

Supplementary Table 4. ¹⁴N and ¹³C enrichment values (depicted as isotopes ratios and in‰) of E. coli and B. subtilis cells measured by NanoSIMS. Listed values are derived from cells fixed in formaldehyde and ethanol, respectively.

E. coli 99 cells - PFA fixed				E. coli 6 cells - PFA fixed				B. subtilis 99 cells - Ethanol fixed				B. subtilis 6 cells - Ethanol fixed			
¹⁴ N/ ¹⁵ N	¹³ C/ ¹² C	¹⁴ N/ ¹⁵ N (‰)	¹³ C/ ¹² C (‰)	¹⁴ N/ ¹⁵ N	¹³ C/ ¹² C	¹⁴ N/ ¹⁵ N (‰)	¹³ C/ ¹² C (‰)	¹⁴ N/ ¹⁵ N	¹³ C/ ¹² C	¹⁴ N/ ¹⁵ N (‰)	¹³ C/ ¹² C (‰)	¹⁴ N/ ¹⁵ N	¹³ C/ ¹² C	¹⁴ N/ ¹⁵ N (‰)	¹³ C/ ¹² C (‰)
88.87	88.86	25.50	86.23	0.06	5.28	0.06	5.39	22.21	95.09	10.54	91.83	0.06	5.53	0.06	5.75
91.80	88.87	25.45	86.23	0.06	5.27	0.06	5.32	22.47	95.79	10.54	92.64	0.06	5.53	0.06	5.68
87.83	88.87	25.15	86.18	0.06	5.27	0.06	5.34	22.70	95.78	10.06	93.36	0.06	5.53	0.06	5.62
86.03	88.87	23.11	86.89	0.06	5.27	0.06	5.46	22.96	95.83	11.06	93.03	0.06	5.47	0.06	5.79
84.72	88.87	23.00	86.71	0.06	5.30	0.06	5.52	22.40	95.73	11.41	93.34	0.06	5.55	0.06	5.74
85.90	88.86	24.18	86.06	0.06	5.23	0.06	5.57	22.78	95.80	13.25	92.98	0.06	5.53	0.06	5.67
91.82	88.86	26.12	86.11	0.06	5.24	0.06	5.53	22.78	95.79	12.82	92.79	0.06	5.53	0.06	5.77
92.80	88.86	26.05	86.30	0.06	5.28	0.06	5.56	22.87	95.81	9.65	90.57	0.06	5.46	0.06	5.67
90.86	88.86	24.45	86.46	0.06	5.25	0.06	5.43	22.46	95.78	11.41	92.68	0.06	5.53	0.06	5.69
86.78	88.83	26.03	86.30	0.06	5.27	0.06	5.43	22.23	95.70	11.49	91.99	0.06	5.55	0.06	5.54
85.43	88.83	24.48	86.08	0.06	5.26	0.06	5.48	22.20	95.71	9.57	90.54	0.06	5.49	0.06	5.67
83.71	88.82	25.36	86.21	0.06	5.22	0.06	5.52	22.50	95.75	12.57	92.63	0.06	5.53	0.06	5.55
92.91	88.84	23.75	86.52	0.06	5.23	0.06	5.44	22.35	95.72	11.83	92.21	0.06	5.54	0.06	5.63
85.67	88.85	23.27	86.70	0.06	5.30	0.06	5.46	22.16	95.68	11.53	92.02	0.06	5.52	0.06	5.55
89.61	88.90	23.97	86.00	0.06	5.25	0.06	5.38	22.52	95.75	12.32	92.49	0.06	5.53	0.06	5.60
89.90	88.90	26.49	86.82	0.06	5.25	0.06	5.35	22.82	95.80	10.62	92.40	0.06	5.52	0.06	5.78
90.49	88.91	25.30	86.00	0.05	5.20	0.06	5.48	22.40	95.73	11.99	92.30	0.06	5.50	0.06	5.66
86.44	88.86	24.54	86.08	0.06	5.22	0.06	5.55	22.69	95.78	12.34	92.50	0.06	5.55	0.06	5.66
87.03	88.86	22.90	86.83	0.06	5.25	0.06	5.53	21.98	95.47	9.26	90.33	0.06	5.55	0.06	5.55
86.54	88.86	23.37	86.56	0.06	5.22	0.06	5.52	22.54	95.80	12.32	92.49	0.06	5.55	0.06	5.71
89.45	88.89	26.28	86.33	0.06	5.24	0.06	5.48	22.78	95.79	12.05	92.34	0.06	5.57	0.06	5.63
87.41	88.87	26.87	86.41	0.06	5.29	0.06	5.45	22.81	95.80	11.95	92.28	0.06	5.49	0.06	5.64
89.54	88.90	26.45	86.36	0.06	5.29	0.06	5.49	22.95	95.82	13.17	92.04	0.06	5.55	0.06	5.71
88.89	88.89	22.08	86.48	0.06	5.28	0.06	5.55	22.20	95.69	10.74	92.15	0.06	5.43	0.06	5.61
86.18	88.85	20.80	86.41	0.06	5.25	0.06	5.49	22.47	95.74	11.07	91.72	0.06	5.49	0.06	5.64
91.95	88.82	22.15	86.68	0.06	5.25	0.06	5.46	21.66	95.60	10.99	91.66	0.06	5.48	0.06	5.61
91.38	88.82	23.20	86.87	0.06	5.29	0.06	5.43	21.97	95.65	11.99	92.30	0.06	5.52	0.06	5.62
90.78	88.91	25.19	86.21	0.06	5.30	0.06	5.32	22.27	95.81	10.80	91.58	0.06	5.47	0.06	5.75
91.45	88.94	23.12	86.42	0.06	5.26	0.06	5.51	21.92	95.64	11.06	91.81	0.06	5.50	0.06	5.57
88.64	88.92	21.02	86.46	0.06	5.33	0.06	5.44	22.87	95.81	14.07	92.06	0.06	5.56	0.06	5.48
92.09	88.94	24.87	86.82	0.06	5.27	0.06	5.49	22.33	95.79	12.23	92.79	0.06	5.49	0.06	5.67
91.36	88.92	24.37	86.06	0.06	5.25	0.06	5.38	22.54	95.75	13.05	92.88	0.06	5.51	0.06	5.59
92.65	88.88	24.10	86.00	0.06	5.26	0.06	5.45	22.43	95.78	11.48	92.63	0.06	5.55	0.06	5.88
90.28	88.90	21.27	86.51	0.06	5.26	0.06	5.50	22.84	95.81	12.72	92.71	0.06	5.54	0.06	5.60
91.84	88.93	24.32	86.05	0.06	5.30	0.06	5.53	22.21	95.69	10.48	91.29	0.06	5.53	0.06	5.76
85.30	88.84	23.87	86.40	0.06	5.30	0.06	5.50	21.61	95.77	12.02	92.32	0.06	5.50	0.06	5.68
89.21	88.89	22.37	86.72	0.06	5.25	0.06	5.54	22.13	95.68	10.25	92.45	0.06	5.49	0.06	5.69
82.14	88.87	22.66	86.77	0.06	5.27	0.06	5.57	20.09	95.66	10.25	92.45	0.06	5.50	0.06	5.66
90.60	88.91	21.20	86.49	0.06	5.28	0.06	5.55	26.52	96.37	11.55	91.78	0.06	5.50	0.06	5.76
91.08	88.85	21.86	86.84	0.06	5.23	0.06	5.43	26.63	96.39	11.54	91.54	0.06	5.53	0.06	5.68
89.40	88.90	24.94	86.14	0.06	5.28	0.06	5.55	27.05	96.43	10.81	91.54	0.06	5.48	0.06	5.65
89.62	88.93	22.97	86.48	0.06	5.28	0.06	5.54	27.27	96.46	11.27	91.46	0.06	5.49	0.06	5.55
91.09	88.87	23.66	86.74	0.06	5.27	0.06	5.45	27.28	96.46	12.25	92.45	0.06	5.55	0.06	5.56
91.99	88.91	24.30	86.05	0.06	5.30	0.06	5.44	27.36	96.47	12.01	92.12	0.06	5.50	0.06	5.60
89.13	88.84	23.79	86.79	0.06	5.36	0.06	5.48	27.41	96.48	10.70	91.51	0.06	5.57	0.06	5.75
91.70	88.91	24.63	86.10	0.06	5.28	0.06	5.42	27.50	96.49	12.69	92.69	0.06	5.54	0.06	5.69
87.70	88.87	24.16	86.04	0.06	5.24	0.06	5.44	27.64	96.51	12.49	92.51	0.06	5.49	0.06	5.67
90.80	88.91	25.61	86.24	0.05	5.21	0.06	5.57	27.74	96.52	12.78	92.74	0.06	5.48	0.06	5.66
91.42	88.91	25.17	86.17	0.06	5.22	0.06	5.60	27.83	96.53	10.93	91.59	0.06	5.50	0.06	5.70
92.55	88.93	24.28	86.04	0.05	5.17	0.06	5.40	27.61	96.38	12.08	92.35	0.06	5.48	0.06	5.66
87.01	88.87	24.78	86.49	0.05	5.21	0.06	5.63	27.24	96.40	11.84	92.21	0.06	5.57	0.06	5.56
87.07	88.85	23.58	86.76	0.06	5.31	0.06	5.58	27.83	96.53	12.02	92.81	0.06	5.53	0.06	5.62
91.14	88.91	26.11	86.11	0.05	5.22	0.06	5.45	27.86	96.53	12.54	92.61	0.06	5.49	0.06	5.63
88.20	88.87	24.82	86.13	0.06	5.31	0.06	5.45	27.21	96.45	11.97	91.82	0.06	5.54	0.06	5.84
84.32	88.83	24.76	86.12	0.06	5.29	0.06	5.38	27.57	96.50	12.73	92.72	0.06	5.48	0.06	5.67
89.07	88.88	28.14	86.58	0.06	5.26	0.06	5.53	27.80	96.53	12.69	92.47	0.06	5.50	0.06	5.68
90.79	88.91	27.44	86.48	0.06	5.31	0.06	5.49	27.32	96.47	10.45	91.26	0.06	5.54	0.06	5.69
89.36	88.85	26.51	86.42	0.06	5.20	0.06	5.53	28.27	96.55	11.27	91.41	0.06	5.49	0.06	5.75
84.20	88.83	25.55	86.23	0.06	5.27	0.06	5.46	28.01	96.55	12.22	92.97	0.06	5.48	0.06	5.71
85.62	88.85	24.17	86.03	0.06	5.26	0.06	5.49	26.46	96.36	10.21	91.08	0.06	5.49	0.06	5.67
82.24	88.80	21.24	86.87	0.06	5.30	0.06	5.49	26.59	96.38	9.95	90.87	0.06	5.50	0.06	5.60
89.02	88.88	25.41	86.24	0.06	5.28	0.06	5.42	26.89	96.43	9.95	90.65	0.06	5.56	0.06	5.66
85.22	88.84	27.05	86.44	0.06	5.27	0.06	5.41	27.26	96.52	12.46	92.52	0.06	5.52	0.06	5.66
85.66	88.85	21.86	86.63	0.06	5.27	0.06	5.45	27.67	96.51	12.73	92.71	0.06	5.52	0.06	5.56
86.77	88.86	25.04	86.16	0.06	5.23	0.06	5.46	27.24	96.46	10.70	91.46	0.06	5.58	0.06	5.63
88.03	88.88	22.22	86.69	0.06	5.27	0.06	5.45	27.48	96.51	10.99	91.59	0.06	5.49	0.06	5.77
84.83	88.81	21.59	86.71	0.06	5.25	0.06	5.46	27.82	96.53	12.09	92.85	0.06	5.51	0.06	5.69
91.30	88.92	26.89	86.43	0.06	5.30	0.06	5.45	27.07	96.44	12.87	92.79	0.06	5.50	0.06	5.67
92.12	88.93	27.12	86.52	0.06	5.28	0.06	5.48	27.65	96.53	11.99	91.49	0.06	5.53	0.06	5.68
90.43	88.91	27.37	86.48	0.06	5.31	0.06	5.46	27.19	96.45	12.34	92.50	0.06	5.56	0.06	5.62
89.82	88.92	25.87	86.30	0.06	5.23	0.06	5.46	28.22	96.53	12.82	92.36	0.06	5.48	0.06	5.65
83.46	88.82	29.90	86.76	0.06	5.22	0.06	5.41	27.66	96.51	10.94	91.63	0.06	5.51	0.06	5.64
84.80	88.82	28.01	86.55	0.06	5.23	0.06	5.42	27.31	96.47	12.00	92.10	0.06	5.53	0.06	5.61
84.83	88.83	29.78	86.76	0.06	5.26	0.06	5.47	26.92	96.37	10.55	90.49	0.06	5.50	0.06	5.70
86.90	88.79	30.02	86.78	0.06	5.28	0.06	5.47	26.40	96.37	9.55	90.49	0.06	5.53	0.06	5.61
83.21	88.81														

74.81	88.68	24.34	95.05
75.00	88.70	24.05	95.66
75.15	88.72	24.35	95.05
75.50	88.69	24.13	95.09
75.87	88.70	24.05	95.61
77.81	88.73	23.05	95.84
78.71	88.71	24.45	95.87
72.81	88.65	24.93	95.14
74.99	88.68	25.00	95.15
78.62	88.74	23.66	95.94
77.53	88.73	24.54	95.09
77.77	88.73	24.03	95.00
76.29	88.74	23.22	95.87
75.12	88.69	22.32	95.71
76.62	88.75	24.10	95.02
75.96	88.70	23.11	95.67
74.71	88.68	23.52	95.92
71.76	88.63	24.74	95.12
76.90	88.72	23.69	95.95
63.77	88.55	23.08	95.69
56.79	88.27	14.77	93.86
65.71	88.50	20.76	95.40
66.06	88.53	21.30	95.42
63.22	88.53	21.74	95.60
65.87	88.50	20.78	95.41
66.59	88.52	21.74	95.60
65.19	88.44	21.19	95.49
64.87	88.48	22.26	95.70
66.53	88.52	20.99	95.45
65.04	88.49	20.59	95.37
64.06	88.46	22.41	95.73
64.66	88.48	20.48	95.34
65.75	88.50	20.64	95.38
63.35	88.39	19.14	95.04
59.80	88.36	19.93	95.22
64.57	88.47	20.17	95.38
64.33	88.47	20.35	95.32
67.77	88.56	22.43	95.73
64.68	88.48	21.66	95.59
65.86	88.50	21.75	95.60
65.53	88.50	21.50	95.74
66.25	88.51	21.37	95.53
66.49	88.57	20.17	95.28
65.58	88.50	21.54	95.56
64.62	88.48	20.21	95.29
65.52	88.50	22.30	95.71
64.70	88.48	21.07	95.47
64.66	88.50	21.37	95.53
68.18	88.55	21.03	95.46
63.13	88.53	18.26	94.81
65.57	88.50	20.49	95.35
65.10	88.49	20.75	95.40
65.91	88.51	21.43	95.54
66.62	88.52	21.63	95.58
65.98	88.51	20.45	95.34
63.47	88.45	20.63	95.38
66.02	88.51	21.69	95.59
65.41	88.45	20.78	95.43
63.19	88.39	19.45	95.34
65.83	88.50	21.59	95.57
66.54	88.52	21.48	95.55
68.16	88.55	22.17	95.68
66.01	88.51	21.85	95.65
66.46	88.52	21.52	95.56
66.86	88.53	21.75	95.60
64.66	88.48	21.40	95.54
66.18	88.51	21.43	95.54
63.63	88.45	21.12	95.52
65.90	88.51	17.98	94.73
65.32	88.49	20.87	95.48
75.38	88.76	23.09	95.85
76.16	88.70	24.28	95.04
76.52	88.71	23.17	95.93
77.24	88.72	22.05	95.66
74.62	88.68	23.43	95.91
76.16	88.70	23.00	95.83
78.10	88.74	24.22	95.09
76.29	88.71	22.60	95.76
70.17	88.69	23.17	95.86
75.18	88.65	22.28	95.60
76.82	88.71	23.12	95.85
74.87	88.68	23.42	95.90
73.77	88.66	22.50	95.74
74.65	88.68	22.78	95.79
75.81	88.70	22.84	95.81
77.13	88.72	23.04	95.84
74.08	88.70	23.22	95.87
75.74	88.70	22.11	95.71
78.81	88.75	23.12	95.85
76.97	88.72	23.59	95.93
77.40	88.72	24.32	95.05
76.54	88.71	23.72	95.96
77.11	88.72	23.58	95.83
76.79	88.71	24.03	95.00
77.05	88.73	23.64	95.94
75.35	88.69	22.92	95.82
76.12	88.70	22.49	95.74
78.97	88.75	23.24	95.88
76.21	88.70	23.99	95.65
76.26	88.71	23.99	95.83
78.94	88.75	23.92	95.99
77.95	88.73	23.52	95.92
78.74	88.75	23.65	95.94
78.85	88.76	23.09	95.85
76.49	88.75	23.22	95.87
75.27	88.69	22.78	95.79
78.89	88.75	24.39	95.96
79.31	88.75	23.25	95.88
77.50	88.73	23.63	95.94
77.99	88.73	23.80	95.97
76.45	88.74	22.63	95.77
73.83	88.64	23.60	95.93
78.00	88.73	23.60	95.94
74.28	88.67	22.58	95.76
78.15	88.74	24.19	95.09
77.38	88.72	23.11	95.85
77.52	88.73	22.88	95.81
77.02	88.72	23.44	95.95
75.79	88.70	22.61	95.76
75.55	88.69	22.95	95.82
77.98	88.73	24.05	95.61
69.10	88.57	21.14	95.48
75.69	88.70	23.15	95.86
75.88	88.70	23.59	95.93
76.40	88.71	22.41	95.73
74.45	88.67	23.31	95.89
76.17	88.67	23.49	95.92
72.51	88.64	24.12	95.02
77.00	88.72	23.86	95.63
77.14	88.72	23.62	95.94
74.05	88.67	22.42	95.73
74.30	88.67	22.71	95.78
76.48	88.71	23.17	95.90
123.43	99.27	24.88	95.34
118.97	99.17	26.23	95.33
118.64	99.17	26.17	95.32
121.33	99.18	26.03	95.30
121.43	99.18	25.63	95.25
120.77	99.18	25.63	95.16
121.12	99.18	25.13	95.17
120.74	99.18	25.11	95.17
117.97	99.16	22.30	95.73
118.34	99.16	22.84	95.81
120.47	99.18	26.31	95.34
120.38	99.18	25.85	95.28
118.83	99.16	22.72	95.78
117.22	99.15	21.14	95.48
119.88	99.17	25.00	95.15
120.41	99.18	23.56	95.93
121.34	99.18	23.54	95.92
119.45	99.17	23.86	95.98
120.71	99.18	24.12	95.02
119.35	99.17	25.31	95.20
120.50	99.18	24.57	95.09
119.07	99.17	23.95	95.99
120.12	99.17	23.79	95.97
119.16	99.17	23.91	95.99
119.10	99.17	23.60	95.94
117.74	99.16	25.12	95.17
121.45	99.18	26.64	95.38
120.34	99.18	23.34	95.89
119.72	99.17	23.38	95.90
120.13	99.17	23.88	95.98
120.50	99.18	25.58	95.24
120.24	99.18	24.60	95.09
117.34	99.16	25.78	95.27
120.50	99.18	25.65	95.25
121.44	99.18	26.21	95.32
120.85	99.18	27.61	95.11
120.89	99.18	24.04	95.03
121.46	99.18	23.61	95.94
119.17	99.17	23.62	95.58
118.43	99.16	23.20	95.69
117.81	99.16	21.36	95.53
117.72	99.16	21.90	95.98
118.76	99.16	23.47	95.91
120.10	99.17	24.61	95.30
118.62	99.16	23.17	95.86
119.19	99.17	26.44	95.36
119.57	99.17	23.67	95.95
117.88	99.16	20.76	95.40
121.30	99.18	25.17	95.19
104.26	99.05	25.50	95.23
76.54	98.34	23.17	95.73
144.94	99.31	23.06	95.84
65.14	88.49	15.65	93.99
66.03	88.55	17.20	94.51
64.89	88.48	14.64	93.61
68.17	88.55	17.11	94.54
65.48	88.50	16.25	94.20
66.63	88.52	16.71	94.35
67.10	88.53	17.38	94.56
63.15	88.39	16.83	94.39
66.84	88.51	17.08	94.47
66.42	88.52	16.55	94.30
67.02	88.53	15.86	94.07
66.69	88.52	15.54	93.95
67.05	88.53	16.88	94.41
65.65	88.50	14.97	93.74
67.80	88.55	17.40	94.56
67.43	88.54	17.17	94.50
67.50	88.54	17.45	94.58

S100_4

S100_5

B11_1

68.14	98.55	17.62	94.63
68.20	98.53	16.31	94.22
68.08	98.55	16.97	94.43
68.00	98.57	17.87	94.70
67.92	98.55	17.68	94.65
67.74	98.54	17.61	94.63
67.37	98.54	16.76	94.37
68.03	98.55	18.20	94.79
67.34	98.54	17.62	94.63
67.80	98.55	17.03	94.45
66.60	98.52	16.17	94.18
66.63	98.52	16.19	94.18
67.27	98.54	17.02	94.46
65.89	98.50	16.43	94.26
67.14	98.53	16.04	94.13
66.78	98.52	17.12	94.48
68.35	98.56	16.48	94.28
66.93	98.53	16.78	94.38
67.44	98.54	15.97	94.11
65.98	98.51	16.60	94.32
66.87	98.53	16.33	94.23
66.76	98.52	16.24	94.20
66.27	98.51	17.15	94.49
65.46	98.50	16.30	94.22
63.05	98.54	17.59	94.62
66.71	98.52	17.14	94.49
67.64	98.54	16.75	94.37
66.37	98.52	16.33	94.23
68.93	98.57	17.72	94.66
67.61	98.54	17.50	94.59
66.79	98.50	15.97	94.11
65.99	98.51	16.12	94.16
67.26	98.53	15.85	94.06
62.90	98.55	17.82	94.69
68.21	98.56	17.89	94.71
68.92	98.51	17.60	94.62
67.23	98.53	16.61	94.32
65.88	98.50	16.04	94.13
67.31	98.54	17.53	94.60
66.88	98.53	16.32	94.23
64.14	98.46	15.16	93.81
67.05	98.53	16.56	94.31
66.76	98.52	16.09	94.15
66.51	98.52	17.27	94.53
67.56	98.54	15.95	94.18
66.75	98.52	15.86	94.07
66.61	98.52	16.51	94.29
64.98	98.48	15.00	93.75
66.48	98.52	17.54	94.61
63.17	98.53	16.02	94.12
66.12	98.51	16.26	94.21
67.44	98.54	16.93	94.42
66.39	98.52	16.99	94.44
66.40	98.52	16.18	94.18
63.77	98.46	14.96	93.73
74.47	98.68	20.00	95.24
70.50	98.60	17.81	94.69
69.10	98.57	19.52	95.13
70.56	98.60	19.56	95.14
70.84	98.61	20.82	95.42
70.64	98.60	18.68	94.92
71.17	98.61	20.67	95.38
72.80	98.65	19.71	95.17
71.02	98.61	20.31	95.31
72.04	98.63	20.03	95.25
71.81	98.63	20.93	95.44
70.87	98.61	20.52	95.35
72.07	98.63	20.18	95.28
71.29	98.62	18.66	94.91
70.24	98.60	20.52	95.35
72.36	98.64	19.09	95.00
70.61	98.60	20.21	95.29
71.61	98.62	19.99	95.24
70.56	98.60	18.40	94.85
70.74	98.61	20.61	95.37
71.41	98.62	17.68	94.65
70.89	98.61	20.03	95.24
71.80	98.63	21.00	95.45
68.49	98.58	18.07	94.76
71.12	98.61	17.02	94.45
70.59	98.60	20.75	95.40
68.32	98.58	18.48	94.87
71.39	98.62	19.24	95.06
70.15	98.59	19.20	95.05
70.41	98.60	19.29	95.07
72.44	98.64	19.61	95.15
70.22	98.60	18.36	94.84
68.89	98.59	20.90	95.43
69.77	98.59	18.09	94.76
69.63	98.58	18.99	95.00
72.36	98.63	20.83	95.42
71.79	98.61	17.56	94.61
average	98.56	17.51	95.31
SD	0.51		1.37

BM 12

BM 13