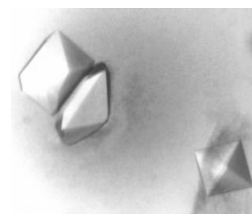


The MPD Suite

For screening of protein crystallization conditions



The MPD Suite provides:

- A ready-to-use kit format to which only protein needs to be added, for easy and fast screening
- 96 precisely defined chemical solutions containing 2-methyl-2,4-pentandiol as precipitant
- A precipitant that lowers the chemical activity of water and thereby reduces the number of electrostatic interactions between the protein and its solvent
- A precipitant that functions as cryoprotectant and thereby protects crystals from breakage due to formation of crystalline ice when performing flash-freezing experiments
- A first set of solutions (conditions 1–48) containing a combination of MPD with 48 different salts known to be effective as co-crystallizers
- A second set of solutions (conditions 49–72) containing different concentrations of MPD in combination with various pH conditions in a 4x6 grid format to precisely define the effect of these factors
- A third set (conditions 73–96) with the most popular solutions from the BMCD enabling screening for different combinations of co-precipitant, salts, and buffers that proved to be successful for other proteins
- An intermediate step between results received from an MPD containing suite (e.g., The Classics Suite), and before a narrower refinement

The MPD Suite is available in a wide range of formats to suit all scales and throughputs. EasyXtal® Refill-Hit Solutions can be used to develop grids around the original hit conditions. An overview of the composition of the 96 solutions together with an order number for the corresponding Refill-Hit Solution can be found on pages 2 and 3. The location of each Refill-Hit Solution number is given in the diagram below.

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



The MPD Suite Composition Table

| Number | Salt | Buffer | Precipitant | Cat. no. (Refill-Hit Solution, 4 x 12.5 ml tubes) |
|--------|------------------------------|--------|---------------|---|
| 1 | 0.2 M Cadmium chloride | | 40% (v/v) MPD | 134501 |
| 2 | 0.2 M Potassium fluoride | | 40% (v/v) MPD | 134502 |
| 3 | 0.2 M Ammonium fluoride | | 40% (v/v) MPD | 134503 |
| 4 | 0.2 M Lithium chloride | | 40% (v/v) MPD | 134504 |
| 5 | 0.2 M Magnesium chloride | | 40% (v/v) MPD | 134505 |
| 6 | 0.2 M Sodium chloride | | 40% (v/v) MPD | 134506 |
| 7 | 0.2 M Calcium chloride | | 40% (v/v) MPD | 134507 |
| 8 | 0.2 M Potassium chloride | | 40% (v/v) MPD | 134508 |
| 9 | 0.2 M Ammonium chloride | | 40% (v/v) MPD | 134509 |
| 10 | 0.2 M Sodium iodide | | 40% (v/v) MPD | 134510 |
| 11 | 0.2 M Potassium iodide | | 40% (v/v) MPD | 134511 |
| 12 | 0.2 M Ammonium iodide | | 40% (v/v) MPD | 134512 |
| 13 | 0.2 M Sodium thiocyanate | | 40% (v/v) MPD | 134513 |
| 14 | 0.2 M Potassium thiocyanate | | 40% (v/v) MPD | 134514 |
| 15 | 0.2 M Lithium nitrate | | 40% (v/v) MPD | 134515 |
| 16 | 0.2 M Magnesium nitrate | | 40% (v/v) MPD | 134516 |
| 17 | 0.2 M Sodium nitrate | | 40% (v/v) MPD | 134517 |
| 18 | 0.2 M Potassium nitrate | | 40% (v/v) MPD | 134518 |
| 19 | 0.2 M Ammonium nitrate | | 40% (v/v) MPD | 134519 |
| 20 | 0.2 M Zinc sulfate | | 40% (v/v) MPD | 134520 |
| 21 | 0.2 M Sodium formate | | 40% (v/v) MPD | 134521 |
| 22 | 0.2 M Potassium formate | | 40% (v/v) MPD | 134522 |
| 23 | 0.2 M Ammonium formate | | 40% (v/v) MPD | 134523 |
| 24 | 0.2 M Lithium acetate | | 40% (v/v) MPD | 134524 |
| 25 | 0.2 M Magnesium acetate | | 40% (v/v) MPD | 134525 |
| 26 | 0.2 M Sodium malonate | | 40% (v/v) MPD | 134526 |
| 27 | 0.2 M Sodium acetate | | 40% (v/v) MPD | 134527 |
| 28 | 0.2 M Calcium acetate | | 40% (v/v) MPD | 134528 |
| 29 | 0.2 M Potassium acetate | | 40% (v/v) MPD | 134529 |
| 30 | 0.2 M Ammonium acetate | | 40% (v/v) MPD | 134530 |
| 31 | 0.2 M Lithium sulfate | | 40% (v/v) MPD | 134531 |
| 32 | 0.2 M Magnesium sulfate | | 40% (v/v) MPD | 134532 |
| 33 | 0.2 M Cesium chloride | | 40% (v/v) MPD | 134533 |
| 34 | 0.2 M Nickel chloride | | 40% (v/v) MPD | 134534 |
| 35 | 0.2 M Ammonium sulfate | | 40% (v/v) MPD | 134535 |
| 36 | 0.2 M di-Sodium tartrate | | 40% (v/v) MPD | 134536 |
| 37 | 0.2 M K/Na tartrate | | 40% (v/v) MPD | 134537 |
| 38 | 0.2 M di-Ammonium tartrate | | 40% (v/v) MPD | 134538 |
| 39 | 0.2 M Sodium phosphate | | 40% (v/v) MPD | 134539 |
| 40 | 0.2 M Potassium bromide | | 40% (v/v) MPD | 134540 |
| 41 | 0.2 M Sodium bromide | | 40% (v/v) MPD | 134541 |
| 42 | 0.2 M di-Potassium phosphate | | 40% (v/v) MPD | 134542 |
| 43 | 0.2 M Ammonium phosphate | | 40% (v/v) MPD | 134543 |
| 44 | 0.2 M di-Ammonium phosphate | | 40% (v/v) MPD | 134544 |
| 45 | 0.2 M tri-Lithium citrate | | 40% (v/v) MPD | 134545 |
| 46 | 0.2 M tri-Sodium citrate | | 40% (v/v) MPD | 134546 |
| 47 | 0.2 M tri-Potassium citrate | | 40% (v/v) MPD | 134547 |
| 48 | 0.18 M tri-Ammonium citrate | | 40% (v/v) MPD | 134548 |

The MPD Suite Composition Table

| Number | Salt | Buffer | Precipitant | Cat. no. (Refill-Hit Solution, 4 x 12.5 ml tubes) |
|--------|---------------------------|---------------------------------|--------------------------------------|---|
| 49 | | 0.1 M Citric acid pH 4.0 | 10% (v/v) MPD | 134549 |
| 50 | | 0.1 M Sodium acetate pH 5.0 | 10% (v/v) MPD | 134550 |
| 51 | | 0.1 M MES pH 6.0 | 10% (v/v) MPD | 134551 |
| 52 | | 0.1 M HEPES pH 7.0 | 10% (v/v) MPD | 134552 |
| 53 | | 0.1 M Tris pH 8.0 | 10% (v/v) MPD | 134553 |
| 54 | | 0.1 M Bicine pH 9.0 | 10% (v/v) MPD | 134554 |
| 55 | | 0.1 M Citric acid pH 4.0 | 20% (v/v) MPD | 134555 |
| 56 | | 0.1 M Sodium acetate pH 5.0 | 20% (v/v) MPD | 134556 |
| 57 | | 0.1 M MES pH 6.0 | 20% (v/v) MPD | 134557 |
| 58 | | 0.1 M HEPES pH 7.0 | 20% (v/v) MPD | 134558 |
| 59 | | 0.1 M Tris pH 8.0 | 20% (v/v) MPD | 134559 |
| 60 | | 0.1 M Bicine pH 9.0 | 20% (v/v) MPD | 134560 |
| 61 | | 0.1 M Citric acid pH 4.0 | 40% (v/v) MPD | 134561 |
| 62 | | 0.1 M Sodium acetate pH 5.0 | 40% (v/v) MPD | 134562 |
| 63 | | 0.1 M MES pH 6.0 | 40% (v/v) MPD | 134563 |
| 64 | | 0.1 M HEPES pH 7.0 | 40% (v/v) MPD | 134564 |
| 65 | | 0.1 M Tris pH 8.0 | 40% (v/v) MPD | 134565 |
| 66 | | 0.1 M Bicine pH 9.0 | 40% (v/v) MPD | 134566 |
| 67 | | 0.1 M Sodium acetate pH 4.0 | 65% (v/v) MPD | 134567 |
| 68 | | 0.1 M Sodium acetate pH 5.0 | 65% (v/v) MPD | 134568 |
| 69 | | 0.1 M MES pH 6.0 | 65% (v/v) MPD | 134569 |
| 70 | | 0.1 M HEPES pH 7.0 | 65% (v/v) MPD | 134570 |
| 71 | | 0.1 M Tris pH 8.0 | 65% (v/v) MPD | 134571 |
| 72 | | 0.1 M Bicine pH 9.0 | 65% (v/v) MPD | 134572 |
| 73 | 0.1 M tri-Sodium citrate | 0.1 M HEPES sodium salt pH 7.5 | 10% (w/v) MPD | 134573 |
| 74 | 0.05 M Magnesium chloride | 0.1 M Tris-HCl pH 8.5 | 12% (w/v) MPD | 134574 |
| 75 | 0.02 M Calcium chloride | 0.1 M Sodium acetate pH 4.6 | 15% (w/v) MPD | 134575 |
| 76 | | 0.1 M Imidazole-HCl pH 8.0 | 15% (w/v) MPD; 5% (w/v) PEG 4000 | 134576 |
| 77 | 0.2 M Ammonium acetate | 0.1 M tri-Sodium citrate pH 5.6 | 15% (w/v) MPD | 134577 |
| 78 | 0.2 M Magnesium acetate | 0.1 M MES sodium salt pH 6.5 | 15% (w/v) MPD | 134578 |
| 79 | 0.2 M tri-Sodium citrate | 0.1 M HEPES sodium salt pH 7.5 | 15% (w/v) MPD | 134579 |
| 80 | 0.1 M tri-Sodium citrate | 0.1 M HEPES sodium salt pH 7.5 | 20% (w/v) MPD | 134580 |
| 81 | | 0.1 M Imidazole-HCl pH 8.0 | 20% (w/v) MPD | 134581 |
| 82 | 0.2 M Sodium chloride | | 20% (w/v) MPD; 4% (w/v) Glycerol | 134582 |
| 83 | 0.02 M Calcium chloride | 0.1 M Sodium acetate pH 4.6 | 30% (w/v) MPD | 134583 |
| 84 | 0.2 M Ammonium acetate | 0.1 M tri-Sodium citrate pH 5.6 | 30% (w/v) MPD | 134584 |
| 85 | 0.2 M Magnesium acetate | 0.1 M MES sodium salt pH 6.5 | 30% (w/v) MPD | 134585 |
| 86 | 0.5 M Ammonium sulfate | 0.1 M HEPES sodium salt pH 7.5 | 30% (w/v) MPD | 134586 |
| 87 | 0.2 M tri-Sodium citrate | 0.1 M HEPES sodium salt pH 7.5 | 30% (w/v) MPD | 134587 |
| 88 | | 0.1 M HEPES sodium salt pH 7.5 | 30% (w/v) MPD; 5% (w/v) PEG 4000 | 134588 |
| 89 | | 0.1 M Imidazole-HCl pH 8.0 | 30% (w/v) MPD; 10% (w/v) PEG 4000 | 134589 |
| 90 | | | 30% (w/v) MPD; 20% (w/v) Ethanol | 134590 |
| 91 | | | 35% (w/v) MPD | 134591 |
| 92 | | 0.1 M Imidazole-HCl pH 8.0 | 35% (w/v) MPD | 134592 |
| 93 | | 0.1 M Tris-HCl pH 8.5 | 40% (w/v) MPD | 134593 |
| 94 | | 0.1 M HEPES sodium salt pH 7.5 | 47% (w/v) MPD | 134594 |
| 95 | | | 47% (w/v) MPD; 2% (w/v) tert-Butanol | 134595 |
| 96 | | | 50% (w/v) MPD | 134596 |

Protein crystallization suites and formats

| | NeXtal® Deep-Well Block | EasyXtal DG Tool X-Seal | NeXtal Tubes |
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| The PEGs Suite | ■ | | ■ |
| The AmSO ₄ Suite | ■ | | ■ |
| The MPD Suite | ■ | | ■ |
| The Anions Suite | ■ | | ■ |
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| 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 | ■ | | ■ |
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