.1 M Bicine pH 9.0	1.6 M Ammonium sulfate	9.0	136510
11		0.1 M Bicine pH 9.0	0.8 M Ammonium sulfate	9.0	136511
12		0.1 M Bicine pH 9.0	2.4 M Ammonium sulfate	9.0	136512
13		0.1 M Bicine pH 8.5	10% (w/v) PEG 6000	9.0	136513
14		0.1 M Bicine pH 9.0	3.2 M Ammonium sulfate		136514
15		0.1 M Bicine pH 8.5	30% (w/v) PEG 6000	9.0	136515
16		0.1 M Bicine pH 8.5	65% (v/v) MPD	9.0	136516
17		0.1 M Bicine pH 9.0	2.0 M Magnesium chloride		136517

# The JCSG Core IV Suite

**Table 1. The JCSG Core IV Suite composition (continued)**

Number	Salt	Buffer	Precipitant	Final pH	Cat. no. (Refill-Hit Solution 4 x 12.5 ml tubes)
18		0.1 M Tris pH 8.5	10% (v/v) Isopropanol		136518
19	0.2 M Magnesium chloride	0.1 M Tris pH 8.5	50% (v/v) Ethylene glycol		136519
20	0.2 M Magnesium chloride	0.1 M Tris pH 8.5	25% (v/v) 1,2-Propanediol; 10% (v/v) Glycerol		136520
21	0.2 M Magnesium chloride	0.1 M Tris-HCl pH 8.5	30% (w/v) PEG 4000		136521
22	0.2 M Sodium citrate	0.1 M Tris-HCl pH 8.5	30% (v/v) PEG 400		136522
23	0.2 M Lithium sulfate	0.1 M Tris-HCl pH 8.5	30% (w/v) PEG 4000		136523
24	0.2 M Ammonium acetate	0.1 M Tris-HCl pH 8.5	30% (v/v) Isopropanol		136524
25		0.1 M Tris pH 8.5	1.5 M Ammonium sulfate; 12% (v/v) Glycerol		136525
26	0.18 M Sodium citrate	0.09 M Tris-HCl pH 8.5	27% (v/v) PEG 400; 10% (v/v) Glycerol		136526
27	0.17 M Sodium acetate	0.085 M Tris-HCl pH 8.5	25.5% (w/v) PEG 4000; 15% (v/v) Glycerol		136527
28		0.1 M Imidazole pH 8.0	10% (v/v) Isopropanol		136528
29	0.2 M Zinc acetate	0.1 M Imidazole pH 8.0	2.5 M Sodium chloride		136529
30		0.1 M Imidazole pH 8.0	2.5 M Sodium chloride		136530
31		0.1 M Imidazole pH 8.0	10% (w/v) PEG 8000		136531
32	0.2 M Sodium chloride	0.1 M Imidazole pH 8.0	1.0 M di-Ammonium phosphate		136532
33		0.1 M Tris pH 8.5	1.6 M Ammonium sulfate	8.0	136533
34		0.1 M Tris pH 8.5	5% (w/v) PEG 6000	8.0	136534
35		0.1 M Tris pH 8.5	65% (v/v) MPD	8.0	136535
36	1.0 M Lithium chloride	0.1 M Tris pH 8.5	10% (w/v) PEG 6000	8.0	136536
37		0.1 M Tris pH 8.0	3.2 M Ammonium sulfate		136537
38		0.1 M HEPES pH 7.5	1.26 M Ammonium sulfate		136538
39	0.2 M Sodium chloride	0.1 M HEPES pH 7.5	35% (v/v) MPD		136539
40		0.1 M HEPES pH 7.5	50% (v/v) PEG 200		136540
41		0.1 M HEPES pH 7.5	1.5 M Lithium sulfate		136541
42		0.1 M HEPES pH 7.5	4.3 M Sodium chloride		136542
43	0.2 M Sodium citrate	0.1 M HEPES pH 7.5	30% (v/v) MPD		136543
44		0.1 M HEPES pH 7.5	20% (w/v) PEG 10000; 8% (v/v) Ethylene glycol		136544
45		0.09 M HEPES pH 7.5	1.26 M tri-Sodium citrate; 10% (v/v) Glycerol		136545
46	1.7 M Ammonium sulfate	0.085 M HEPES pH 7.5	1.7% (v/v) PEG 400; 15% (v/v) Glycerol		136546
47	0.05 M Lithium sulfate	0.1 M HEPES pH 7.5	30% (v/v) PEG 600; 10% (v/v) Glycerol		136547
48		0.1 M HEPES pH 7.5	30% (v/v) 1,2-Propanediol; 20% (v/v) PEG 400		136548
49	0.2 M Ammonium sulfate	0.1 M Tris pH 7.0	25% (v/v) 1,2-Propanediol; 10% (v/v) Glycerol		136549
50		0.1 M HEPES pH 7.5	5% (w/v) PEG 3000; 40% (v/v) Ethylene glycol		136550
51	0.2 M Ammonium sulfate	0.1 M Tris pH 7.0	40% (v/v) MPD		136551
52			4.0 M Sodium formate		136552
53			3.6 M Sodium formate; 10% (v/v) Glycerol		136553
54	0.2 M Calcium acetate	0.1 M HEPES pH 7.5	40% (v/v) PEG 400		136554
55	0.2 M Sodium chloride	0.1 M Tris pH 7.0	30% (w/v) PEG 3000		136555

# The JCSG Core IV Suite

**Table 1. The JCSG Core IV Suite composition (continued)**

Number	Salt	Buffer	Precipitant	Final pH	Cat. no. (Refill-Hit Solution 4 x 12.5 ml tubes)
56	0.2 M Lithium sulfate	0.1 M Tris pH 7.0	1.0 M Sodium/Potassium tartrate		136556
57	0.2 M Calcium acetate	0.1 M Sodium cacodylate pH 6.5	40% (v/v) PEG 600		136557
58		0.1 M HEPES pH 6.5	0.8 M Ammonium sulfate	7.0	136558
59		0.1 M HEPES pH 7.0	3.2 M Ammonium sulfate		136559
60		0.1 M HEPES pH 6.5	30% (w/v) PEG 6000	7.0	136560
61	1.0 M Lithium chloride	0.1 M HEPES pH 7.0			136561
62	1 M Sodium chloride	0.1 M Sodium cacodylate pH 6.5	30% (v/v) PEG 600; 10% (v/v) Glycerol		136562
63	0.2 M Zinc acetate	0.1 M Sodium cacodylate pH 6.5	10% (v/v) Isopropanol		136563
64	0.2 M Calcium acetate	0.1 M Sodium cacodylate pH 6.5	45% (v/v) Glycerol		136564
65		0.1 M HEPES pH 7.0	30% (v/v) Jeffamine M-600	7.0	136565
66	0.1 M Sodium dihydrogen phosphate; 0.1 M potassium dihydrogen phosphate	0.1 M MES pH 6.5	2.0 M Sodium chloride		136566
67	0.16 M Zinc acetate	0.08 M Sodium cacodylate pH 6.5	14.4% (w/v) PEG 8000; 20% (v/v) Glycerol		136567
68		0.1 M Sodium citrate pH 5.5	30% (v/v) 1,2-Propanediol; 20% (v/v) MPD		136568
69	0.2 M Zinc acetate		20% (w/v) PEG 3350		136569
70		0.1 M Sodium citrate pH 5.5	5% (w/v) PEG 1000; 35% (v/v) Isopropanol		136570
71		0.1 M MES pH 6.0	30% (v/v) PEG 600; 5% (w/v) PEG 1000; 10% (v/v) Glycerol		136571
72		0.1 M Sodium citrate pH 5.5	40% (v/v) MPD		136572
73	0.2 M Zinc acetate	0.1 M Imidazole pH 8.0	35% (v/v) Isopropanol		136573
74		0.1 M MES pH 6.0	1.0 M Sodium/Potassium tartrate		136574
75	0.2 M Lithium sulfate	0.1 M MES pH 6.0	20% (v/v) Butanediol		136575
76	0.2 M Zinc acetate	0.1 M MES pH 6.0	15% (v/v) Ethanol		136576
77		0.1 M MES pH 5.0	1.6 M Ammonium sulfate	6.0	136577
78		0.1 M MES pH 5.0	30% (w/v) PEG 6000	6.0	136578
79	0.2 M Zinc acetate	0.1 M Imidazole pH 8.0	40% (v/v) PEG 300		136579
80	0.2 M Ammonium acetate	0.1 M Sodium citrate pH 5.6	30% (v/v) MPD		136580
81	0.01 M Iron(II)chloride	0.1 M Sodium citrate pH 5.6	10% (v/v) Jeffamine M-600		136581
82	0.7 M Ammonium dihydrogen phosphate	0.07 M Sodium citrate pH 5.6	30% (v/v) Glycerol		136582
83	0.2 M Lithium sulfate	0.1 M Sodium citrate pH 5.5	15% (v/v) Ethanol		136583
84	0.05 M Calcium acetate	0.1 M Sodium acetate pH 4.5	40% (v/v) 1,2-Propanediol		136584
85		0.1 M Sodium acetate pH 4.5	35% (v/v) Isopropanol		136585
86	0.2 M Ammonium acetate	0.1 M Sodium acetate pH 4.6	30% (w/v) PEG 4000		136586
87	0.17 M Ammonium acetate	0.085 M Sodium acetate pH 4.6	25.5% (w/v) PEG 4000; 15% (v/v) Glycerol		136587
88	0.2 M Zinc acetate	0.1 M Sodium acetate pH 4.5	20% (w/v) PEG 1000		136588
89		0.1 M Sodium acetate pH 4.5	1.0 M di-Ammonium phosphate		136589

# The JCSG Core IV Suite

**Table 1. The JCSG Core IV Suite composition (continued)**

Number	Salt	Buffer	Precipitant	Final pH	Cat. no. (Refill-Hit Solution 4 x 12.5 ml tubes)
90		0.1 M Sodium acetate pH 4.5	0.8 M Sodium dihydrogen phosphate; 1.2 M diPotassium hydrogen phosphate		136590
91	0.2 M Ammonium sulfate	0.1 M Phosphate-citrate pH 4.2	40% (v/v) Ethylene glycol		136591
92			10% (v/v) Ethanol; 1.5 M Sodium chloride		136592
93			1.5 M Ammonium sulfate; 25% (v/v) Glycerol		136593
94		0.1 M Phosphate-citrate pH 4.2	1.6 M Sodium dihydrogen phosphate; 0.4 M diPotassium hydrogen phosphate		136594
95		0.1 M Citric acid pH 2.5	30% (w/v) PEG 6000	4.0	136595
96	1.0 M Lithium chloride	0.1 M Citric acid	30% (w/v) PEG 6000	4.0	136596

**Table 2. Protein crystallization suites and formats**

Suite name	EasyXtal® Microplate	NeXtal® Deep-Well Block	EasyXtal DG Tool X-Seal	NeXtal Tubes
The Classics Suite		■	■	■
The Classics Lite Suite		■	■	■
The Classics II Suite		■	■	■
The Cryos Suite		■	■	■
The PEGs Suite		■	■	■
The AmSO4 Suite		■	■	■
The MPD Suite		■	■	■
The Anions Suite		■	■	■
The Cations Suite		■	■	■
The pHClear Suite		■	■	■
The pHClear II Suite		■	■	■
The MbClass Suite		■	■	■
The MbClass II Suite		■	■	■
The Protein Complex Suite		■	■	■
The PEGs II Suite		■	■	■
The ComPAS Suite		■	■	■
The PACT Suite		■	■	■
The Nucleix Suite		■	■	■
The JCSG+ Suite		■	■	■
The JCSG Core I-IV Suites		■	■	■
The Opti-Salts Suite	■	■	■	
Pre-Screen Assay			■	

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