silver • bullets™

HAMPTON RESEARCH
Solutions for Crystal Growth

User Guide **HR2-096 (page 1)**

Applications

- Additive screen for the optimization of protein crystals
- Additive screen to discover different crystal forms
- Secondary or orthogonal crystallization screen when traditional screens are not successful
- Additive screen for the optimization of protein solubility and stability

Features

Screens a portfolio of small molecules for their ability to establish stabilizing, intermolecular, hydrogen bonding, hydrophobic and electrostatic interactions which could promote stability, lattice formation, and crystallization.[1-3]

- Organic salts and acids
- Biologically active molecules
- Amino acids and peptides
- Macromolecular digests

Silver Bullets is a library of small molecules that have been shown to promote crystal lattice formation. X-ray diffraction analysis has demonstrated the reagents have the ability to:

- Stabilize the conformation of the protein
- Perturb the interaction of the protein with the solvent
- Participate in forming important lattice contacts
- Build the crystal lattice by forming reversible cross-links between the macromolecules in the crystal

Published results with the Silver Bullets have been very encouraging, with more than twice as many proteins being crystallized overall as were crystallized from controls free of any small molecules.[1-3] X-ray diffraction analysis has revealed the small molecule Silver Bullets in the crystal lattice, involved at the centers of hydrogen bonding networks and electrostatic interaction.[1-3]

Silver Bullets is compatible with hanging, sitting and sandwich drop vapor diffusion, microbatch, free interface, and microdialysis crystallization methods. Silver Bullets can be used with Dynamic Light Scattering (DLS), ThermoFluor, and Size Exclusion Chromatography assays.

General Description

Silver Bullets is composed of 96 solutions in a single Deep Well block (Greiner 780261) HT format. Each reagent is a mixture of small molecules or macromolecular digest in 0.02 M HEPES sodium pH 6.8 buffer. Each Silver Bullets solution is supplied in a 0.5 ml volume. Each solution contains between 2 and 20 small molecules. Supplied with two pieces of AlumaSeal™ II Sealing Film (HR8-069) and documentation.

Sample Preparation for Crystallization

The macromolecular sample should be homogenous, as pure as practically possible (> 95%) and free of amorphous and particulate material. Remove amorphous material by centrifugation or micro-filtration prior to use.

The recommended sample concentration is 5 to 25 mg/ml in dilute buffer (10 to 25 mM). The sample should be free of any unnecessary additives, other than those essential for sample solubility, stability or activity, to best observe the effects of the Silver Bullets.

Using Silver Bullets as a Crystallization Additive Screen

The following describes the use of the Silver Bullets with the Sitting Drop Vapor Diffusion method and a 100 microliter reagent well volume in a single 96 well plate. Other methods such as Hanging Drop Vapor Diffusion and Microbatch may also be utilized along with smaller reservoir and drop volumes.

- Reagent Well
  - A. Pipet 10 µl of the Silver Bullet reagent into the reagent well
  - B. Pipet 90 µl of crystallization reagent into the reagent well
- Drop
  - A. Pipet 200 nl of sample into the sample well
  - B. Pipet 200 nl of the crystallization reagent/Silver Bullet mixture from the reagent well into the sample drop
  - C. Repeat for the remaining Silver Bullets
  - D. Seal the plate

Alternatively, Silver Bullets can be added directly to the drop and not added to the reagent well.

- Reagent Well
  - A. Pipet crystallization reagent into the reagent well
- Drop
  - A. Pipet 1 µl of sample plus 1 µl of Silver Bullet plus 1 µl of crystallization reagent
  - B. Repeat for the remaining Silver Bullets
  - C. Seal the plate

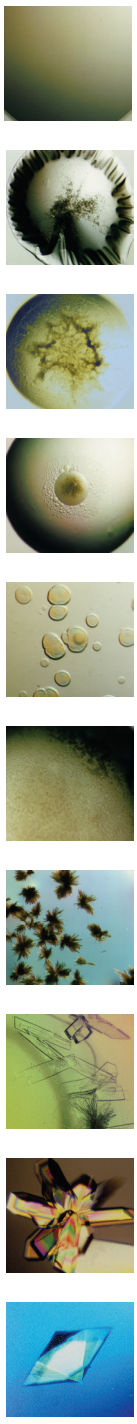
Using Silver Bullets as an Orthoganol Screen

Set the experiment as described for an Additive Screen but use 25% w/v Polyethylene glycol 3,350 for a polymer biased screen or 55% v/v Tacsimate™ pH 7.0 for a salt biased screen. Or choose one or more of the reagents from a primary crystallization screen that has produced promising results.

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 there after until the drops dry out. Records should indicate whether the drop is clear, contains precipitate, and or crystals. Some find it helpful to describe the drop contents using magnitude and descriptive terms. Example: 4+ yellow/brown fine precipitate, 2+ small bipyramid crystals, clear drop, 3+ needle shaped crystals in 1+ white precipitate. One may also employ a standard numerical scoring scheme (Clear = 0, Precipitate = 1, Unknown =3, Crystal = 4 or

Figure 1.
Typical observations in a crystallization experiment



other format) or even a color based scoring scheme. Figure 1 (left side of page) shows typical examples of what one might observe in a crystallization experiment.

Interpreting the Drop

Most of the chemicals in the Silver Bullets solutions are used more than once, albeit in a unique combination with other chemicals, creating a unique library of 96 reagents. The duplication can be used to extrapolate which chemical may be the crystal's silver bullet.

For example, the appearance of crystals in drops 11, 35, 73, 75, 78, 87, 95 might indicate that Mellitic acid is the silver bullet since Mellitic acid is a common chemical to each of these solutions.

It is generally recommended that one first perform subsequent optimization using a complete Silver Bullets reagent formulation as it may not be necessary to deconvolute and screen individual Silver Bullets chemicals to optimize the condition.

Optimization

When optimizing a crystal produced from a Silver Bullets solution, one should pursue strategies, methods and techniques typically used for crystal optimization. This would include varying the pH, the sample and crystallization reagent composition and concentration. One should also consider the effects of temperature between 4 and 30 degrees Celsius. Seed from anything crystalline or precipitated. Vary drop ratios. Further purify or modify the sample, optimize sample buffer and pH. And of course consider evaluating other additives which may be required by your sample to produce or improve crystals.

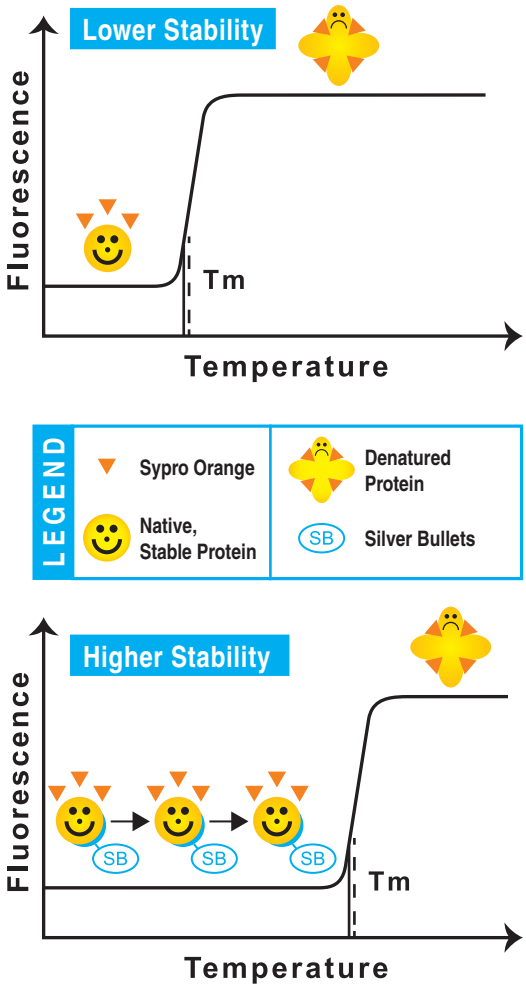
Control Experiment

A control experiment can be used to identify false leads, or salt crystals, where all components are present from the original crystallization experiment, minus the sample. The sample solution, complete with all chemicals, minus the sample should be used in place of the original sample. The presence of crystals in the control drop that appear similar to those in the original crystallization experiment indicates the formation of salt crystals. For best interpretation, the control experiment should be performed using the same crystallization method, with the same device, materials, temperature, and volumes and evaluated on the same time scale and in a manner similar to the original crystallization experiment.

Using Silver Bullets with the ThermoFluor Assay for Protein Stability

The ThermoFluor assay provides a fluorescence readout measurement of thermally-induced protein melting.[4,5] A ThermoFluor assay with the protein in the presence of small molecule additives can be used to help in the identification of sample buffer formulations that increase Tm and relative stability of the protein. (Figure 2).[6-8, 10-12]

Figure 2. ThermoFluor Principle
The protein in solution is heated in the presence of Silver Bullets and Sypro Orange. The fluorescence of the hydrophobic dye Sypro Orange increases significantly when the dye binds to the internal hydrophobic protein patches that become exposed upon protein denaturation. Protein stability or melting temperature (Tm) can be measured by analyzing the temperature dependence of protein denaturation and subsequent increase in fluorescence intensity. Silver Bullets that stabilize or destabilize the protein can be identified by the measured increased or decreased Tm.



Sample Preparation for ThermoFluor

Sample purity should be 75% or greater for reliable ThermoFluor experiments. It is desirable to remove affinity tags from the protein sample before ThermoFluor. Tags can have high dynamic structure and destabilize the protein during ThermoFluor or have their own contribution to the melting curve. A tag can decrease protein thermal stability as well as complicate ThermoFluor data and interpretation of the results.

ThermoFluor Assay with Silver Bullets

ThermoFluor assay for Silver Bullets with a final well volume of 20 µl. With the PCR plate on ice, add the following to each well.

1. Pipette 2 µl of 1 mg/mL protein per well (2 µg of protein per well).
2. Pipette 11 µl of deionized water per well.
3. Pipette 5 µl of Silver Bullets per well.
4. Pipette 2 µl of 50x Sypro Orange per well. ***Add this last*** (Note: To make 200 µl of 50x Sypro Orange add 2 µl of 5000x Sypro Orange to 198 µl of deionized water.)
5. Repeat 1-4 for each well of the PCR reaction plate.
6. Seal the PCR reaction plate with transparent sealing film.
7. Centrifuge the PCR reaction plate at 4°C at 2,500 g for 30 seconds to bring all of the solution to the bottom of the well and to rid each well of any bubbles.
8. Place the sealed plate in the RT-PCR instrument equilibrated to 4°C or 25°C, programmed for a 5 minute equilibration in order for the temperature of the plate and reagents to equilibrate with the block and as well as allow the reagents to diffuse and mix.
9. Perform the ThermoFluor assay from either 4 to 95°C or 25 to 95°C with a temperature ramp of 1°C per minute.

* Step 3 is a 1:4 dilution. Other dilutions can and should be assayed to find the optimal Silver Bullets concentration. Analyze the ThermoFluor data to identify the optimal Silver Bullets for the sample.[9, 13-15]

Using Silver Bullets with Dynamic Light Scattering

Dynamic Light Scattering (DLS) measurements can be performed on any single or multi-angle light scattering instrument. The volume required will depend upon how the instrument is equipped as well as the type and volume of cuvette or plate. The minimum protein concentration required for a good DLS signal will depend upon the molecular weight of the protein. An often mentioned concentration is 1 mg/ml, however a protein of 15 kD might perform well at 3 mg/ml, a 100 kD protein at 0.5 mg/ml. Follow the manufacturer's recommendation for setting up the instrument, temperature options and general experimental protocol. For the DLS assay using the Silver Bullets, the suggested initial assay concentration is to dilute the Silver Bullets 1:4. For example, if your assay volume is 4 µl, add 1 µl of reagent to 3 µl of protein. If the assay volume is 40 µl, add 10 µl of reagent to 30 µl of protein. If possible, perform measurements at temperatures between 4 - 37°C as the dispersity profile can vary with temperature. Evaluate the data to identify reagents that promote a monidisperse DLS profile. In general, good sample monodispersity is a radius < 5 nm and polydispersity < 25%.[16-18]

Silver Bullets Formulation

Silver Bullets are %w/v solution in Type 1+ ultrapure water, 18.2 MΩ•cm resistivity at 25°C, < 5 ppb Total Organic Carbon, < 1 Bacteria (CFU/ml), < 0.03 Endotoxin (EU/ml) and HEPES sodium pH 6.8 buffer. Once the chemicals are added to the buffer and water, the solution is warmed to 50 degrees Celsius to enhance chemical solubility, followed by incubation at 25 degrees Celsius. The pH of each reagent is adjusted to pH 6.8 at 25 degrees Celsius using Hydrochloric acid or Sodium hydroxide. The resulting solution is centrifuged to pellet any precipitate and the supernatant is filtered using a 0.22 micron sterile filter into a sterile container. HEPES sodium buffer CAS [75277-39-3] is titrated to pH 6.8 using Hydrochloric acid. Refer to the Excel document entitled "Silver Bullets Specifications" for complete chemical names, synonyms, molecular formula, M_r, CAS, EC, structure, Beilstein Number and RTECS information. Each Silver Bullets solution is available separately through the Hampton Research Custom Shop™.

Reagent Solubility

Many Silver Bullets are formulated at or near saturation at pH 6.8 in 0.02 M HEPES sodium buffer. The solubility is temperature dependent, pH dependent and also depends on the presence of other chemicals in the reagent. Storage or exposure of the reagents to temperatures below 25 degrees Celsius will precipitate some of the Silver Bullets. This is normal. When this happens, the reagents should be warmed to 50 degrees Celsius for up to 4 hours and mixed to promote solubility. Allow the Silver Bullets to re-equilibrate at 25 degrees Celsius and centrifuge the block before use. Centrifuge the block at 1,000 rpm for 10 minutes to sediment any remaining precipitate. When setting the crystallization experiment use only the supernatant. Avoid touching the pipette tips to the bottom of the reagent well to avoid clogging tips or suspending the precipitate.

The chemicals in Silver Bullets are capable of forming small molecule salt crystals (false positives). Salt crystals may form due to:

- Changes in pH
- A lowering of temperature
- An increase in the relative supersaturation of the reagent
- The presence of polyvalent ions
- The presence of salts (including but not limited to phosphate, borate and carbonate)
- Evaporation

To minimize evaporation from the open block, place a Plate Lid (HR3-084 / HR3-085) on top of the opened block when it is not being stored or in active use. When viewing crystallization experiment drops, one should be aware of the possibility of salt crystals. To test for the presence of salt crystals, it is suggested one set a control experiment (see page 2).

Silver Bullets & pH

Silver Bullets reagents are buffered in 0.02 M HEPES sodium pH 6.8 but can be screened at different pH levels in the presence of higher buffer concentrations, such as 0.1 M.

Storing, Handling & Use

Silver Bullets should be stored between -20 and 25 degrees Celsius. If the solutions have been below 25 degrees Celsius, or if precipitate is present, warm the reagents to 50 degrees Celsius for up to 4 hours, mix well and then allow the solutions to equilibrate to 25 degrees Celsius. Centrifuge the 96 well plate that contains the Silver Bullets at 1,000 RPM for 10 minutes to pellet any remaining precipitate. The solutions are now ready for use.

The Deep Well block is thermal sealed with a polypropylene/aluminum film. The film should be removed when the block is at a temperature of 25 degrees Celsius. Removing the film with the block temperature below 25 degrees Celsius can delaminate or shred the film. After use, seal the block using AlumaSeal II Sealing Film (HR8-069), or the block could be sealed using a thermal sealer.

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Technical Support

Inquiries regarding Silver Bullets solution formulation, interpretation of screen results, optimization strategies and general inquiries regarding crystallization are welcome at tech@hrmail.com.

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Wells A1 - A12

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Also in	Well #	[units]	Silver Bullet	MW	CAS	EC
1, 7, 46, 92	1 (A1)	0.33% w/v	1,5-Naphthalenedisulfonic acid disodium salt	332.26 (anhyd)	1655-29-4	216-732-0
1, 11, 82, 93		0.33% w/v	2,5-Pyridinedicarboxylic acid	167.12	100-26-5	202-834-2
1, 4, 8, 16, 43, 87		0.33% w/v	3,5-Dinitrosalicylic acid	228.12	609-99-4	210-204-3
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
2, 12, 70, 95	2 (A2)	0.25% w/v	Benzidine	184.24	92-87-5	202-199-1
2, 49, 69		0.25% w/v	Nicotinamide	122.12	98-92-0	202-713-4
2, 35, 76, 93		0.25% w/v	Pyromellitic acid	254.15	89-05-4	201-879-5
2, 12, 22, 59		0.25% w/v	Sulfaguanidine	214.25	57-67-0	200-345-9
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
3, 31, 65, 68, 85	3 (A3)	0.25% w/v	Gly-gly	132.12	556-50-3	209-127-8
3, 96		0.25% w/v	Gly-gly-gly	189.17	556-33-2	209-122-0
3, 27		0.25% w/v	Gly-gly-gly-gly	246.22	637-84-3	211-303-4
3, 96		0.25% w/v	Pentaglycine	303.28	7093-67-6	230-398-3
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
1, 4, 8, 16, 43, 87	4 (A4)	0.25% w/v	3,5-Dinitrosalicylic acid	228.12	609-99-4	210-204-3
4, 47, 79, 87		0.25% w/v	4-Aminobenzoic acid	137.14	150-13-0	205-753-0
4, 20, 80, 93		0.25% w/v	Salicylic acid	138.12	69-72-7	200-712-3
4, 14, 80, 89		0.25% w/v	Trimesic acid	210.14	554-95-0	209-077-7
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
5, 11, 45, 92	5 (A5)	0.33% w/v	4-Nitrobenzoic acid	167.12	62-23-7	200-526-2
5, 14, 16, 37, 47, 73, 94		0.33% w/v	5-Sulfosalicylic acid dihydrate	254.22	5965-83-3	202-555-6
5, 7, 43, 47, 92		0.33% w/v	Naphthalene-1,3,6-trisulfonic acid trisodium salt hydrate	434.31 (anhyd)	123409-01-8	
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
6, 18, 47, 92	6 (A6)	0.33% w/v	2,6-Naphthalenedisulfonic acid disodium salt	332.26	1655-45-4	
6, 17, 46, 92		0.33% w/v	2,7-Naphthalenedisulfonic acid disodium salt	332.26	1655-35-2	
6, 36		0.33% w/v	Anthraquinone-2,6-disulfonic acid disodium salt	412.30	853-68-9	212-719-9
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7

Also in	Well #	[units]	Silver Bullet	MW	CAS	EC
1, 7, 46, 92	7 (A7)	0.33% w/v	1,5-Naphthalenedisulfonic acid disodium salt	332.26 (anhyd)	1655-29-4	216-732-0
5, 7, 43, 47, 92		0.33% w/v	Naphthalene-1,3,6-trisulfonic acid trisodium salt hydrate	434.31 (anhyd)	123409-01-8	
7, 39, 94		0.33% w/v	PIPES	302.37	5625-37-6	227-057-6
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
1, 4, 8, 16, 43, 87	8 (A8)	0.25% w/v	3,5-Dinitrosalicylic acid	228.12	609-99-4	210-204-3
8, 20		0.25% w/v	3-Aminosalicylic acid	153.14	570-23-0	209-328-0
8, 21, 71		0.25% w/v	Salicylamide	137.14	65-45-2	200-609-3
8, 71		0.25% w/v	Sodium 1-pentanesulfonate monohydrate	192.21	207605-40-1	245-208-4
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
9, 32	9 (A9)	0.16% w/v	L-Histidine	155.15	71-00-1	200-745-3
9, 32		0.16% w/v	L-Isoleucine	131.17	73-32-5	200-798-2
9, 32		0.16% w/v	L-Leucine	131.17	61-90-5	200-522-0
9, 32		0.16% w/v	L-Phenylalanine	165.19	63-91-2	200-568-1
9, 32		0.16% w/v	L-Tryptophan	204.23	73-22-3	200-795-6
9, 32		0.16% w/v	L-Tyrosine	181.19	60-18-4	200-460-4
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
10, 33	10 (A10)	0.2% w/v	D-(+)-Trehalose dihydrate	378.33	6138-23-4	202-739-6
10		0.2% w/v	Guanidine hydrochloride	95.53	50-01-1	200-002-3
10		0.2% w/v	Phenol	94.11	108-95-2	203-632-7
10, 44		0.2% w/v	Trimethylamine N-oxide dihydrate	111.14	62637-93-8	214-675-6
10		0.2% w/v	Urea	60.06	57-13-6	200-315-5
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
1, 11, 82, 93	11 (A11)	0.33% w/v	2,5-Pyridinedicarboxylic acid	167.12	100-26-5	202-834-2
5, 11, 45, 92		0.33% w/v	4-Nitrobenzoic acid	167.12	62-23-7	200-526-2
11, 35, 73, 75, 78, 87, 95		0.33% w/v	Mellitic acid	342.17	517-60-2	208-243-6
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
2, 12, 70, 95	12 (A12)	0.25% w/v	Benzidine	184.24	92-87-5	202-199-1
12		0.25% w/v	Phenylglyoxal monohydrate	152.15	1074-12-0	214-036-1
2, 12, 22, 59		0.25% w/v	Sulfaguanidine	214.25	57-67-0	200-345-9
12, 21		0.25% w/v	Sulfanilamide	172.21	63-74-1	200-563-4
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7

Also in	Well #	[units]	Silver Bullet	MW	CAS	EC
13, 70	13 (B1)	0.33% w/v	Anthrone	194.23	90-44-8	201-994-0
13, 69		0.33% w/v	Congo Red	696.66	573-58-0	209-358-4
13, 36, 70		0.33% w/v	N-(2-Acetamido)-2-aminoethanesulfonic acid	182.20	7365-82-4	230-908-4
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
14, 37, 77, 91	14 (B2)	0.33% w/v	1,3,5-Pentanetricarboxylic acid	204.18	6940-58-5	
5, 14, 16, 37, 47, 73, 94		0.33% w/v	5-Sulfosalicylic acid dihydrate	254.22	5965-83-3	202-555-6
4, 14, 80, 89		0.33% w/v	Trimesic acid	210.14	554-95-0	209-077-7
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
15, 19, 36, 46	15 (B3)	0.25% w/v	5-Sulfoisophthalic acid monosodium salt	268.18	6362-79-4	
15, 95		0.25% w/v	Cystathionine	222.26	535-34-2	208-613-7
15, 26		0.25% w/v	Dithioerythritol	154.25	6892-68-8	229-998-8
15, 64		0.25% w/v	L-Citrulline	175.19	372-75-8	206-759-6
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
1, 4, 8, 16, 43, 87	16 (B4)	0.33% w/v	3,5-Dinitrosalicylic acid	228.12	609-99-4	210-204-3
16, 80, 94		0.33% w/v	3-Aminobenzenesulfonic acid	173.19	121-47-1	204-473-6
5, 14, 16, 37, 47, 73, 94		0.33% w/v	5-Sulfosalicylic acid dihydrate	254.22	5965-83-3	202-555-6
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
6, 17, 46, 92	17 (B5)	0.33% w/v	2,7-Naphthalenedisulfonic acid disodium salt	332.26	1655-35-2	
17, 35, 75, 79, 91		0.33% w/v	Azelaic acid	188.22	123-99-9	204-669-1
17, 35, 78, 93		0.33% w/v	trans-Cinnamic acid	148.16	140-10-3	205-398-1
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
6, 18, 47, 92	18 (B6)	0.33% w/v	2,6-Naphthalenedisulfonic acid disodium salt	332.26	1655-45-4	
18, 81		0.33% w/v	2-Aminobenzenesulfonic acid	173.19	88-21-1	201-810-9
18, 35, 92		0.33% w/v	m-Benzenedisulfonic acid disodium salt	282.20	831-59-4	212-606-4
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7

Also in	Well #	[units]	Silver Bullet	MW	CAS	EC
19, 23, 82	19 (B7)	0.33% w/v	1,4-Cyclohexanedicarboxylic acid	172.18	1076-97-7	
19, 74, 75		0.33% w/v	2,2'-Thiodiglycolic acid	150.15	123-93-3	204-663-9
15, 19, 36, 46		0.33% w/v	5-Sulfoisophthalic acid monosodium salt	268.18	6362-79-4	
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
20, 80	20 (B8)	0.33% w/v	3-Aminobenzoic acid	137.14	99-05-8	202-724-4
8, 20		0.33% w/v	3-Aminosalicylic acid	153.14	570-23-0	209-328-0
4, 20, 80, 93		0.33% w/v	Salicylic acid	138.12	69-72-7	200-712-3
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
21, 38, 39, 87	21 (B9)	0.25% w/v	Hexamminecobalt(III) chloride	267.48	10534-89-1	234-103-9
8, 21, 71		0.25% w/v	Salicylamide	137.14	65-45-2	200-609-3
12, 21		0.25% w/v	Sulfanilamide	172.21	63-74-1	200-563-4
21, 94		0.25% w/v	Vanillic acid	168.15	121-34-6	204-466-8
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
22, 79, 94	22 (B10)	0.25% w/v	p-Coumaric acid	164.16	501-98-4	231-000-0
22, 70		0.25% w/v	Phenylurea	136.15	64-10-8	200-576-5
22, 77		0.25% w/v	Poly(3-hydroxybutyric acid)		29435-48-1	210-909-6
2, 12, 22, 59		0.25% w/v	Sulfaguanidine	214.25	57-67-0	200-345-9
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
23, 45, 58, 59	23 (B11)	0.25% w/v	1,2-Diaminocyclohexane sulfate	212.27	65433-80-9	
19, 23, 82		0.25% w/v	1,4-Cyclohexanedicarboxylic acid	172.18	1076-97-7	
23, 61		0.25% w/v	Methylenediphosphonic acid	176.00	1984-15-2	217-851-0
23, 46, 89		0.25% w/v	Sulfanilic acid	173.19	121-57-3	204-482-5
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
24, 62, 90	24 (B12)	0.25% w/v	D-Fructose 1,6-bisphosphate trisodium salt hydrate	406.06 (anhyd)	38099-82-0	
24, 90		0.25% w/v	D-Glucose 6-phosphate sodium salt	282.12	54010-71-8	258-921-0
24, 62, 90		0.25% w/v	L-O-Phosphoserine	185.07	407-41-0	206-986-0
24, 62, 90		0.25% w/v	O-Phospho-L-tyrosine	261.17	21820-51-9	
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7

Also in	Well #	[units]	Silver Bullet	MW	CAS	EC
25, 40, 69, 87	25 (C1)	0.25% w/v	Benzamidine hydrochloride	156.61	1670-14-0	216-795-4
25, 64, 95		0.25% w/v	L-Carnitine hydrochloride	197.66	6645-46-1	229-663-6
25, 95		0.25% w/v	L-Cystine	240.30	56-89-3	200-296-3
25, 63		0.25% w/v	L-Ornithine hydrochloride	168.62	3184-13-2	221-678-6
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
26, 49	26 (C2)	0.33% w/v	Caffeine	194.19	58-08-2	200-362-1
15, 26		0.33% w/v	Dithioerythritol	154.25	6892-68-8	229-998-8
26, 32, 85		0.33% w/v	L-Methionine	149.21	63-68-3	200-562-9
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
27, 29, 31, 86	27 (C3)	0.25% w/v	Ala-ala	160.17	1948-31-8	217-751-7
27, 86		0.25% w/v	Ala-gly	146.14	687-69-4	211-699-9
3, 27		0.25% w/v	Gly-gly-gly-gly	246.22	637-84-3	211-303-4
27, 29, 30, 96		0.25% w/v	Leu-gly-gly	245.28	1187-50-4	214-698-1
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
28, 29, 96	28 (C4)	0.2% w/v	Aspartame	294.30	22839-47-0	245-261-3
28, 31, 86		0.2% w/v	Gly-asp	190.16	4685-12-5	225-140-1
28, 31		0.2% w/v	Gly-ser	162.15	7361-43-5	230-901-6
28, 31		0.2% w/v	Ser-tyr	268.27	21435-27-8	
28, 96		0.2% w/v	Tyr-phe	328.37	17355-11-2	
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
27, 29, 31, 86	29 (C5)	0.16% w/v	Ala-ala	160.17	1948-31-8	217-751-7
28, 29, 96		0.16% w/v	Aspartame	294.30	22839-47-0	245-261-3
29, 30		0.16% w/v	Gly-tyr	238.24	658-79-7	211-525-1
27, 29, 30, 96		0.16% w/v	Leu-gly-gly	245.28	1187-50-4	214-698-1
29, 86		0.16% w/v	Ser-Glu	234.21	6403-16-3	
29, 96		0.16% w/v	Tyr-ala	252.27	730-08-5	
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
30, 31, 86	30 (C6)	0.33% w/v	Gly-phe	222.24	3321-03-7	222-027-9
29, 30		0.33% w/v	Gly-tyr	238.24	658-79-7	211-525-1
27, 29, 30, 96		0.33% w/v	Leu-gly-gly	245.28	1187-50-4	214-698-1
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
27, 29, 31, 86	31 (C7)	0.16% w/v	Ala-ala	160.17	1948-31-8	217-751-7
28, 31, 86		0.16% w/v	Gly-asp	190.16	4685-12-5	225-140-1
3, 31, 65, 68, 85		0.16% w/v	Gly-gly	132.12	556-50-3	209-127-8
30, 31, 86		0.16% w/v	Gly-phe	222.24	3321-03-7	222-027-9
28, 31		0.16% w/v	Gly-ser	162.15	7361-43-5	230-901-6
28, 31		0.16% w/v	Ser-tyr	268.27	21435-27-8	
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7

Also in	Well #	[units]	Silver Bullet	MW	CAS	EC
32, 56	32 (C8)	0.05% w/v	Glycine	75.07	56-40-6	200-272-2
32		0.05% w/v	L-(-)-Threonine	119.12	72-19-5	200-774-1
32, 63		0.05% w/v	L-(+)-Lysine	146.19	56-87-1	200-294-2
32		0.05% w/v	L-Alanine	89.09	56-41-7	200-273-8
32, 64		0.05% w/v	L-Arginine	174.20	74-79-3	200-811-1
32		0.05% w/v	L-Asparagine monohydrate	150.13	5794-13-8	200-735-9
32		0.05% w/v	L-Aspartic acid	133.10	56-84-8	200-291-6
32, 44		0.05% w/v	L-Glutamic acid	147.13	56-86-0	200-293-7
32		0.05% w/v	L-Glutamine	146.14	56-85-9	200-292-1
9, 32		0.05% w/v	L-Histidine	155.15	71-00-1	200-745-3
9, 32		0.05% w/v	L-Isoleucine	131.17	73-32-5	200-798-2
9, 32		0.05% w/v	L-Leucine	131.17	61-90-5	200-522-0
26, 32		0.05% w/v	L-Methionine	149.21	63-68-3	200-562-9
9, 32		0.05% w/v	L-Phenylalanine	165.19	63-91-2	200-568-1
32, 44		0.05% w/v	L-Proline	115.13	147-85-3	205-702-2
32		0.05% w/v	L-Serine	105.09	56-45-1	200-274-3
9, 32		0.05% w/v	L-Tryptophan	204.23	73-22-3	200-795-6
9, 32		0.05% w/v	L-Tyrosine	181.19	60-18-4	200-460-4
32		0.05% w/v	L-Valine	117.15	72-18-4	200-773-6
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
33	33 (C9)	0.2% w/v	D-(+)-Maltose monohydrate	360.31	6363-53-7	200-716-5
33		0.2% w/v	D-(+)-Melibiose monohydrate	342.30	585-99-9	
33, 34		0.2% w/v	D-(+)-Raffinose pentahydrate	594.51	17629-30-0	208-146-9
10, 33		0.2% w/v	D-(+)-Trehalose dihydrate	378.33	6138-23-4	202-739-6
33, 34		0.2% w/v	Stachyose hydrate	666.59 (anhyd)	54261-98-2	
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
34	34 (C10)	0.16% w/v	β-Cyclodextrin	1134.98	7585-39-9	231-493-2
34		0.16% w/v	D-(+)-Cellobiose	342.30	528-50-7	208-436-5
34		0.16% w/v	D-(+)-Maltotriose	504.44 (anhyd)	207511-08-8	
34		0.16% w/v	D-(+)-Melezitose hydrate	504.44 (anhyd)	207511-10-2	
33, 34		0.16% w/v	D-(+)-Raffinose pentahydrate	594.51	17629-30-0	208-146-9
33, 34		0.16% w/v	Stachyose hydrate	666.59 (anhyd)	54261-98-2	
Buffer		0.02 M	HEPES sodium pH 6.8	66.58	75277-39-3	278-169-7
17, 35, 75, 79, 91	35 (C11)	0.16% w/v	Azelaic acid	188.22	123-99-9	204-669-1
18, 35, 92		0.16% w/v	m-Benzenedisulfonic acid disodium salt	282.20	831-59-4	212-606-4
11, 35 ,73, 75, 78, 87, 95		0.16% w/v	Mellitic acid	342.17	517-60-2	208-243-6
35, 72, 78, 91		0.16% w/v	Pimelic acid	160.17	111-16-0	203-840-8
2, 35, 76, 93		0.16% w/v	Pyromellitic acid	254.15	89-05-4	201-879-5
17, 35 , 78, 93		0.16% w/v	trans-Cinnamic acid	148.16	140-10-3	205-398-1
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
15, 19, 36, 46	36 (C12)	0.25% w/v	5-Sulfoisophthalic acid monosodium salt	268.18	6362-79-4	
6, 36		0.25% w/v	Anthraquinone-2,6-disulfonic acid disodium salt	412.30	853-68-9	212-719-9
13, 36, 70		0.25% w/v	N-(2-acetamido)-2-aminoethanesulfonic acid	182.20	7365-82-4	230-908-4
36, 67		0.25% w/v	Tetrahydroxy-1,4-benzoquinone hydrate	172.09 (anhyd)	123334-16-7	
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7

Also in	Well #	[units]	Silver Bullet	MW	CAS	EC
14, 37, 77, 91	37 (D1)	0.25% w/v	1,3,5-Pentanetricarboxylic acid	204.18	6940-58-5	
5, 14, 16, 37, 47, 73, 94		0.25% w/v	5-Sulfosalicylic acid dihydrate	254.22	5965-83-3	202-555-6
37, 79		0.25% w/v	o-Sulfobenzoic acid monoammonium salt	219.22	6939-89-5	
37, 79		0.25% w/v	Sodium 4-aminosalicylate dihydrate	211.15	6018-19-5	205-091-2
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
38	38 (D2)	0.06 M	CHAPS	614.89	75621-03-3	
38		0.06 M	HEPES	238.31	7365-45-9	230-907-9
38		0.06 M	Tris	121.14	77-86-1	201-064-4
21, 38, 39, 87		0.25% w/v	Hexamminecobalt(III) chloride	267.48	10534-89-1	234-103-9
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
39	39 (D3)	0.06 M	MES monohydrate	213.25	145224-94-8	224-632-3
7, 39, 94		0.06 M	PIPES	302.37	5625-37-6	227-057-6
21, 38, 39, 87		0.33% w/v	Hexamminecobalt(III) chloride	267.48	10534-89-1	234-103-9
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
40	40 (D4)	0.005 M	Gadolinium(III) chloride hexahydrate	371.70	13450-84-5	233-386-6
40		0.005 M	Samarium(III) chloride hexahydrate	364.81	13465-55-9	233-797-0
25, 40, 69, 87		0.05 M	Benzamidine hydrochloride	156.61	1670-14-0	216-795-4
40, 69		0.25% w/v	Salicin	286.28	138-52-3	205-331-6
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
41	41 (D5)	0.004 M	Calcium chloride dihydrate	147.01	10035-04 -8	233-140-8
41		0.004 M	Magnesium chloride hexahydrate	203.30	7791-18-6	232-094-6
41		0.004 M	Manganese(II) chloride tetrahydrate	197.91	13446-34-9	231-869-6
41		0.004 M	Zinc chloride	136.30	7646-85-7	231-592-0
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
42	42 (D6)	0.004 M	Cadmium chloride hydrate	183.32	654054-66-7	
42		0.004 M	Cobalt(II) chloride hexahydrate	237.93	7791-13-1	231-589-4
42		0.004 M	Copper(II) chloride dihydrate	170.48	10125-13-0	231-210-2
42		0.004 M	Nickel(II) chloride hexahydrate	237.69	7791-20-0	231-743-0
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7

Also in	Well #	[units]	Silver Bullet	MW	CAS	EC
1, 4, 8, 16, 43, 87	43 (D7)	0.25% w/v	3,5-Dinitrosalicylic acid	228.12	609-99-4	210-204-3
43, 76, 81		0.25% w/v	3-Indolebutyric acid	203.24	133-32-4	205-101-5
5, 7, 43, 47, 92		0.25% w/v	Naphthalene-1,3,6-trisulfonic acid trisodium salt hydrate	434.31 (anhyd)	123409-01-8	
43, 82, 93		0.25% w/v	trans-1,2-Cyclohexanedicarboxylic acid	172.18	2305-32-0	218-975-8
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
44, 67	44 (D8)	0.2% w/v	Betaine anhydrous	117.15	107-43-7	203-490-6
32, 44, 85		0.2% w/v	L-Glutamic acid	147.13	56-86-0	200-293-7
32, 44, 85		0.2% w/v	L-Proline	115.13	147-85-3	205-702-2
44, 63, 64		0.2% w/v	Taurine	125.15	107-35-7	203-483-8
10, 44		0.2% w/v	Trimethylamine N-oxide dihydrate	111.14	62637-93-8	214-675-6
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
23, 45, 58, 59	45 (D9)	0.25% w/v	1,2-Diaminocyclohexane sulfate	212.27	65433-80-9	
5, 11, 45, 92		0.25% w/v	4-Nitrobenzoic acid	167.12	62-23-7	200-526-2
45, 57, 60, 88		0.25% w/v	Cystamine dihydrochloride	225.20	56-17-7	200-260-7
45, 57, 58, 59, 88		0.25% w/v	Spermine	202.34	71-44-3	200-754-2
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
1, 7, 46, 92	46 (D10)	0.25% w/v	1,5-Naphthalenedisulfonic acid disodium salt	332.26 (anhyd)	1655-29-4	216-732-0
6, 17, 46, 92		0.25% w/v	2,7-Naphthalenedisulfonic acid disodium salt	332.26	1655-35-2	
15, 19, 36, 46		0.25% w/v	5-Sulfoisophthalic acid monosodium salt	268.18	6362-79-4	
23, 46, 89		0.25% w/v	Sulfanilic acid	173.19	121-57-3	204-482-5
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
6, 18, 47, 92	47 (D11)	0.25% w/v	2,6-Naphthalenedisulfonic acid disodium salt	332.26	1655-45-4	
4, 47, 79, 87		0.25% w/v	4-Aminobenzoic acid	137.14	150-13-0	205-753-0
5, 14, 16, 37, 47, 73, 94		0.25% w/v	5-Sulfosalicylic acid dihydrate	254.22	5965-83-3	202-555-6
5, 7, 43, 47, 92		0.25% w/v	Naphthalene-1,3,6-trisulfonic acid trisodium salt hydrate	434.31 (anhyd)	123409-01-8	
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
48	48 (D12)	0.2% w/v	Rhenium(IV) oxide	218.21	12036-09-8	234-839-0
48		0.2% w/v	Sodium bromide	102.89	7647-15-6	231-599-9
48		0.2% w/v	Sodium nitrate	84.99	7631-99-4	231-554-3
48		0.2% w/v	Sodium phosphate dibasic dihydrate	177.99	10028-24-7	231-448-7
48		0.2% w/v	Sodium tetraborate decahydrate	381.37	1303-96-4	215-540-4
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7

Also in	Well #	[units]	Silver Bullet	MW	CAS	EC
26, 49		0.2% w/v	Caffeine	194.19	58-08-2	200-362-1
49, 71		0.2% w/v	Cytosine	111.10	71-30-7	200-749-5
49, 84	49	0.2% w/v	Gallic acid monohydrate	188.14	5995-86-8	205-749-9
2, 49, 69	(E1)	0.2% w/v	Nicotinamide	122.12	98-92-0	202-713-4
49, 61		0.2% w/v	Sodium pyrophosphate tetrabasic decahydrate	446.06	13472-36-1	231-767-1
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
50		1% w/v	Dextran sulfate sodium salt	> 500,000	9011-18-1	
50	50	0.005% w/v	Dextranase			
50	(E2)	0.005% w/v	α-Amylase		9000-90-2	232-565-6
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
51	51	1% w/v	Tryptone			
Buffer	(E3)	0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
52	52	1% w/v	Protamine sulfate		53597-25-4	
Buffer	(E4)	0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
53		0.005% w/v	Deoxyribonuclease I		9003-98-9	232-667-0
53		0.5% w/v	Deoxyribonucleic acid			
53	53	0.005% w/v	Ribonuclease A		9001-99-4	232-646-6
53	(E5)	0.5% w/v	Ribonucleic acid		63231-63-0	
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
54		0.5% w/v	Casein		9000-71-9	232-555-1
54		0.5% w/v	Hemoglobin		9008-02-0	
54, 55		0.005% w/v	Pepsin		9001-75-6	232-629-3
54	54	0.005% w/v	Protease		9014-01-1	232-752-2
54, 55	(E6)	0.005% w/v	Proteinase K		39450-01-6	254-457-8
54, 55		0.005% w/v	Trypsin		9002-07-7	232-650-8
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7

Also in	Well #	[units]	Silver Bullet	MW	CAS	EC
55		1% w/v	Ovalbumin		9006-59-1	232-692-7
54, 55	55	0.005% w/v	Pepsin		9001-75-6	232-629-3
54, 55		0.005% w/v	Proteinase K		39450-01-6	254-457-8
54, 55	(E7)	0.005% w/v	Trypsin		9002-07-7	232-650-8
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
56, 66		0.2% w/v	D-Sorbitol	182.17	50-70-4	200-061-5
56, 66		0.2% w/v	Glycerol	92.09	56-81-5	200-289-5
32, 56, 85	56	0.2% w/v	Glycine	75.07	56-40-6	200-272-2
56, 68	(E8)	0.2% w/v	myo-Inositol	180.16	87-89-8	201-781-2
56, 57		0.2% w/v	Sarcosine	89.09	107-97-1	203-538-6
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
57, 60, 88		0.2% w/v	1,4-Diaminobutane	88.15	110-60-1	203-782-3
45, 57, 60, 88		0.2% w/v	Cystamine dihydrochloride	225.20	56-17-7	200-260-7
57, 59	57	0.2% w/v	Diloxanide furoate	328.15	3736-81-0	223-108-1
56, 57	(E9)	0.2% w/v	Sarcosine	89.09	107-97-1	203-538-6
45, 57, 58, 59, 88		0.2% w/v	Spermine	202.34	71-44-3	200-754-2
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
23, 45, 58, 59		0.25% w/v	1,2-Diaminocyclohexane sulfate	212.27	65433-80-9	
58, 60, 88		0.25% w/v	1,8-Diaminooctane	144.26	373-44-4	206-764-3
58, 60, 88	58	0.25% w/v	Cadaverine	102.18	462-94-2	207-329-0
45, 57, 58, 59, 88	(E10)	0.25% w/v	Spermine	202.34	71-44-3	200-754-2
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
23, 45, 58, 59		0.2% w/v	1,2-Diaminocyclohexane sulfate	212.27	65433-80-9	
57, 59		0.2% w/v	Diloxanide furoate	328.15	3736-81-0	223-108-1
59, 72	59	0.2% w/v	Fumaric acid	116.07	110-17-8	203-743-0
45, 57, 58, 59, 88	(E11)	0.2% w/v	Spermine	202.34	71-44-3	200-754-2
2, 12, 22, 59		0.2% w/v	Sulfaguanidine	214.25	57-67-0	200-345-9
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
57, 60, 88		0.2% w/v	1,4-Diaminobutane	88.15	110-60-1	203-782-3
58, 60, 88		0.2% w/v	1,8-Diaminooctane	144.26	373-44-4	206-764-3
58, 60, 88	60	0.2% w/v	Cadaverine	102.18	462-94-2	207-329-0
45, 57, 60, 88	(E12)	0.2% w/v	Cystamine dihydrochloride	225.20	56-17-7	200-260-7
60, 88		0.2% w/v	Spermidine	145.25	124-20-9	204-689-0
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7

Also in	Well #	[units]	Silver Bullet	MW	CAS	EC
23, 61	61 (F1)	0.25% w/v	Methylenediphosphonic acid	176.00	1984-15-2	217-851-0
61, 62, 90		0.25% w/v	Phytic acid sodium salt hydrate	660.04		238-242-6
49, 61		0.25% w/v	Sodium pyrophosphate tetrabasic decahydrate	446.06	13472-36-1	231-767-1
61		0.25% w/v	Sodium triphosphate pentabasic	367.86	7758-29-4	231-838-7
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
24, 62, 90	62 (F2)	0.2% w/v	D-Fructose 1,6-bisphosphate trisodium salt hydrate	406.06 (anhyd)	38099-82-0	
62, 85		0.2% w/v	Glycerol phosphate disodium salt hydrate	216.04	154804-51-0	
24, 62, 90		0.2% w/v	L-O-Phosphoserine	185.07	407-41-0	206-986-0
24, 62, 90		0.2% w/v	O-Phospho-L-tyrosine	261.17	21820-51-9	
61, 62, 90		0.2% w/v	Phytic acid sodium salt hydrate	660.04		238-242-6
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
63, 71, 89	63 (F3)	0.16% w/v	4-Aminobutyric acid	103.12	56-12-2	200-258-6
63, 69, 89		0.16% w/v	6-Aminohexanoic acid	131.18	60-32-2	200-469-3
32, 63, 85		0.16% w/v	L-(+)-Lysine	146.19	56-87-1	200-294-2
25, 63		0.16% w/v	L-Ornithine hydrochloride	168.62	3184-13-2	221-678-6
44, 63, 64		0.16% w/v	Taurine	125.15	107-35-7	203-483-8
63, 70, 89		0.16% w/v	β-Alanine	89.09	107-95-9	203-536-5
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
32, 64, 85	64 (F4)	0.2% w/v	L-Arginine	174.20	74-79-3	200-811-1
64, 95		0.2% w/v	L-Canavanine	176.17	543-38-4	
25, 64, 95		0.2% w/v	L-Carnitine hydrochloride	197.66	6645-46-1	229-663-6
15, 64		0.2% w/v	L-Citrulline	175.19	372-75-8	206-759-6
44, 63, 64		0.2% w/v	Taurine	125.15	107-35-7	203-483-8
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
65, 66	65 (F5)	0.2% w/v	1,2,3-Heptanetriol	148.20	103404-57-5	
65, 85		0.2% w/v	1,3-Propanediol	76.10	504-63-2	207-997-3
65, 68		0.2% w/v	1,6-Hexanediol	118.18	629-11-8	211-074-0
3, 31, 65, 68, 85		0.2% w/v	Gly-gly	132.12	556-50-3	209-127-8
65, 67		0.2% w/v	Resorcinol	110.11	108-46-3	203-585-2
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
66	66 (F6)	0.2% w/v	(+/-)-2-Methyl-2,4-pentanediol	118.17	107-41-5	203-489-0
65, 66		0.2% w/v	1,2,3-Heptanetriol	148.20	103404-57-5	
66, 68		0.2% w/v	Diethylenetriaminepentakis(methylphosphonic acid)	573.20	15827-60-8	239-931-4
56, 66		0.2% w/v	D-Sorbitol	182.17	50-70-4	200-061-5
56, 66		0.2% w/v	Glycerol	92.09	56-81-5	200-289-5
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7

Also in	Well #	[units]	Silver Bullet	MW	CAS	EC
67, 81, 95	67 (F7)	0.2% w/v	Barbituric acid	128.09	67-52-7	200-658-0
44, 67		0.2% w/v	Betaine anhydrous	117.15	107-43-7	203-490-6
67, 68		0.2% w/v	Phloroglucinol	126.11	108-73-6	203-611-2
65, 67		0.2% w/v	Resorcinol	110.11	108-46-3	203-585-2
36, 67		0.2% w/v	Tetrahydroxy-1,4-benzoquinone hydrate	172.09 (anhyd)	123334-16-7	
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
65, 68	68 (F8)	0.2% w/v	1,6-Hexanediol	118.18	629-11-8	211-074-0
66, 68		0.2% w/v	Diethylenetriaminepentakis(methylphosphonic acid)	573.20	15827-60-8	239-931-4
3, 31, 65, 68, 85		0.2% w/v	Gly-gly	132.12	556-50-3	209-127-8
56, 68		0.2% w/v	myo-Inositol	180.16	87-89-8	201-781-2
67, 68		0.2% w/v	Phloroglucinol	126.11	108-73-6	203-611-2
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
63, 69, 89	69 (F9)	0.2% w/v	6-Aminohexanoic acid	131.18	60-32-2	200-469-3
25, 40, 69, 87		0.2% w/v	Benzamidine hydrochloride	156.61	1670-14-0	216-795-4
13, 69		0.2% w/v	Congo Red	696.66	573-58-0	209-358-4
2, 49, 69		0.2% w/v	Nicotinamide	122.12	98-92-0	202-713-4
40, 69		0.2% w/v	Salicin	286.28	138-52-3	205-331-6
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
13, 70	70 (F10)	0.2% w/v	Anthrone	194.23	90-44-8	201-994-0
2, 12, 70, 95		0.2% w/v	Benzidine	184.24	92-87-5	202-199-1
13, 36, 70		0.2% w/v	N-(2-Acetamido)-2-aminoethanesulfonic acid	182.20	7365-82-4	230-908-4
22, 70		0.2% w/v	Phenylurea	136.15	64-10-8	200-576-5
63, 70, 89		0.2% w/v	β-Alanine	89.09	107-95-9	203-536-5
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
8, 71	71 (F11)	0.25% w/v	Sodium 1-pentanesulfonate monohydrate	192.21	207605-40-1	245-208-4
63, 71, 89		0.25% w/v	4-Aminobutyric acid	103.12	56-12-2	200-258-6
49, 71		0.25% w/v	Cytosine	111.10	71-30-7	200-749-5
8, 21, 71		0.25% w/v	Salicylamide	137.14	65-45-2	200-609-3
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
72, 73, 91	72 (F12)	0.11% w/v	Dodecanedioic acid	230.31	693-23-2	211-746-3
59, 72		0.11% w/v	Fumaric acid	116.07	110-17-8	203-743-0
72, 78, 82, 91		0.11% w/v	Glutaric acid	132.12	110-94-1	203-817-2
72, 76, 91		0.11% w/v	Hexadecanedioic acid	286.41	505-54-4	208-013-5
72, 85		0.11% w/v	Maleic acid	116.07	110-16-7	203-742-5
72, 76, 89		0.11% w/v	Oxamic acid	89.05	471-47-6	207-443-0
35, 72, 78, 91		0.11% w/v	Pimelic acid	160.17	111-16-0	203-840-8
72, 76, 78, 91		0.11% w/v	Sebacic acid	202.25	111-20-6	203-845-5
72, 73, 76, 91		0.11% w/v	Suberic acid	174.20	505-48-6	208-010-9
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7

Also in	Well #	[units]	Silver Bullet	MW	CAS	EC
5, 14, 16, 37, 47, 73, 94	73 (G1)	0.16% w/v	5-Sulfosalicylic acid dihydrate	254.22	5965-83-3	202-555-6
72, 73, 91		0.16% w/v	Dodecanedioic acid	230.31	693-23-2	211-746-3
73, 80		0.16% w/v	Hippuric acid	179.18	495-69-2	207-806-3
11, 35, 73, 75, 78, 87, 95		0.16% w/v	Mellitic acid	342.17	517-60-2	208-243-6
73, 80		0.16% w/v	Oxalacetic acid	132.07	328-42-7	206-329-8
72, 73, 76, 91		0.16% w/v	Suberic acid	174.20	505-48-6	208-010-9
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
19, 74, 75	74 (G2)	0.2% w/v	2,2'-Thiodiglycolic acid	150.15	123-93-3	204-663-9
74		0.2% w/v	Adipic acid	146.14	124-04-9	204-673-3
74, 77		0.2% w/v	Benzoic acid	122.12	65-85-0	200-618-2
74, 78		0.2% w/v	Oxalic acid anhydrous	90.04	144-62-7	205-634-3
74, 81, 94		0.2% w/v	Terephthalic acid	166.13	100-21-0	202-830-0
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
19, 74, 75	75 (G3)	0.25% w/v	2,2'-Thiodiglycolic acid	150.15	123-93-3	204-663-9
17, 35, 75, 79, 91		0.25% w/v	Azelaic acid	188.22	123-99-9	204-669-1
11, 35, 73, 75, 78, 87, 95		0.25% w/v	Mellitic acid	342.17	517-60-2	208-243-6
75, 82		0.25% w/v	trans-Aconitic acid	174.11	4023-65-8	223-688-6
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
43, 76, 81	76 (G4)	0.16% w/v	3-Indolebutyric acid	203.24	133-32-4	205-101-5
72, 76, 91		0.16% w/v	Hexadecanedioic acid	286.41	505-54-4	208-013-5
72, 76, 89		0.16% w/v	Oxamic acid	89.05	471-47-6	207-443-0
2, 35, 76, 93		0.16% w/v	Pyromellitic acid	254.15	89-05-4	201-879-5
72, 76, 78, 91		0.16% w/v	Sebacic acid	202.25	111-20-6	203-845-5
72, 73, 76, 91		0.16% w/v	Suberic acid	174.20	505-48-6	208-010-9
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
14, 37, 77, 91	77 (G5)	0.25% w/v	1,3,5-Pentanetricarboxylic acid	204.18	6940-58-5	
77, 81		0.25% w/v	4-Hydroxyphenylacetic acid	152.15	156-38-7	205-851-3
74, 77		0.25% w/v	Benzoic acid	122.12	65-85-0	200-618-2
22, 77		0.25% w/v	Poly(3-hydroxybutyric acid)		29435-48-1	210-909-6
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
72, 78, 82, 91	78 (G6)	0.16% w/v	Glutaric acid	132.12	110-94-1	203-817-2
11, 35, 73, 75, 78, 87, 95		0.16% w/v	Mellitic acid	342.17	517-60-2	208-243-6
74, 78		0.16% w/v	Oxalic acid anhydrous	90.04	144-62-7	205-634-3
35, 72, 78, 91		0.16% w/v	Pimelic acid	160.17	111-16-0	203-840-8
72, 76, 78, 91		0.16% w/v	Sebacic acid	202.25	111-20-6	203-845-5
17, 35, 78, 93		0.16% w/v	trans-Cinnamic acid	148.16	140-10-3	205-398-1
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7

Also in	Well #	[units]	Silver Bullet	MW	CAS	EC
4, 47, 79, 87	79 (G7)	0.2% w/v	4-Aminobenzoic acid	137.14	150-13-0	205-753-0
17, 35, 75, 79, 91		0.2% w/v	Azelaic acid	188.22	123-99-9	204-669-1
37, 79		0.2% w/v	o-Sulfobenzoic acid monoammonium salt	219.22	6939-89-5	
22, 79, 94		0.2% w/v	p-Coumaric acid	164.16	501-98-4	231-000-0
37, 79		0.2% w/v	Sodium 4-aminosalicylate dihydrate	211.15	6018-19-5	205-091-2
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
16, 80, 94	80 (G8)	0.16% w/v	3-Aminobenzenesulfonic acid	173.19	121-47-1	204-473-6
20, 80		0.16% w/v	3-Aminobenzoic acid	137.14	99-05-8	202-724-4
73, 80		0.16% w/v	Hippuric acid	179.18	495-69-2	207-806-3
73, 80		0.16% w/v	Oxalacetic acid	132.07	328-42-7	206-329-8
4, 20, 80, 93		0.16% w/v	Salicylic acid	138.12	69-72-7	200-712-3
4, 14, 80, 89		0.16% w/v	Trimesic acid	210.14	554-95-0	209-077-7
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
18, 81	81 (G9)	0.2% w/v	2-Aminobenzenesulfonic acid	173.19	88-21-1	201-810-9
43, 76, 81		0.2% w/v	3-Indolebutyric acid	203.24	133-32-4	205-101-5
77, 81		0.2% w/v	4-Hydroxyphenylacetic acid	152.15	156-38-7	205-851-3
67, 81, 95		0.2% w/v	Barbituric acid	128.09	67-52-7	200-658-0
74, 81, 94		0.2% w/v	Terephthalic acid	166.13	100-21-0	202-830-0
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
19, 23, 82	82 (G10)	0.2% w/v	1,4-Cyclohexanedicarboxylic acid	172.18	1076-97-7	
1, 11, 82, 93		0.2% w/v	2,5-Pyridinedicarboxylic acid	167.12	100-26-5	202-834-2
72, 78, 82, 91		0.2% w/v	Glutaric acid	132.12	110-94-1	203-817-2
43, 82, 93		0.2% w/v	trans-1,2-Cyclohexanedicarboxylic acid	172.18	2305-32-0	218-975-8
75, 82		0.2% w/v	trans-Aconitic acid	174.11	4023-65-8	223-688-6
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
83	83 (G11)	10% v/v	Tacsimate™ pH 7.0			
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
84	84 (G12)	0.2% w/v	Benzenephosphonic acid	158.09	1571-33-1	216-388-1
49, 84		0.2% w/v	Gallic acid monohydrate	188.14	5995-86-8	205-749-9
84		0.2% w/v	Melatonin	232.28	73-31-4	200-797-7
84		0.2% w/v	N-(2-carboxyethyl)-iminodiacetic acid	205.17	6245-75-6	228-360-6
84		0.2% w/v	Trimellitic acid	210.14	528-44-9	208-432-3
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7

Also in	Well #	[units]	Silver Bullet	MW	CAS	EC
65, 85	85 (H1)	0.2% w/v	1,3-Propanediol	76.10	504-63-2	207-997-3
85, 90		0.2% w/v	D-(-)-3-Phosphoglyceric acid disodium salt	230.02	80731-10-8	
3, 31, 65, 68, 85		0.2% w/v	Gly-gly	132.12	556-50-3	209-127-8
62, 85		0.2% w/v	Glycerol phosphate disodium salt hydrate	216.04	154804-51-0	
72, 85		0.2% w/v	Maleic acid	116.07	110-16-7	203-742-5
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
27, 29, 31, 86	86 (H2)	0.2% w/v	Ala-ala	160.17	1948-31-8	217-751-7
27, 86		0.2% w/v	Ala-gly	146.14	687-69-4	211-699-9
28, 31, 86		0.2% w/v	Gly-asp	190.16	4685-12-5	225-140-1
30, 31, 86		0.2% w/v	Gly-phe	222.24	3321-03-7	222-027-9
29, 86		0.2% w/v	Ser-Glu	234.21	6403-16-3	
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
1, 4, 8, 16, 43, 87	87 (H3)	0.2% w/v	3,5-Dinitrosalicylic acid	228.12	609-99-4	210-204-3
4, 47, 79, 87		0.2% w/v	4-Aminobenzoic acid	137.14	150-13-0	205-753-0
25, 40, 69, 87		0.2% w/v	Benzamidine hydrochloride	156.61	1670-14-0	216-795-4
21, 38, 39, 87		0.2% w/v	Hexamminecobalt(III) chloride	267.48	10534-89-1	234-103-9
11, 35, 73, 75, 78, 87, 95		0.2% w/v	Mellitic acid	342.17	517-60-2	208-243-6
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
57, 60, 88	88 (H4)	0.16% w/v	1,4-Diaminobutane	88.15	110-60-1	203-782-3
58, 60, 88		0.16% w/v	1,8-Diaminooctane	144.26	373-44-4	206-764-3
58, 60, 88		0.16% w/v	Cadaverine	102.18	462-94-2	207-329-0
45, 57, 60, 88		0.16% w/v	Cystamine dihydrochloride	225.20	56-17-7	200-260-7
60, 88		0.16% w/v	Spermidine	145.25	124-20-9	204-689-0
45, 57, 58, 59, 88		0.16% w/v	Spermine	202.34	71-44-3	200-754-2
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
63, 71, 89	89 (H5)	0.16% w/v	4-Aminobutyric acid	103.12	56-12-2	200-258-6
63, 69, 89		0.16% w/v	6-Aminohexanoic acid	131.18	60-32-2	200-469-3
72, 76, 89		0.16% w/v	Oxamic acid	89.05	471-47-6	207-443-0
23, 46, 89		0.16% w/v	Sulfanilic acid	173.19	121-57-3	204-482-5
4, 14, 80, 89		0.16% w/v	Trimesic acid	210.14	554-95-0	209-077-7
63, 70, 89		0.16% w/v	β-Alanine	89.09	107-95-9	203-536-5
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
85, 90	90 (H6)	0.16% w/v	D-3-Phosphoglyceric acid disodium salt	230.02	80731-10-8	
24, 62, 90		0.16% w/v	D-Fructose 1,6-bisphos-phate trisodium salt hydrate	406.06 (anhyd)	38099-82-0	
24, 90		0.16% w/v	D-Glucose 6-phosphate sodium salt	282.12	54010-71-8	258-921-0
24, 62, 90		0.16% w/v	L-O-Phosphoserine	185.07	407-41-0	206-986-0
24, 62, 90		0.16% w/v	O-Phospho-L-tyrosine	261.17	21820-51-9	
61, 62, 90		0.16% w/v	Phytic acid sodium salt hydrate	660.04		238-242-6
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
14, 37, 77, 91	91 (H7)	0.0625% w/v	1,3,5-Pentanetricarboxylic acid	204.18	6940-58-5	
17, 35, 75, 79, 91		0.0625% w/v	Azelaic acid	188.22	123-99-9	204-669-1
72, 73, 91		0.0625% w/v	Dodecanedioic acid	230.31	693-23-2	211-746-3
72, 78, 82, 91		0.0625% w/v	Glutaric acid	132.12	110-94-1	203-817-2
72, 76, 91		0.0625% w/v	Hexadecanedioic acid	286.41	505-54-4	208-013-5
35, 72, 78, 91		0.0625% w/v	Pimelic acid	160.17	111-16-0	203-840-8
72, 76, 78, 91		0.0625% w/v	Sebacic acid	202.25	111-20-6	203-845-5
72, 73, 76, 91		0.0625% w/v	Suberic acid	174.20	505-48-6	208-010-9
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
1, 7, 46, 92	92 (H8)	0.16% w/v	1,5-Naphthalenedisulfonic acid disodium salt	332.26 (anhyd)	1655-29-4	216-732-0
6, 18, 47, 92		0.16% w/v	2,6-Naphthalenedisulfonic acid disodium salt	332.26	1655-45-4	
6, 17, 46, 92		0.16% w/v	2,7-Naphthalenedisulfonic acid disodium salt	332.26	1655-35-2	
5, 11, 45, 92		0.16% w/v	4-Nitrobenzoic acid	167.12	62-23-7	200-526-2
18, 35, 92		0.16% w/v	m-Benzenedisulfonic acid disodium salt	282.20	831-59-4	212-606-4
5, 7, 43, 47, 92		0.16% w/v	Naphthalene-1,3,6-trisulfonic acid trisodium salt hydrate	434.31 (anhyd)	123409-01-8	
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
1, 11, 82, 93	93 (H9)	0.2% w/v	2,5-Pyridinedicarboxylic acid	167.12	100-26-5	202-834-2
2, 35, 76, 93		0.2% w/v	Pyromellitic acid	254.15	89-05-4	201-879-5
4, 20, 80, 93		0.2% w/v	Salicylic acid	138.12	69-72-7	200-712-3
43, 82, 93		0.2% w/v	trans-1,2-Cyclohexanedicarboxylic acid	172.18	2305-32-0	218-975-8
17, 35, 78, 93		0.2% w/v	trans-Cinnamic acid	148.16	140-10-3	205-398-1
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
16, 80, 94	94 (H10)	0.16% w/v	3-Aminobenzene-sulfonic acid	173.19	121-47-1	204-473-6
5, 14 , 16, 37, 47, 73, 94		0.16% w/v	5-Sulfosalicylic acid dihydrate	254.22	5965-83-3	202-555-6
22, 79, 94		0.16% w/v	p-Coumaric acid	164.16	501-98-4	231-000-0
7, 39, 94		0.16% w/v	PIPES	302.37	5625-37-6	227-057-6
74, 81, 94		0.16% w/v	Terephthalic acid	166.13	100-21-0	202-830-0
21, 94		0.16% w/v	Vanillic acid	168.15	121-34-6	204-466-8
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
67, 81, 95	95 (H11)	0.07% w/v	Barbituric acid	128.09	67-52-7	200-658-0
2, 12, 70, 95		0.07% w/v	Benzidine	184.24	92-87-5	202-199-1
15, 95		0.07% w/v	Cystathionine	222.26	535-34-2	208-613-7
64, 95		0.07% w/v	L-Canavanine	176.17	543-38-4	
25, 64, 95		0.07% w/v	L-Carnitine hydro-chloride	197.66	6645-46-1	229-663-6
25, 95		0.07% w/v	L-Cystine	240.30	56-89-3	200-296-3
11, 35, 73, 75, 78, 87, 95		0.07% w/v	Mellitic acid	342.17	517-60-2	208-243-6
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7
28, 29, 96	96 (H12)	0.16% w/v	Aspartame	294.30	22839-47-0	245-261-3
3, 96		0.16% w/v	Gly-gly-gly	189.17	556-33-2	209-122-0
27, 29, 30, 96		0.16% w/v	Leu-gly-gly	245.28	1187-50-4	214-698-1
3, 96		0.16% w/v	Pentaglycine	303.28	7093-67-6	230-398-3
29, 96		0.16% w/v	Tyr-ala	252.27	730-08-5	
28, 96		0.16% w/v	Tyr-phe	328.37	17355-11-2	
Buffer		0.02 M	HEPES sodium pH 6.8	260.29	75277-39-3	278-169-7

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Sample: _____ Sample Concentration: _____

Sample Buffer: _____ Date: _____

Reservoir Volume: _____ Temperature: _____

Drop Volume: Total _____ µl Sample _____ µl Reservoir _____ µl Additive _____ µl

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)

A1 - Silver Bullet		Date	Date	Date	Date
1 (A1)	0.33% w/v 1,5-Naphthalenedisulfonic acid disodium salt, 0.33% w/v 2,5-Pyridinedicarboxylic acid, 0.33% w/v 3,5-Dinitrosalicylic acid, 0.02 M HEPES sodium pH 6.8				
2 (A2)	0.25% w/v Benzidine, 0.25% w/v Nicotinamide, 0.25% w/v Pyromellitic acid, 0.25% w/v Sulfaguanidine, 0.02 M HEPES sodium pH 6.8				
3 (A3)	0.25% w/v Gly-gly, 0.25% w/v Gly-gly-gly, 0.25% w/v Gly-gly-gly-gly, 0.25% w/v Pentaglycine, 0.02 M HEPES sodium pH 6.8				
4 (A4)	0.25% w/v 3,5-Dinitrosalicylic acid, 0.25% w/v 4-Aminobenzoic acid, 0.25% w/v Salicylic acid, 0.25% w/v Trimesic acid, 0.02 M HEPES sodium pH 6.8				
5 (A5)	0.33% w/v 4-Nitrobenzoic acid, 0.33% w/v 5-Sulfosalicylic acid dihydrate, 0.33% w/v Naphthalene-1,3,6-trisulfonic acid trisodium salt hydrate, 0.02 M HEPES sodium pH 6.8				
6 (A6)	0.33% w/v 2,6-Naphthalenedisulfonic acid disodium salt, 0.33% w/v 2,7-Naphthalenedisulfonic acid disodium salt, 0.33% w/v Anthraquinone-2,6-disulfonic acid disodium salt, 0.02 M HEPES sodium pH 6.8				
7 (A7)	0.33% w/v 1,5-Naphthalenedisulfonic acid disodium salt, 0.33% w/v Naphthalene-1,3,6-trisulfonic acid trisodium salt hydrate, 0.33% w/v PIPES, 0.02 M HEPES sodium pH 6.8				
8 (A8)	0.25% w/v Sodium 1-pentanesulfonate monohydrate, 0.25% w/v 3,5-Dinitrosalicylic acid, 0.25% w/v 3-Aminosalicylic acid, 0.25% w/v Salicylamide, 0.02 M HEPES sodium pH 6.8				
9 (A9)	0.16% w/v L-Histidine, 0.16% w/v L-Isoleucine, 0.16% w/v L-Leucine, 0.16% w/v L-Phenylalanine, 0.16% w/v L-Tryptophan, 0.16% w/v L-Tyrosine, 0.02 M HEPES sodium pH 6.8				
10 (A10)	0.2% w/v D-(+)-Trehalose dihydrate, 0.2% w/v Guanidine hydrochloride, 0.2% w/v Phenol, 0.2% w/v Trimethylamine N-oxide dihydrate, 0.2% w/v Urea, 0.02 M HEPES sodium pH 6.8				
11 (A11)	0.33% w/v 2,5-Pyridinedicarboxylic acid, 0.33% w/v 4-Nitrobenzoic acid, 0.33% w/v Mellitic acid, 0.02 M HEPES sodium pH 6.8				
12 (A12)	0.25% w/v Benzidine, 0.25% w/v Phenylglyoxal monohydrate, 0.25% w/v Sulfaguanidine, 0.25% w/v Sulfanilamide, 0.02 M HEPES sodium pH 6.8				

B1 - Silver Bullet		Date	Date	Date	Date
13 (B1)	0.33% w/v Anthrone, 0.33% w/v Congo Red, 0.33% w/v N-(2-Acetamido)-2-aminoethanesulfonic acid, 0.02 M HEPES sodium pH 6.8				
14 (B2)	0.33% w/v 1,3,5-Pentanetricarboxylic acid, 0.33% w/v 5-Sulfosalicylic acid dihydrate, 0.33% w/v Trimesic acid, 0.02 M HEPES sodium pH 6.8				
15 (B3)	0.25% w/v 5-Sulfoisophthalic acid monosodium salt, 0.25% w/v Cystathionine, 0.25% w/v Dithioerythritol, 0.25% w/v L-Citrulline, 0.02 M HEPES sodium pH 6.8				
16 (B4)	0.33% w/v 3,5-Dinitrosalicylic acid, 0.33% w/v 3-Aminobenzenesulfonic acid, 0.33% w/v 5-Sulfosalicylic acid dihydrate, 0.02 M HEPES sodium pH 6.8				
17 (B5)	0.33% w/v 2,7-Naphthalenedisulfonic acid disodium salt, 0.33% w/v Azelaic acid, 0.33% w/v trans-Cinnamic acid, 0.02 M HEPES sodium pH 6.8				
18 (B6)	0.33% w/v 2,6-Naphthalenedisulfonic acid disodium salt, 0.33% w/v 2-Aminobenzenesulfonic acid, 0.33% w/v m-Benzenedisulfonic acid disodium salt, 0.02 M HEPES sodium pH 6.8				
19 (B7)	0.33% w/v 1,4-Cyclohexanedicarboxylic acid, 0.33% w/v 2,2'-Thiodiglycolic acid, 0.33% w/v 5-Sulfoisophthalic acid monosodium salt, 0.02 M HEPES sodium pH 6.8				
20 (B8)	0.33% w/v 3-Aminobenzoic acid, 0.33% w/v 3-Aminosalicylic acid, 0.33% w/v Salicylic acid, 0.02 M HEPES sodium pH 6.8				
21 (B9)	0.25% w/v Hexamminecobalt(III) chloride, 0.25% w/v Salicylamide, 0.25% w/v Sulfanilamide, 0.25% w/v Vanillic acid, 0.02 M HEPES sodium pH 6.8				
22 (B10)	0.25% w/v p-Coumaric acid, 0.25% w/v Phenylurea, 0.25% w/v Poly(3-hydroxybutyric acid), 0.25% w/v Sulfaguanidine, 0.02 M HEPES sodium pH 6.8				
23 (B11)	0.25% w/v 1,2-Diaminocyclohexane sulfate, 0.25% w/v 1,4-Cyclohexanedicarboxylic acid, 0.25% w/v Methylenediphosphonic acid, 0.25% w/v Sulfanilic acid, 0.02 M HEPES sodium pH 6.8				
24 (B12)	0.25% w/v D-Fructose 1,6-bisphosphate trisodium salt hydrate, 0.25% w/v D-Glucose 6-phosphate, 0.25% w/v L-O-Phosphoserine, 0.25% w/v O-Phospho-L-tyrosine, 0.02 M HEPES sodium pH 6.8				

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HAMPTON RESEARCH

Sample: _____ **Sample Concentration:** _____

Sample Buffer: _____ **Date:** _____

Reservoir Volume: _____ **Temperature:** _____

Drop Volume: **Total** _____ µl **Sample** _____ µl **Reservoir** _____ µl **Additive** _____ µl

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)

C1 -	Silver Bullet	Date	Date	Date	Date
25 (C1)	0.25% w/v Benzamidine hydrochloride, 0.25% w/v L-Carnitine hydrochloride, 0.25% w/v L-Cystine, 0.25% w/v L-Ornithine hydrochloride, 0.02 M HEPES sodium pH 6.8				
26 (C2)	0.33% w/v Caffeine, 0.33% w/v Dithioerythritol, 0.33% w/v L-Methionine, 0.02 M HEPES sodium pH 6.8				
27 (C3)	0.25% w/v Ala-ala, 0.25% w/v Ala-gly, 0.25% w/v Gly-gly-gly-gly, 0.25% w/v Leu-gly-gly, 0.02 M HEPES sodium pH 6.8				
28 (C4)	0.2% w/v Aspartame, 0.2% w/v Gly-asp, 0.2% w/v Gly-ser, 0.2% w/v Ser-tyr, 0.2% w/v Tyr-phe, 0.02 M HEPES sodium pH 6.8				
29 (C5)	0.16% w/v Ala-ala, 0.16% w/v Aspartame, 0.16% w/v Gly-tyr, 0.16% w/v Leu-gly-gly, 0.16% w/v Ser-Glu, 0.16% w/v Tyr-ala, 0.02 M HEPES sodium pH 6.8				
30 (C6)	0.33% w/v Gly-phe, 0.33% w/v Gly-tyr, 0.33% w/v Leu-gly-gly, 0.02 M HEPES sodium pH 6.8				
31 (C7)	0.16% w/v Ala-ala, 0.16% w/v Gly-asp, 0.16% w/v Gly-gly, 0.16% w/v Gly-phe, 0.16% w/v Gly-ser, 0.16% w/v Ser-tyr, 0.02 M HEPES sodium pH 6.8				
32 (C8)	0.05% w/v Glycine, 0.05% w/v L-(-)-Threonine, 0.05% w/v L-(+)-Lysine, 0.05% w/v L-Alanine, 0.05% w/v L-Arginine, 0.05% w/v L-Asparagine monohydrate, 0.05% w/v L-Aspartic acid, 0.05% w/v L-Glutamic acid, 0.05% w/v L-Glutamine, 0.05% w/v L-Histidine, 0.05% w/v L-Isoleucine, 0.05% w/v L-Leucine, 0.05% w/v L-Methionine, 0.05% w/v L-Phenylalanine, 0.05% w/v L-Proline, 0.05% w/v L-Serine, 0.05% w/v L-Tryptophan, 0.05% w/v L-Tyrosine, 0.05% w/v L-Valine, 0.02 M HEPES sodium pH 6.8				
33 (C9)	0.2% w/v D-(+)-Maltose monohydrate, 0.2% w/v D-(+)-Melibiose monohydrate, 0.2% w/v D-(+)-Raffinose pentahydrate, 0.2% w/v D-(+)-Trehalose dihydrate, 0.2% w/v Stachyose hydrate, 0.02 M HEPES sodium pH 6.8				
34 (C10)	0.16% w/v β-Cyclodextrin, 0.16% w/v D-(+)-Cellobiose, 0.16% w/v D-(+)-Maltotriose, 0.16% w/v D-(+)-Melezitose hydrate, 0.16% w/v D-(+)-Raffinose pentahydrate, 0.16% w/v Stachyose hydrate, 0.02 M HEPES sodium pH 6.8				
35 (C11)	0.16% w/v Azelaic acid, 0.16% w/v m-Benzenedisulfonic acid disodium salt, 0.16% w/v Mellitic acid, 0.16% w/v Pimelic acid, 0.16% w/v Pyromellitic acid, 0.16% w/v trans-Cinnamic acid, 0.02 M HEPES sodium pH 6.8				
36 (C12)	0.25% w/v 5-Sulfoisophthalic acid monosodium salt, 0.25% w/v Anthraquinone-2,6-disulfonic acid disodium salt, 0.25% w/v N-(2-acetamido)-2-aminoethanesulfonic acid, 0.25% w/v Tetrahydroxy-1,4-benzoquinone hydrate, 0.02 M HEPES sodium pH 6.8				

D1 -	Silver Bullet	Date	Date	Date	Date
37 (D1)	0.25% w/v 1,3,5-Pentanetricarboxylic acid, 0.25% w/v 5-Sulfosalicylic acid dihydrate, 0.25% w/v o-Sulfobenzoic acid monoammonium salt, 0.25% w/v Sodium 4-aminosalicylate dihydrate, 0.02 M HEPES sodium pH 6.8				
38 (D2)	0.06 M CHAPS, 0.06 M HEPES, 0.06 M Tris, 0.25% w/v Hexamminecobalt(III) chloride, 0.02 M HEPES sodium pH 6.8				
39 (D3)	0.06 M MES monohydrate, 0.06 M PIPES, 0.33% w/v Hexamminecobalt(III) chloride, 0.02 M HEPES sodium pH 6.8				
40 (D4)	0.005 M Gadolinium(III) chloride hexahydrate, 0.005 M Samarium(III) chloride hexahydrate, 0.05 M Benzamidine hydrochloride, 0.25% w/v Salicin, 0.02 M HEPES sodium pH 6.8				
41 (D5)	0.004 M Calcium chloride dihydrate, 0.004 M Magnesium chloride hexahydrate, 0.004 M Manganese(II) chloride tetrahydrate, 0.004 M Zinc chloride, 0.02 M HEPES sodium pH 6.8				
42 (D6)	0.004 M Cadmium chloride hydrate, 0.004 M Cobalt(II) chloride hexahydrate, 0.004 M Copper(II) chloride dihydrate, 0.004 M Nickel(II) chloride hexahydrate, 0.02 M HEPES sodium pH 6.8				
43 (D7)	0.25% w/v 3,5-Dinitrosalicylic acid, 0.25% w/v 3-Indolebutyric acid, 0.25% w/v Naphthalene-1,3,6-trisulfonic acid trisodium salt hydrate, 0.25% w/v trans-1,2-Cyclohexanedicarboxylic acid, 0.02 M HEPES sodium pH 6.8				
44 (D8)	0.2% w/v Betaine anhydrous, 0.2% w/v L-Glutamic acid, 0.2% w/v L-Proline, 0.2% w/v Taurine, 0.2% w/v Trimethylamine N-oxide dihydrate, 0.02 M HEPES sodium pH 6.8				
45 (D9)	0.25% w/v 1,2-Diaminocyclohexane sulfate, 0.25% w/v 4-Nitrobenzoic acid, 0.25% w/v Cystamine dihydrochloride, 0.25% w/v Spermine, 0.02 M HEPES sodium pH 6.8				
46 (D10)	0.25% w/v 1,5-Naphthalenedisulfonic acid disodium salt, 0.25% w/v 2,7-Naphthalenedisulfonic acid disodium salt, 0.25% w/v 5-Sulfoisophthalic acid monosodium salt, 0.25% w/v Sulfanilic acid, 0.02 M HEPES sodium pH 6.8				
47 (D11)	0.25% w/v 2,6-Naphthalenedisulfonic acid disodium salt, 0.25% w/v 4-Aminobenzoic acid, 0.25% w/v 5-Sulfosalicylic acid dihydrate, 0.25% w/v Naphthalene-1,3,6-trisulfonic acid trisodium salt hydrate, 0.02 M HEPES sodium pH 6.8				
48 (D12)	0.2% w/v Rhenium(IV) oxide, 0.2% w/v Sodium bromide, 0.2% w/v Sodium nitrate, 0.2% w/v Sodium phosphate dibasic dihydrate, 0.2% w/v Sodium tetraborate decahydrate, 0.02 M HEPES sodium pH 6.8				

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HAMPTON RESEARCH

Sample: _____ Sample Concentration: _____

Sample Buffer: _____ Date: _____

Reservoir Volume: _____ Temperature: _____

Drop Volume: Total _____ µl Sample _____ µl Reservoir _____ µl Additive _____ µl

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)

E1 - E12	Silver Bullet	Date	Date	Date	Date
49 (E1)	0.2% w/v Caffeine, 0.2% w/v Cytosine, 0.2% w/v Gallic acid monohydrate, 0.2% w/v Nicotinamide, 0.2% w/v Sodium pyrophosphate tetrabasic decahydrate, 0.02 M HEPES sodium pH 6.8				
50 (E2)	1% w/v Dextran sulfate sodium salt, 0.005% w/v Dextranase, 0.005% w/v α-Amylase, 0.02 M HEPES sodium pH 6.8				
51 (E3)	1% w/v Tryptone, 0.02 M HEPES sodium pH 6.8				
52 (E4)	1% w/v Protamine sulfate, 0.02 M HEPES sodium pH 6.8				
53 (E5)	0.005% w/v Deoxyribonuclease I, 0.5% w/v Deoxyribonucleic acid, 0.005% w/v Ribonuclease A, 0.5% w/v Ribonucleic acid, 0.02 M HEPES sodium pH 6.8				
54 (E6)	0.5% w/v Casein, 0.5% w/v Hemoglobin, 0.005% w/v Pepsin, 0.005% w/v Protease, 0.005% w/v Proteinase K, 0.005% w/v Trypsin, 0.02 M HEPES sodium pH 6.8				
55 (E7)	1% w/v Ovalbumin, 0.005% w/v Pepsin, 0.005% w/v Proteinase K, 0.005% w/v Trypsin, 0.02 M HEPES sodium pH 6.8				
56 (E8)	0.2% w/v D-Sorbitol, 0.2% w/v Glycerol, 0.2% w/v Glycine, 0.2% w/v myo-Inositol, 0.2% w/v Sarcosine, 0.02 M HEPES sodium pH 6.8				
57 (E9)	0.2% w/v 1,4-Diaminobutane, 0.2% w/v Cystamine dihydrochloride, 0.2% w/v Diloxanide furoate, 0.2% w/v Sarcosine, 0.2% w/v Spermine, 0.02 M HEPES sodium pH 6.8				
58 (E10)	0.25% w/v 1,2-Diaminocyclohexane sulfate, 0.25% w/v 1,8-Diaminooctane, 0.25% w/v Cadaverine, 0.25% w/v Spermine, 0.02 M HEPES sodium pH 6.8				
59 (E11)	0.2% w/v 1,2-Diaminocyclohexane sulfate, 0.2% w/v Diloxanide furoate, 0.2% w/v Fumaric acid, 0.2% w/v Spermine, 0.2% w/v Sulfaguanidine, 0.02 M HEPES sodium pH 6.8				
60 (E12)	0.2% w/v 1,4-Diaminobutane, 0.2% w/v 1,8-Diaminooctane, 0.2% w/v Cadaverine, 0.2% w/v Cystamine dihydrochloride, 0.2% w/v Spermidine, 0.02 M HEPES sodium pH 6.8				

F1 - F12	Silver Bullet	Date	Date	Date	Date
61 (F1)	0.25% w/v Methylenediphosphonic acid, 0.25% w/v Phytic acid sodium salt hydrate, 0.25% w/v Sodium pyrophosphate tetrabasic decahydrate, 0.25% w/v Sodium triphosphate pentabasic, 0.02 M HEPES sodium pH 6.8				
62 (F2)	0.2% w/v D-Fructose 1,6-bisphosphate trisodium salt hydrate, 0.2% w/v Glycerol phosphate disodium salt hydrate, 0.2% w/v L-O-Phosphoserine, 0.2% w/v O-Phospho-L-tyrosine, 0.2% w/v Phytic acid sodium salt hydrate, 0.02 M HEPES sodium pH 6.8				
63 (F3)	0.16% w/v 4-Aminobutyric acid, 0.16% w/v 6-Aminohexanoic acid, 0.16% w/v L-(+)-Lysine, 0.16% w/v L-Ornithine hydrochloride, 0.16% w/v Taurine, 0.16% w/v β-Alanine, 0.02 M HEPES sodium pH 6.8				
64 (F4)	0.2% w/v L-Arginine, 0.2% w/v L-Canavanine, 0.2% w/v L-Carnitine hydrochloride, 0.2% w/v L-Citrulline, 0.2% w/v Taurine, 0.02 M HEPES sodium pH 6.8				
65 (F5)	0.2% w/v 1,2,3-Heptanetriol, 0.2% w/v 1,3-Propanediol, 0.2% w/v 1,6-Hexanediol, 0.2% w/v Gly-gly, 0.2% w/v Resorcinol, 0.02 M HEPES sodium pH 6.8				
66 (F6)	0.2% w/v (+/-)-2-Methyl-2,4-pentanediol, 0.2% w/v 1,2,3-Heptanetriol, 0.2% w/v Diethylenetriaminepentakis(methylphosphonic acid), 0.2% w/v D-Sorbitol, 0.2% w/v Glycerol, 0.02 M HEPES sodium pH 6.8				
67 (F7)	0.2% w/v Barbituric acid, 0.2% w/v Betaine anhydrous, 0.2% w/v Phloroglucinol, 0.2% w/v Resorcinol, 0.2% w/v Tetrahydroxy-1,4-benzoquinone hydrate, 0.02 M HEPES sodium pH 6.8				
68 (F8)	0.2% w/v 1,6-Hexanediol, 0.2% w/v Diethylenetriaminepentakis(methylphosphonic acid), 0.2% w/v Gly-gly, 0.2% w/v myo-Inositol, 0.2% w/v Phloroglucinol, 0.02 M HEPES sodium pH 6.8				
69 (F9)	0.2% w/v 6-Aminohexanoic acid, 0.2% w/v Benzamidine hydrochloride, 0.2% w/v Congo Red, 0.2% w/v Nicotinamide, 0.2% w/v Salicin, 0.02 M HEPES sodium pH 6.8				
70 (F10)	0.2% w/v Anthrone, 0.2% w/v Benzidine, 0.2% w/v N-(2-Acetamido)-2-aminoethanesulfonic acid, 0.2% w/v Phenylurea, 0.2% w/v β-Alanine, 0.02 M HEPES sodium pH 6.8				
71 (F11)	0.25% w/v Sodium 1-pentanesulfonate monohydrate, 0.25% w/v 4-Aminobutyric acid, 0.25% w/v Cytosine, 0.25% w/v Salicylamide, 0.02 M HEPES sodium pH 6.8				
72 (F12)	0.11% w/v Dodecanedioic acid, 0.11% w/v Fumaric acid, 0.11% w/v Glutaric acid, 0.11% w/v Hexadecanedioic acid, 0.11% w/v Maleic acid, 0.11% w/v Oxamic acid, 0.11% w/v Pimelic acid, 0.11% w/v Sebacic acid, 0.11% w/v Suberic acid, 0.02 M HEPES sodium pH 6.8				

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HR2-096 - Scoring Sheet

HAMPTON RESEARCH

Sample: _____ Sample Concentration: _____

Sample Buffer: _____ Date: _____

Reservoir Volume: _____ Temperature: _____

Drop Volume: Total _____ µl Sample _____ µl Reservoir _____ µl Additive _____ µl

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)

G1 - G12	Silver Bullet	Date	Date	Date	Date
73 (G1)	0.16% w/v 5-Sulfosalicylic acid dihydrate, 0.16% w/v Dodecanedioic acid, 0.16% w/v Hippuric acid, 0.16% w/v Mellitic acid, 0.16% w/v Oxalacetic acid, 0.16% w/v Suberic acid, 0.02 M HEPES sodium pH 6.8				
74 (G2)	0.2% w/v 2,2'-Thiodiglycolic acid, 0.2% w/v Adipic acid, 0.2% w/v Benzoic acid, 0.2% w/v Oxalic acid, 0.2% w/v Terephthalic acid, 0.02 M HEPES sodium pH 6.8				
75 (G3)	0.25% w/v 2,2'-Thiodiglycolic acid, 0.25% w/v Azelaic acid, 0.25% w/v Mellitic acid, 0.25% w/v trans-Aconitic acid, 0.02 M HEPES sodium pH 6.8				
76 (G4)	0.16% w/v 3-Indolebutyric acid, 0.16% w/v Hexadecanedioic acid, 0.16% w/v Oxamic acid, 0.16% w/v Pyromellitic acid, 0.16% w/v Sebacic acid, 0.16% w/v Suberic acid, 0.02 M HEPES sodium pH 6.8				
77 (G5)	0.25% w/v 1,3,5-Pentanetricarboxylic acid, 0.25% w/v 4-Hydroxyphenylacetic acid, 0.25% w/v Benzoic acid, 0.25% w/v Poly(3-hydroxybutyric acid), 0.02 M HEPES sodium pH 6.8				
78 (G6)	0.16% w/v Glutaric acid, 0.16% w/v Mellitic acid, 0.16% w/v Oxalic acid, 0.16% w/v Pimelic acid, 0.16% w/v Sebacic acid, 0.16% w/v trans-Cinnamic acid, 0.02 M HEPES sodium pH 6.8				
79 (G7)	0.2% w/v 4-Aminobenzoic acid, 0.2% w/v Azelaic acid, 0.2% w/v o-Sulfobenzoic acid monoammonium salt, 0.2% w/v p-Coumaric acid, 0.2% w/v Sodium 4-aminosalicylate dihydrate, 0.02 M HEPES sodium pH 6.8				
80 (G8)	0.16% w/v 3-Aminobenzenesulfonic acid, 0.16% w/v 3-Aminobenzoic acid, 0.16% w/v Hippuric acid, 0.16% w/v Oxalacetic acid, 0.16% w/v Salicylic acid, 0.16% w/v Trimesic acid, 0.02 M HEPES sodium pH 6.8				
81 (G9)	0.2% w/v 2-Aminobenzenesulfonic acid, 0.2% w/v 3-Indolebutyric acid, 0.2% w/v 4-Hydroxyphenylacetic acid, 0.2% w/v Barbituric acid, 0.2% w/v Terephthalic acid, 0.02 M HEPES sodium pH 6.8				
82 (G10)	0.2% w/v 1,4-Cyclohexanedicarboxylic acid, 0.2% w/v 2,5-Pyridinedicarboxylic acid, 0.2% w/v Glutaric acid, 0.2% w/v trans-1,2-Cyclohexanedicarboxylic acid, 0.2% w/v trans-Aconitic acid, 0.02 M HEPES sodium pH 6.8				
83 (G11)	10% v/v Tacsimate pH 7.0, 0.02 M HEPES sodium pH 6.8				
84 (G12)	0.2% w/v Benzenephosphonic acid, 0.2% w/v Gallic acid monohydrate, 0.2% w/v Melatonin, 0.2% w/v N-(2-carboxyethyl)-iminodiacetic acid, 0.2% w/v Trimellitic acid, 0.02 M HEPES sodium pH 6.8				

H1 -	Silver Bullet	Date	Date	Date	Date
85 (H1)	0.2% w/v D-(–)-3-Phosphoglyceric acid disodium salt, 0.2% w/v Maleic acid, 0.2% w/v 1,3-Propanediol, 0.2% w/v Glycerol phosphate disodium salt hydrate, 0.2% w/v Gly-gly, 0.02 M HEPES sodium pH 6.8				
86 (H2)	0.2% w/v Ala-ala, 0.2% w/v Ala-gly, 0.2% w/v Gly-asp, 0.2% w/v Gly-phe, 0.2% w/v Ser-Glu, 0.02 M HEPES sodium pH 6.8				
87 (H3)	0.2% w/v 3,5-Dinitrosalicylic acid, 0.2% w/v 4-Aminobenzoic acid, 0.2% w/v Benzamidine hydrochloride, 0.2% w/v Hexamminecobalt(III) chloride, 0.2% w/v Mellitic acid, 0.02 M HEPES sodium pH 6.8				
88 (H4)	0.16% w/v 1,4-Diaminobutane, 0.16% w/v 1,8-Diaminooctane, 0.16% w/v Cadaverine, 0.16% w/v Cystamine dihydrochloride, 0.16% w/v Spermidine, 0.16% w/v Spermine, 0.02 M HEPES sodium pH 6.8				
89 (H5)	0.16% w/v 4-Aminobutyric acid, 0.16% w/v 6-Aminohexanoic acid, 0.16% w/v Oxamic acid, 0.16% w/v Sulfanilic acid, 0.16% w/v Trimesic acid, 0.16% w/v β-Alanine, 0.02 M HEPES sodium pH 6.8				
90 (H6)	0.16% w/v D-3-Phosphoglyceric acid disodium salt, 0.16% w/v D-Fructose 1,6-bisphosphate trisodium salt hydrate, 0.16% w/v D-Glucose 6-phosphate, 0.16% w/v L-O-Phosphoserine, 0.16% w/v O-Phospho-L-tyrosine, 0.16% w/v Phytic acid sodium salt hydrate, 0.02 M HEPES sodium pH 6.8				
91 (H7)	0.0625% w/v 1,3,5-Pentanetricarboxylic acid, 0.0625% w/v Azelaic acid, 0.0625% w/v Dodecanedioic acid, 0.0625% w/v Glutaric acid, 0.0625% w/v Hexadecanedioic acid, 0.0625% w/v Pimelic acid, 0.0625% w/v Sebacic acid, 0.0625% w/v Suberic acid, 0.02 M HEPES sodium pH 6.8				
92 (H8)	0.16% w/v 1,5-Naphthalenedisulfonic acid disodium salt, 0.16% w/v 2,6-Naphthalenedisulfonic acid disodium salt, 0.16% w/v 2,7-Naphthalenedisulfonic acid disodium salt, 0.16% w/v 4-Nitrobenzoic acid, 0.16% w/v m-Benzenedisulfonic acid disodium salt, 0.16% w/v Naphthalene-1,3,6-trisulfonic acid trisodium salt hydrate, 0.02 M HEPES sodium pH 6.8				
93 (H9)	0.2% w/v 2,5-Pyridinedicarboxylic acid, 0.2% w/v Pyromellitic acid, 0.2% w/v Salicylic acid, 0.2% w/v trans-1,2-Cyclohexanedicarboxylic acid, 0.2% w/v trans-Cinnamic acid, 0.02 M HEPES sodium pH 6.8				
94 (H10)	0.16% w/v 3-Aminobenzenesulfonic acid, 0.16% w/v 5-Sulfosalicylic acid dihydrate, 0.16% w/v p-Coumaric acid, 0.16% w/v PIPES, 0.16% w/v Terephthalic acid, 0.16% w/v Vanillic acid, 0.02 M HEPES sodium pH 6.8				
95 (H11)	0.07% w/v Barbituric acid, 0.07% w/v Benzidine, 0.07% w/v Cystathionine, 0.07% w/v L-Canavanine, 0.07% w/v L-Carnitine hydrochloride, 0.07% w/v L-Cystine, 0.07% w/v Mellitic acid, 0.02 M HEPES sodium pH 6.8				
96 (H12)	0.16% w/v Aspartame, 0.16% w/v Gly-gly-gly, 0.16% w/v Leu-gly-gly, 0.16% w/v Pentaglycine, 0.16% w/v Tyr-ala, 0.16% w/v Tyr-phe, 0.02 M HEPES sodium pH 6.8				

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