SPINE Benchmark Target ID	Well	Code	Tag (N or C)	Fusion MW (kDa)	Fusion pI	Cleavage site	Prot MW (Da)	Prot pI
1	A1	OPPF 2585	N-His6	21.75	6.41	Protease 3C	19.77	5.43
2	B1	OPPF 2586	N-His6	15.6	6.27	Protease 3C	13.6	5.41
3	C1	OPPF 1446	N-His6	19.45	7.07	None	19.45	7.07
4	D1	OPPF 2281	N-His6	12.3	9.3	None	12.3	9.3
5	E1	OPPF 2321	C-His6	25	6.8	None	25	6.8
6	F1	OPPF 2322	N-His6	24.9	6.66	None	24.9	6.66
7	G1	OPPF 2326	N-His6	10.55	7.7	None	10.55	7.7
8	H1	OPPF 2303	C-His6	22.4	7.2	None	22.4	7.2
9	A2	OPPF 2294	N-His6	11.8	6.17	None	11.8	6.17
10	B2	OPPF 2298	N-His6	13.9	6.32	None	13.9	6.32
11	C2	OPPF 1870	C-His6	13.7	7.2	None	13.7	7.2
12	D2	OPPF 1877	C-His6	13.6	8.45	None	13.6	8.45
13	E2	OPPF 1748	N-His6	22.6	7.61	None	22.6	7.61
14	F2	OPPF 1751	N-His6	13.15	8.45	None	13.15	8.45
15	G2	OPPF 1838	N-His6	34.75	8.24	None	34.75	8.24
16	H2	OPPF 2291	C-His6	19.9	8.73	None	19.9	8.73
17	A3	Utrecht 14	N-His6	12.00	6.20	Thrombin	9.70	5.10
18	B3	Utrecht 15	N-His6	13.60	7.20	Thrombin	11.30	6.30
19	C3	Utrecht 20	N-His6	30.00	6.20	Thrombin	27.70	5.40
20	D3	Utrecht 29	N-His6	15.70	6.00	Thrombin	13.40	4.80
21	E3	Utrecht 45	N-His6	9.80	9.50	Thrombin	7.50	9.40
22	F3	Utrecht 46	N-His6	21.30	9.00	Thrombin	19.00	8.80
23	G3	Utrecht 48	N-His6	11.70	6.70	Thrombin	9.40	5.30
24	H3	Utrecht 57	N-His6	51.90	5.90	Thrombin	49.60	5.60
25	A4	Utrecht 68	N-His6	24.90	6.00	Thrombin	22.60	5.30
26	B4	Utrecht 70	N-His6	20.70	6.80	Thrombin	18.50	6.10
27	C4	Utrecht 72	N-His6	19.70	6.90	Thrombin	17.40	6.30
28	D4	Utrecht 76	N-His6	18.70	8.30	Thrombin	16.40	7.80
29	E4	Utrecht 77	N-His6	15.40	8.60	Thrombin	13.10	8.30
30	F4	Utrecht 78	N-His6	9.90	9.80	Thrombin	7.60	9.60
31	G4	Utrecht 80	N-His6	23.90	9.60	Thrombin	21.60	9.50
32	H4	Utrecht 93	N-His6	11.60	7.80	Thrombin	9.30	6.80
33	A5	Marseille 18cp17	N-His6	59.5	6.53	None	56.9	6.22
34	B5	Marseille 21p17	N-His6	54.5	8.85	None	51.9	8.81
35	C5	Marseille 21ap17	N-His6	51.4	9.15	None	48.6	9.13
36	D5	Marseille 21bp17	N-His6	46.2	8.75	None	43.6	8.71
37	E5	Marseille 21cp17	N-His6	36.9	9.34	None	34.3	9.29
38	F5	Marseille 21dp17	N-His6	43.4	9.10	None	40.8	9.03
39	G5	Marseille 21eHNp14	N-His6	29.5	9.6	None	28.7	9.6
40	H5	Marseille 21eHCp14	C-His6	29.5	9.6	None	28.7	9.6
41	A6	Marseille 22p17	N-His6	55.9	9.1	None	53.3	9.03
42	B6	Marseille 28ap17	N-His6	30.4	9.18	None	27.8	9.10
43	C6	Marseille 29p17	N-His6	57.5	6.2	None	54.9	5.83
44	D6	Marseille 29ap17	N-His6	55.8	6.29	None	53.2	5.93
45	E6	Marseille 44HNp14	N-His6	95.2	6.45	None	94.3	6.27
46	F6	Marseille 55aHCp14	C-His6	56.4	5.91	None	55.6	5.6
47	G6	Marseille 55HCp14	C-His6	117.6	8.1	None	116.8	8.1
48	H6	Marseille 55bHCp14	C-His6	60.9	6.08	None	60.1	5.8
49	A7	Strasbourg VE0324	NusA-N-His6	98.8	5.25	Thrombin	41	8.79
50	B7	Strasbourg VE0330	NusA-N-His6	86.9	4.93	Thrombin	29.1	6.59
51	C7	Strasbourg VE0454	NusA-N-His6	87.4	4.93	Thrombin	29.5	6.5
52	D7	Strasbourg VE0499	N-His6	88.9	6.52	Thrombin	85.5	6
53	E7	Strasbourg VE0551	N-His6	50.8	6.01	Thrombin	47.4	5.42
54	F7	Strasbourg VE0553	N-His6	19.4	7.98	Thrombin	16	6.09
55	G7	Strasbourg VE1008	N-His6	21	5.18	Thrombin	17.6	4.43
56	H7	Strasbourg VE1010	N-His6	30.4	5.32	Thrombin	27	4.63
57	A8	Strasbourg VE1022	N-His6	44.3	8.97	Thrombin	40.9	8.79
58	B8	Strasbourg VE1026	N-His6	33.7	8.47	Thrombin	30.3	7.11
59	C8	Strasbourg VE1495	N-His6	35.8	8.81	TEV	32.2	8.12
60	D8	Strasbourg VE1498	N-His6	35.9	8.4	Protease 3C	32.2	8.12
61	E8	Strasbourg VE1510	N-His6	40	5.38	TEV	35.6	5.1
62	F8	Strasbourg VE1522	N-His6	30.8	8.57	TEV	26.4	8.83
63	G8	Strasbourg VE1567	N-His6	44.7	6.52	TEV	40.3	6.48
64	H8	Strasbourg VE1582	N-His6	47.6	6.39	TEV	43.2	6.28
65	A9	Stockholm 1	FLAG C-His6	31.1		None		
66	B9	Stockholm 2	FLAG C-His6	59.5		None		
67	C9	Stockholm 3	0	0		None		
68	D9	Stockholm 4	FLAG C-His6	50.1		None		
69	E9	Stockholm 5	FLAG C-His6	127.3		None		
70	F9	Stockholm 6	FLAG C-His6	47.8		None		
71	G9	Stockholm 7	FLAG C-His6	64.7		None		
72	H9	Stockholm 8	FLAG C-His6	39.31		None		
73	A10	Stockholm 9	FLAG C-His6	25.7		None		
74	B10	Stockholm 10	FLAG C-His6	53.8		None		
75	C10	Stockholm 11	0	0		None		
76	D10	Stockholm 12	FLAG C-His6	31.9		None		
77	E10	Stockholm 13	0	0		None		
78	F10	Stockholm 14	FLAG C-His6	69.1		None		
79	G10	Stockholm 15	FLAG C-His6	58.7		None		
80	H10	Stockholm 16	FLAG C-His6	23.8		None		
81	A11	Weizmann 1	N-His6	84.9	8.54	TEV	82.6	8.69
82	B11	Weizmann 2	N-His6	68.8	9.21	TEV	66.5	9.33
83	C11	Weizmann 3	N-His6	26.6	9.06	TEV	24.4	9.35
84	D11	Weizmann 4	N-His6	65.7	7.13	TEV	63.6	7.22
85	E11	Weizmann 5	N-His6	104.4	9.06	TEV	102.2	9.12
86	F11	Weizmann 6	N-His6	53.8	9.41	TEV	51.5	9.5
87	G11	Weizmann 7	N-His6	15.5	6.61	TEV	13.2	6.5
88	H11	Weizmann 8	N-His6	9.1	8.1	TEV	6.8	8.3
89	A12	Orsay 1	C-His6	21.4	6.41	None		
90	B12	Orsay 2	C-His6	23.4	9.59	None		
91	C12	Orsay 3	C-His6	23.4	9.66	None		
92	D12	Orsay 4	C-His6	40.1	5.35	None		
93	E12	Orsay 5	C-His6	37.3	9.53	None		
94	F12	Orsay 6	C-His6	34	5.6	None		
95	G12	Orsay 7	C-His6	45.7	9.89	None		
96	H12	Orsay 8	C-His6	85.6	7.65	None		

Supplementary Table 1. Construct List with key Biophysical Properties of the expression products

Component	**LB**	**TB/ SB+KPB***	**2YT**	**ZYM-5052**
Bacto-Tryptone	10 g	12g	16 g	
Yeast extract	5 g	24g	10 g	5 g
N-Z-amine				10g
NaCl	5 g		5 g	
Na_2HPO_4				25mM
KH_2PO_4		17 mM		25mM
K_2HPO_4		55 mM		
NH_4Cl				50mM
Na_2SO_4				5mM
$MgSO_4$				2 mM
Glycerol		4ml		5ml
Glucose				2.8mM
α-lactose				5.6mM
$FeCl_3$				10µM
$CaCl_2$				4µM
$MnCl_2$				2µM
$ZnSO_4$				0.4µM
$CoCl_2$				0.4µM
$CuCl_2$				0.4µM
$NiCl_2$				0.4µM
Na_2MoO_4				0.4µM
Na_2SeO_3				0.4µM
H_3BO_3				0.4µM

Supplementary Table 2. Formulations /Composition of various growth media used in this study. *This formulation may be referred to as Terrific Broth (TB) or Super Broth plus Potassium Phosphate Buffer (SB+KPB). All values given are volume or mass/litre of media and the majority of these media are used in the pH range 7.0-7.5. GS96 and Overnight Express™ Instant TB Media are commercial preparations and their formulations are proprietary (Q Biogene and Merck).

Code	Best Agreement Score	Berlin Overall Score	Orsay Overall Score	Strasbourg Overall Score	Utrecht Overall Score	Weizmann Overall Score	Best Result Score
A1							
B1							
C1							
D1							
E1							
F1							
G1							
H1							
A2							
B2							
C2							
D2							
E2							
F2							
G2							
H2							
A3							
B3							
C3							
D3							
E3							
F3							
G3							
H3							
A4							
B4							
C4							
D4							
E4							
F4							
G4							
H4							
A5							
B5							
C5							
D5							
E5							
F5							
G5							
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A6							
B6							
C6							
D6							
E6							
F6							
G6							
H6							
A7							
B7							
C7							
D7							
E7							
F7							
G7							
H7							
A8							
B8							
C8							
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G8							
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A9							
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H9							
A10							
B10							
C10							
D10							
E10							
F10							
G10							
H10							
A11							
B11							
C11							
D11							
E11							
F11							
G11							
H11							
A12							
B12							
C12							
D12							
E12							
F12							
G12							
H12							
Total	56	64	55	22	43	56	85

Supplementary Table 3. Agreement Scores for Total Expression.

Expression data derived from Total *E.coli* Protein Samples. Data bins used in this table are: No detectable expression- Red. Detectable Expression- Green. Total samples were processed and analysed as described in materials and methods.

Code	Best Agreement Score	Best Agreement	Berlin Overall Score	Berlin Overall Agreement	Marseille Overall Score	Marseille Overall Agreement	Orsay Overall Score	Orsay Overall Agreement	Oxford Overall Score	Oxford Overall Agreement	Stockholm Overall Score	Stockholm Overall Agreement	Strasbourg Overall Score	Strasbourg Overall Agreement	Utrecht Overall Score	Utrecht Overall Agreement	Weizmann Overall Score	Weizmann Overall Agreement
A1	3	0.625	0	0.286	3	0.571	1	0.571	1	0.571	0	0.286	0	0.286	2	0.571	3	0.571
B1	0	0.75	0	0.714	0	0.714	0	0.714	1	0.143	0	0.714	0	0.714	0	0.714	2	0.143
C1	3	0.875	3	0.857	3	0.857	1	0.857	3	0.857	3	0.857	0	0	3	0.857	3	0.857
D1	3	1	3	1	3	1	1	1	2	1	3	1	1	1	3	1	3	1
E1	0	0.75	0	0.714	0	0.714	0	0.714	3	0.143	0	0.714	1	0.143	0	0.714	0	0.714
F1	0	0.625	2	0.286	0	0.571	0	0.571	1	0.286	0	0.571	1	0.286	0	0.571	0	0.571
G1	3	1	3	1	3	1	3	1	2	1	3	1	1	1	3	1	3	1
H1	0	0.875	0	0.857	3	0	0	0.857	0	0.857	0	0.857	0	0.857	0	0.857	0	0.857
A2	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
B2	0	0.75	0	0.714	0	0.714	1	0.143	1	0.143	0	0.714	0	0.714	0	0.714	0	0.714
C2	3	0.5	2	0.429	1	0.429	0	0.429	2	0.429	0	0.429	0	0.429	3	0.429	0	0.429
D2	0	0.625	0	0.571	1	0.286	0	0.571	0	0.571	0	0.571	0	0.571	2	0.286	1	0.286
E2	3	0.625	2	0.571	1	0.571	0	0.286	2	0.571	3	0.571	0	0.286	3	0.571	0	0.286
F2	3	0.875	3	0.857	3	0.857	1	0.857	3	0.857	3	0.857	0	0	3	0.857	3	0.857
G2	2	0.75	2	0.714	0	0.143	1	0.714	1	0.714	2	0.714	1	0.714	2	0.714	0	0.143
H2	0	0.75	0	0.714	0	0.714	1	0.143	0	0.714	0	0.714	1	0.143	0	0.714	0	0.714
A3	3	0.625	2	0.571	3	0.571	0	0.286	1	0.571	0	0.286	0	0.286	2	0.571	2	0.571
B3	3	0.875	3	0.857	3	0.857	2	0.857	1	0.857	3	0.857	0	0	3	0.857	1	0.857
C3	0	0.625	2	0.286	0	0.571	0	0.571	0	0.571	0	0.571	0	0.571	3	0.286	1	0.286
D3	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
E3	0	1	0	1	0	1		1	0	1	0	1	0	1	0	1	0	1
F3	0	0.75	2	0.143	0	0.714	0	0.714	0	0.714	0	0.714	0	0.714	2	0.143	0	0.714
G3	0	0.875	0	0.857	0	0.857	0	0.857	0	0.857	0	0.857	0	0.857	2	0	0	0.857
H3	0	0.875	0	0.857	1	0	0	0.857	0	0.857	0	0.857	0	0.857	0	0.857	0	0.857
A4	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
B4	0	0.75	1	0.143	0	0.714	0	0.714	0	0.714	1	0.143	0	0.714	0	0.714	0	0.714
C4	3	0.625	3	0.571	2	0.571	0	0.286	1	0.571	1	0.571	0	0.286	2	0.571	0	0.286
D4	3	0.75	2	0.143	0	0.714	0	0.714	1	0.143	0	0.714	0	0.714	0	0.714	0	0.714
E4	3	0.75	2	0.714	3	0.714	1	0.714	1	0.714	0	0.143	0	0.143	2	0.714	1	0.714
F4	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
G4	3	0.5	2	0.429	3	0.429	0	0.429	1	0.429	0	0.429	0	0.429	2	0.429	0	0.429
H4	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
A5	0	0.625	2	0.286	0	0.571	1	0.286	0	0.571	0	0.571	0	0.571	3	0.286	0	0.571
B5	2	0.5	2	0.429	2	0.429	0	0.429	2	0.429	0	0.429	0	0.429	2	0.429	0	0.429
C5	3	0.5	3	0.429	3	0.429	0	0.429	0	0.429	2	0.429	0	0.429	3	0.429	0	0.429
D5	0	0.625	2	0.286	0	0.571	1	0.286	0	0.571	0	0.571	0	0.571	2	0.286	0	0.571
E5	2	0.5	2	0.429	0	0.429	0	0.429	1	0.429	0	0.429	2	0.429	2	0.429	0	0.429
F5	0	0.75	0	0.714	2	0.143	1	0.143	0	0.714	0	0.714	0	0.714	0	0.714	0	0.714
G5	0	0.625	2	0.286	0	0.571	1	0.286	0	0.571	0	0.571	0	0.571	1	0.286	0	0.571
H5	0	0.75	0	0.714	1	0.143	2	0.143	0	0.714	0	0.714	0	0.714	0	0.714	0	0.714
A6	0	0.75	0	0.714	1	0.143	0	0.714	0	0.714	0	0.714	0	0.714	0	0.714	1	0.143
B6	3	0.5	2	0.429	1	0.429	2	0.429	0	0.429	0	0.429	0	0.429	3	0.429	0	0.429
C6	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
D6	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
E6	0	0.625	2	0.286	1	0.286	0	0.571	0	0.571	0	0.571	0	0.571	3	0.286	0	0.571
F6	0	0.625	2	0.286	2	0.286	0	0.571	0	0.571	0	0.571	0	0.571	2	0.286	0	0.571
G6	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
H6	0	0.75	2	0.143	0	0.714	0	0.714	0	0.714	0	0.714	0	0.714	2	0.143	0	0.714
A7	3	0.625	2	0.571	3	0.571	1	0.571	0	0.286	2	0.571	0	0.286	0	0.286	1	0.571
B7	3	0.75	2	0.714	3	0.714	1	0.714	2	0.714	2	0.714	1	0.714	0	0.143	0	0.143
C7	2	0.857	2	0.833	2	0.833	-1	0	2	0.833	1	0.833	1	0.833	0	0	2	0.833
D7	0	0.625	2	0.286	3	0.286	1	0.286	0	0.571	0	0.571	0	0.571	0	0.571	0	0.571
E7	3	0.571	3	0.5	0	0.333	-1	0	2	0.5	0	0.333	1	0.5	0	0.333	3	0.5
F7	3	0.625	3	0.571	0	0.286	1	0.571	1	0.571	3	0.571	0	0.286	0	0.286	3	0.571
G7	3	0.75	3	0.714	3	0.714	1	0.714	1	0.714	3	0.714	0	0.143	0	0.143	3	0.714
H7	3	0.75	2	0.714	2	0.714	1	0.714	1	0.714	3	0.714	0	0.143	0	0.143	3	0.714
A8	0	0.75	2	0.143	0	0.714	0	0.714	0	0.714	1	0.143	0	0.714	0	0.714	0	0.714
B8	0	0.75	2	0.143	0	0.714	0	0.714	1	0.143	0	0.714	0	0.714	0	0.714	0	0.714
C8	2	0.625	2	0.571	1	0.571	0	0.286	1	0.571	0	0.286	0	0.286	1	0.571	1	0.571
D8	0	0.625	2	0.286	0	0.571	0	0.571	1	0.286	0	0.571	0	0.571	1	0.286	0	0.571
E8	3	0.625	3	0.571	3	0.571	0	0.286	2	0.571	3	0.571	0	0.286	1	0.571	0	0.286
F8	3	1	3	1	2	1	3	1	2	1	3	1	1	1	3	1	3	1
G8	0	0.625	3	0.286	0	0.571	3	0.286	0	0.571	0	0.571	0	0.571	1	0.286	0	0.571
H8	3	0.625	3	0.571	1	0.571	1	0.571	2	0.571	3	0.571	0	0.286	0	0.286	0	0.286
A9	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
B9	0	0.75	0	0.714	2	0.143	0	0.714	0	0.714	0	0.714	0	0.714	0	0.714	3	0.143
C9	0	1	-1	0	-1	0	-1	0	0	1	0	1	0	1	0	1	-1	0
D9	0	0.875	2	0	0	0.857	0	0.857	0	0.857	0	0.857	0	0.857	0	0.857	0	0.857
E9	0	0.875	0	0.857	3	0	0	0.857	0	0.857	0	0.857	0	0.857	0	0.857	0	0.857
F9	0	0.714	0	0.667	0	0.667	-1	0	0	0.667	1	0.167	0	0.667	0	0.667	2	0.167
G9	0	0.875	0	0.857	0	0.857	0	0.857	0	0.857	3	0	0	0.857	0	0.857	0	0.857
H9	0	0.75	0	0.714	0	0.714	0	0.714	0	0.714	1	0.143	0	0.714	0	0.714	1	0.143
A10	0	0.75	0	0.714	3	0.143	0	0.714	0	0.714	0	0.714	0	0.714	0	0.714	3	0.143
B10	3	0.5	0	0.429	3	0.429	0	0.429	0	0.429	3	0.429	1	0.429	0	0.429	2	0.429
C10	1	0.5	-1	0	-1	0	-1	0	0	0.333	1	0.333	1	0.333	0	0.333	-1	0
D10	0	0.875	0	0.857	0	0.857	0	0.857	0	0.857	0	0.857	1	0	0	0.857	0	0.857
E10	0	1	-1	0	-1	0	-1	0	0	1	0	1	0	1	0	1	-1	0
F10	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
G10	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
H10	0	0.75	2	0.143	3	0.143	0	0.714	0	0.714	0	0.714	0	0.714	0	0.714	0	0.714
A11	0	0.625	2	0.286	0	0.571	0	0.571	2	0.286	2	0.286	0	0.571	0	0.571	0	0.571
B11	3	0.75	3	0.714	3	0.714	1	0.714	1	0.714	2	0.714	0	0.143	0	0.143	2	0.714
C11	0	0.625	0	0.571	3	0.286	2	0.286	0	0.571	3	0.286	0	0.571	0	0.571	0	0.571
D11	0	0.75	0	0.714	3	0.143	0	0.714	0	0.714	1	0.143	0	0.714	0	0.714	0	0.714
E11	0	0.875	2	0	0	0.857	0	0.857	0	0.857	0	0.857	0	0.857	0	0.857	0	0.857
F11	0	0.625	2	0.286	0	0.571	0	0.571	0	0.571	1	0.286	0	0.571	0	0.571	1	0.286
G11	0	0.875	0	0.857	2	0	0	0.857	0	0.857	0	0.857	0	0.857	0	0.857	0	0.857
H11	0	0.875	2	0	0	0.857	0	0.857	0	0.857	0	0.857	0	0.857	0	0.857	0	0.857
A12	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
B12	3	0.625	3	0.571	2	0.571	1	0.571	0	0.286	3	0.571	1	0.571	0	0.286	0	0.286
C12	3	0.5	1	0.429	3	0.429	0	0.429	0	0.429	1	0.429	0	0.429	0	0.429	2	0.429
D12	3	0.875	3	0.857	3	0.857	2	0.857	2	0.857	3	0.857	1	0.857	1	0.857	0	0
E12	3	0.5	2	0.429	3	0.429	0	0.429	0	0.429	2	0.429	0	0.429	3	0.429	0	0.429
F12	0	0.75	3	0.143	3	0.143	0	0.714	0	0.714	0	0.714	0	0.714	0	0.714	0	0.714
G12	0	0.625	0	0.571	3	0.286	0	0.571	0	0.571	1	0.286	0	0.571	2	0.286	0	0.571
H12	3	0.5	2	0.429	3	0.429	0	0.429	1	0.429	0	0.429	1	0.429	0	0.429	0	0.429
Total	101	72.268	128	55.571	117	55.69	40	59	55	64.476	76	62.381	18	59.048	78	59.476	59	58.786
Average	1.052	0.753	1.376	0.598	1.258	0.599	0.444	0.656	0.573	0.672	0.792	0.65	0.188	0.615	0.813	0.62	0.634	0.632

Supplementary Table 4. Agreement Scores for Soluble Expression-Data Binning used is No Expression vs. Expression (Expression Score of 0 vs. Expression Score of 1, 2, or 3) Expression data derived from Soluble *E.coli* Protein Samples. Data bins used in this table are 0=No Detectable Soluble Expression, 1=Detectable Soluble Expression of 0.2-0.5mg/litre, 2=Detectable Soluble Expression of 0.5-5.0mg/litre, 3=Detectable Soluble Expression of >5mg/litre. Soluble samples were processed and analysed as described in materials and methods.

Code	Berlin Overall Score	Berlin Overall Agreement	Marseille Overall Score	Marseille Overall Agreement	Orsay Overall Score	Orsay Overall Agreement	Oxford Overall Score	Oxford Overall Agreement	Stockholm Overall Score	Stockholm Overall Agreement	Strasbourg Overall Score	Strasbourg Overall Agreement	Utrecht Overall Score	Utrecht Overall Agreement	Weizmann Overall Score	Weizmann Overall Agreement
A1	0	0.571	3	0.286	1	0.571	1	0.571	0	0.571	0	0.571	2	0.286	3	0.286
B1	0	0.857	0	0.857	0	0.857	1	0.857	0	0.857	0	0.857	0	0.857	2	0
C1	3	0.714	3	0.714	1	0.143	3	0.714	3	0.714	0	0.143	3	0.714	3	0.714
D1	3	0.714	3	0.714	1	0.143	2	0.714	3	0.714	1	0.143	3	0.714	3	0.714
E1	0	0.857	0	0.857	0	0.857	3	0	0	0.857	1	0.857	0	0.857	0	0.857
F1	2	0	0	0.857	0	0.857	1	0.857	0	0.857	1	0.857	0	0.857	0	0.857
G1	3	0.857	3	0.857	3	0.857	2	0.857	3	0.857	1	0	3	0.857	3	0.857
H1	0	0.857	3	0	0	0.857	0	0.857	0	0.857	0	0.857	0	0.857	0	0.857
A2	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
B2	0	1	0	1	1	1	1	1	0	1	0	1	0	1	0	1
C2	2	0.286	1	0.571	0	0.571	2	0.286	0	0.571	0	0.571	3	0.286	0	0.571
D2	0	0.857	1	0.857	0	0.857	0	0.857	0	0.857	0	0.857	2	0	1	0.857
E2	2	0.429	1	0.429	0	0.429	2	0.429	3	0.429	0	0.429	3	0.429	0	0.429
F2	3	0.714	3	0.714	1	0.143	3	0.714	3	0.714	0	0.143	3	0.714	3	0.714
G2	2	0.286	0	0.571	1	0.571	1	0.571	2	0.286	1	0.571	2	0.286	0	0.571
H2	0	1	0	1	1	1	0	1	0	1	1	1	0	1	0	1
A3	2	0.429	3	0.429	0	0.429	1	0.429	0	0.429	0	0.429	2	0.429	2	0.429
B3	3	0.571	3	0.571	2	0.571	1	0.286	3	0.571	0	0.286	3	0.571	1	0.286
C3	2	0.143	0	0.714	0	0.714	0	0.714	0	0.714	0	0.714	3	0.143	1	0.714
D3	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
E3	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
F3	2	0.143	0	0.714	0	0.714	0	0.714	0	0.714	0	0.714	2	0.143	0	0.714
G3	0	0.857	0	0.857	0	0.857	0	0.857	0	0.857	0	0.857	2	0	0	0.857
H3	0	1	1	1	0	1	0	1	0	1	0	1	0	1	0	1
A4	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
B4	1	1	0	1	0	1	0	1	1	1	0	1	0	1	0	1
C4	3	0.286	2	0.286	0	0.571	1	0.571	1	0.571	0	0.571	2	0.286	0	0.571
D4	2	0	0	0.857	0	0.857	1	0.857	0	0.857	0	0.857	0	0.857	0	0.857
E4	2	0.286	3	0.286	1	0.571	1	0.571	0	0.571	0	0.571	2	0.286	1	0.571
F4	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
G4	2	0.286	3	0.286	0	0.571	1	0.571	0	0.571	0	0.571	2	0.286	0	0.571
H4	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
A5	2	0.143	0	0.714	1	0.714	0	0.714	0	0.714	0	0.714	3	0.143	0	0.714
B5	2	0.429	2	0.429	0	0.429	2	0.429	0	0.429	0	0.429	2	0.429	0	0.429
C5	3	0.429	3	0.429	0	0.429	0	0.429	2	0.429	0	0.429	3	0.429	0	0.429
D5	2	0.143	0	0.714	1	0.714	0	0.714	0	0.714	0	0.714	2	0.143	0	0.714
E5	2	0.286	0	0.571	0	0.571	1	0.571	0	0.571	2	0.286	2	0.286	0	0.571
F5	0	0.857	2	0	1	0.857	0	0.857	0	0.857	0	0.857	0	0.857	0	0.857
G5	2	0	0	0.857	1	0.857	0	0.857	0	0.857	0	0.857	1	0.857	0	0.857
H5	0	0.857	1	0.857	2	0	0	0.857	0	0.857	0	0.857	0	0.857	0	0.857
A6	0	1	1	1	0	1	0	1	0	1	0	1	0	1	1	1
B6	2	0.286	1	0.571	2	0.286	0	0.571	0	0.571	0	0.571	3	0.286	0	0.571
C6	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
D6	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
E6	2	0.143	1	0.714	0	0.714	0	0.714	0	0.714	0	0.714	3	0.143	0	0.714
F6	2	0.286	2	0.286	0	0.571	0	0.571	0	0.571	0	0.571	2	0.286	0	0.571
G6	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
H6	2	0.143	0	0.714	0	0.714	0	0.714	0	0.714	0	0.714	2	0.143	0	0.714
A7	2	0.286	3	0.286	1	0.571	0	0.571	2	0.286	0	0.571	0	0.571	1	0.571
B7	2	0.429	3	0.429	1	0.429	2	0.429	2	0.429	1	0.429	0	0.429	0	0.429
C7	2	0.5	2	0.5	-1	0	2	0.5	1	0.333	1	0.333	0	0.333	2	0.5
D7	2	0.143	3	0.143	1	0.714	0	0.714	0	0.714	0	0.714	0	0.714	0	0.714
E7	3	0.333	0	0.5	-1	0	2	0.333	0	0.5	1	0.5	0	0.5	3	0.333
F7	3	0.286	0	0.571	1	0.571	1	0.571	3	0.286	0	0.571	0	0.571	3	0.286
G7	3	0.429	3	0.429	1	0.429	1	0.429	3	0.429	0	0.429	0	0.429	3	0.429
H7	2	0.429	2	0.429	1	0.429	1	0.429	3	0.429	0	0.429	0	0.429	3	0.429
A8	2	0	0	0.857	0	0.857	0	0.857	1	0.857	0	0.857	0	0.857	0	0.857
B8	2	0	0	0.857	0	0.857	1	0.857	0	0.857	0	0.857	0	0.857	0	0.857
C8	2	0	1	0.857	0	0.857	1	0.857	0	0.857	0	0.857	1	0.857	1	0.857
D8	2	0	0	0.857	0	0.857	1	0.857	0	0.857	0	0.857	1	0.857	0	0.857
E8	3	0.429	3	0.429	0	0.429	2	0.429	3	0.429	0	0.429	1	0.429	0	0.429
F8	3	0.857	2	0.857	3	0.857	2	0.857	3	0.857	1	0	3	0.857	3	0.857
G8	3	0.143	0	0.714	3	0.143	0	0.714	0	0.714	0	0.714	1	0.714	0	0.714
H8	3	0.286	1	0.571	1	0.571	2	0.286	3	0.286	0	0.571	0	0.571	0	0.571
A9	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
B9	0	0.714	2	0.143	0	0.714	0	0.714	0	0.714	0	0.714	0	0.714	3	0.143
C9	-1	0	-1	0	-1	0	0	1	0	1	0	1	0	1	-1	0
D9	2	0	0	0.857	0	0.857	0	0.857	0	0.857	0	0.857	0	0.857	0	0.857
E9	0	0.857	3	0	0	0.857	0	0.857	0	0.857	0	0.857	0	0.857	0	0.857
F9	0	0.833	0	0.833	-1	0	0	0.833	1	0.833	0	0.833	0	0.833	2	0
G9	0	0.857	0	0.857	0	0.857	0	0.857	3	0	0	0.857	0	0.857	0	0.857
H9	0	1	0	1	0	1	0	1	1	1	0	1	0	1	1	1
A10	0	0.714	3	0.143	0	0.714	0	0.714	0	0.714	0	0.714	0	0.714	3	0.143
B10	0	0.571	3	0.286	0	0.571	0	0.571	3	0.286	1	0.571	0	0.571	2	0.286
C10	-1	0	-1	0	-1	0	0	1	1	1	1	1	0	1	-1	0
D10	0	1	0	1	0	1	0	1	0	1	1	1	0	1	0	1
E10	-1	0	-1	0	-1	0	0	1	0	1	0	1	0	1	-1	0
F10	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
G10	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
H10	2	0.143	3	0.143	0	0.714	0	0.714	0	0.714	0	0.714	0	0.714	0	0.714
A11	2	0.286	0	0.571	0	0.571	2	0.286	2	0.286	0	0.571	0	0.571	0	0.571
B11	3	0.429	3	0.429	1	0.429	1	0.429	2	0.429	0	0.429	0	0.429	2	0.429
C11	0	0.571	3	0.286	2	0.286	0	0.571	3	0.286	0	0.571	0	0.571	0	0.571
D11	0	0.857	3	0	0	0.857	0	0.857	1	0.857	0	0.857	0	0.857	0	0.857
E11	2	0	0	0.857	0	0.857	0	0.857	0	0.857	0	0.857	0	0.857	0	0.857
F11	2	0	0	0.857	0	0.857	0	0.857	1	0.857	0	0.857	0	0.857	1	0.857
G11	0	0.857	2	0	0	0.857	0	0.857	0	0.857	0	0.857	0	0.857	0	0.857
H11	2	0	0	0.857	0	0.857	0	0.857	0	0.857	0	0.857	0	0.857	0	0.857
A12	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1
B12	3	0.286	2	0.286	1	0.571	0	0.571	3	0.286	1	0.571	0	0.571	0	0.571
C12	1	0.714	3	0.143	0	0.714	0	0.714	1	0.714	0	0.714	0	0.714	2	0.143
D12	3	0.571	3	0.571	2	0.571	2	0.571	3	0.571	1	0.286	1	0.286	0	0.286
E12	2	0.429	3	0.429	0	0.429	0	0.429	2	0.429	0	0.429	3	0.429	0	0.429
F12	3	0.143	3	0.143	0	0.714	0	0.714	0	0.714	0	0.714	0	0.714	0	0.714
G12	0	0.714	3	0.143	0	0.714	0	0.714	1	0.714	0	0.714	2	0.143	0	0.714
H12	2	0.143	3	0.143	0	0.714	1	0.714	0	0.714	1	0.714	0	0.714	0	0.714
Total	128	50.238	117	58.405	40	64.286	55	70.667	76	69.524	18	68.381	78	64.095	59	64.833
Average	1.376	0.54	1.258	0.628	0.444	0.714	0.573	0.736	0.792	0.724	0.188	0.712	0.813	0.668	0.634	0.697

Supplementary Table 5. Agreement Scores for Soluble Expression-Data Binning used is Poor anticipated expression yield at scale vs. Expression yield in excess of 0.5mg/l at scale (Expression Score of 0 or 1 vs. Expression Score of 2, or 3). Expression data derived from Soluble *E.coli* Protein Samples. Data bins used in this table are 0=No Detectable Soluble Expression, 1=Detectable Soluble Expression of 0.2-0.5mg/litre, 2=Detectable Soluble Expression of 0.5-5.0mg/litre, 3=Detectable Soluble Expression of >5mg/litre. Soluble samples were processed and analysed as described in materials and methods.