

Percent Identity

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	
1	█	90.2	90.7	87.7	93.6	96.8	90.4	87.5	86.5	89.6	93.8	93.3	90.9	96.6	89.2	84.7	89.2	90.6	89.2	91.9	89.2	86.2	96.8	86.2	89.2	89.2	93.4	89.2	89.2	1
2	2.6	█	98.1	91.4	94.6	89.1	97.8	80.3	78.8	81.8	86.4	94.9	83.2	88.9	95.8	90.9	96.0	99.0	95.8	96.3	95.6	92.8	91.8	92.8	95.8	95.8	94.8	95.8	95.8	2
3	2.0	2.0	█	90.9	95.3	89.7	99.7	80.3	79.1	82.2	86.7	94.3	83.5	89.6	97.0	92.8	96.8	99.2	97.0	96.5	97.1	93.9	92.1	93.9	97.0	97.0	95.5	97.0	97.0	3
4	2.3	3.1	3.7	█	91.4	86.2	90.6	86.2	85.0	79.3	83.3	92.1	80.6	86.0	89.6	85.0	89.7	91.4	89.6	94.4	89.4	86.5	89.2	86.5	89.6	89.6	91.6	89.6	89.6	4
5	2.2	2.6	1.9	3.2	█	92.4	94.9	83.2	82.0	85.0	89.6	98.7	86.4	92.3	93.4	89.2	93.6	95.3	93.4	97.0	93.6	90.4	94.8	90.4	93.4	93.4	99.8	93.4	93.4	5
6	2.0	2.2	1.4	2.3	1.8	█	89.4	89.4	88.2	91.2	95.6	91.8	92.6	99.5	88.2	83.7	88.2	89.7	88.2	91.1	88.2	85.2	95.3	85.2	88.2	88.2	92.6	88.2	88.2	6
7	2.0	2.0	0.0	3.8	1.9	1.4	█	80.0	78.8	81.8	86.4	93.9	83.2	89.2	96.6	92.4	96.5	98.8	96.6	96.1	96.8	93.6	91.8	93.6	96.6	96.6	95.1	96.6	96.6	7
8	2.7	2.3	2.3	2.3	2.5	2.3	2.3	█	96.3	90.7	92.1	83.2	91.9	89.2	78.8	74.2	78.8	80.3	78.8	81.8	78.8	75.8	86.0	75.8	78.8	78.8	83.3	78.8	78.8	8
9	2.1	2.3	1.8	1.8	2.1	1.8	1.8	3.0	█	92.4	91.1	81.8	94.9	88.0	77.6	73.1	77.6	79.1	77.6	80.6	77.6	74.6	85.0	74.6	77.6	77.6	82.2	77.6	77.6	9
10	1.8	2.0	1.5	1.6	1.8	1.5	1.5	2.6	2.3	█	94.4	84.8	97.1	91.1	80.6	76.1	80.6	82.2	80.6	83.7	80.6	77.6	88.2	77.6	80.6	80.6	85.2	80.6	80.6	10
11	2.1	1.9	1.5	2.2	1.7	1.7	1.5	2.7	2.1	1.3	█	88.7	95.8	95.6	85.2	80.6	85.2	86.7	85.2	88.2	85.2	82.2	92.3	82.2	85.2	85.2	89.7	85.2	85.2	11
12	2.6	2.3	3.0	2.4	1.5	2.6	3.0	2.5	2.3	2.0	2.7	█	86.2	91.6	92.4	88.2	92.6	94.3	92.4	96.0	92.6	89.4	95.1	89.4	92.4	92.4	98.8	92.4	92.4	12
13	2.0	2.2	1.7	1.8	2.0	1.7	1.7	3.0	0.9	1.8	1.5	2.2	█	92.4	82.0	77.4	82.0	83.5	82.0	85.0	82.0	79.0	89.4	79.0	82.0	82.0	86.5	82.0	82.0	13
14	2.2	2.4	1.6	2.6	2.0	0.6	1.6	2.5	2.1	1.8	1.7	2.8	2.0	█	88.0	83.5	88.0	89.6	88.0	90.9	88.0	85.0	95.1	85.0	88.0	88.0	92.4	88.0	88.0	14
15	2.0	2.9	1.6	3.5	2.3	1.4	1.6	2.3	1.8	1.5	1.5	3.4	1.7	1.6	█	93.8	99.8	96.8	100.0	95.1	99.8	95.6	90.6	95.6	100.0	100.0	93.6	100.0	100.0	15
16	2.0	3.3	1.3	3.5	1.9	1.4	1.3	2.3	1.8	1.5	1.5	3.0	1.7	1.6	1.8	█	93.6	91.9	93.8	90.6	93.9	96.8	86.0	96.8	93.8	93.8	89.4	93.8	93.8	16
17	2.0	2.7	1.8	3.3	2.1	1.4	1.8	2.3	1.8	1.5	1.5	3.2	1.7	1.6	0.2	2.0	█	97.0	99.8	95.3	99.7	95.5	90.4	95.5	99.8	99.8	93.8	99.8	99.8	17
18	2.2	1.1	0.9	3.1	1.9	1.4	0.9	2.3	1.8	1.5	1.5	3.0	1.7	1.6	1.8	2.2	1.6	█	96.8	97.0	96.6	93.8	91.8	93.8	96.8	96.8	95.5	96.8	96.8	18
19	2.0	2.9	1.6	3.5	2.3	1.4	1.6	2.3	1.8	1.5	1.5	3.4	1.7	1.6	0.0	1.8	0.2	1.8	█	95.1	99.8	95.6	90.6	95.6	100.0	100.0	93.6	100.0	100.0	19
20	2.4	2.4	2.2	1.4	1.7	1.6	2.2	2.3	1.8	1.5	1.5	2.8	1.7	1.8	2.0	2.0	1.8	1.7	2.0	█	94.9	92.1	93.4	92.1	95.1	95.1	97.1	95.1	95.1	20
21	2.0	3.1	1.4	3.8	2.1	1.4	1.5	2.3	1.8	1.5	1.5	3.2	1.7	1.6	0.2	1.6	0.4	2.0	0.2	2.2	█	95.5	90.6	95.5	99.8	99.8	93.8	99.8	99.8	21
22	2.0	2.9	1.6	3.5	2.3	1.4	1.6	2.3	1.8	1.5	1.5	3.4	1.7	1.6	1.4	1.7	1.6	1.8	1.4	2.0	1.6	█	87.5	100.0	95.6	95.6	90.6	95.6	95.6	22
23	2.0	2.5	2.1	2.3	2.5	2.0	2.2	2.7	2.1	1.5	2.1	2.1	2.0	2.2	2.1	2.1	2.3	2.5	2.1	2.3	2.1	2.1	█	87.5	90.6	90.6	94.9	90.6	90.6	23
24	2.0	2.9	1.6	3.5	2.3	1.4	1.6	2.3	1.8	1.5	1.5	3.4	1.7	1.6	1.4	1.7	1.6	1.8	1.4	2.0	1.6	0.0	2.1	█	95.6	95.6	90.6	95.6	95.6	24
25	2.0	2.9	1.6	3.5	2.3	1.4	1.6	2.3	1.8	1.5	1.5	3.4	1.7	1.6	0.0	1.8	0.2	1.8	0.0	2.0	0.2	1.4	2.1	1.4	█	100.0	93.6	100.0	100.0	25
26	2.0	2.9	1.6	3.5	2.3	1.4	1.6	2.3	1.8	1.5	1.5	3.4	1.7	1.6	0.0	1.8	0.2	1.8	0.0	2.0	0.2	1.4	2.1	1.4	0.0	█	93.6	100.0	100.0	26
27	2.4	2.5	1.7	3.0	0.2	1.6	1.7	2.3	1.8	1.5	1.5	1.3	1.7	1.8	2.1	1.7	1.9	1.7	2.1	1.5	1.9	2.1	2.3	2.1	2.1	2.1	█	93.6	93.6	27
28	2.0	2.9	1.6	3.5	2.3	1.4	1.6	2.3	1.8	1.5	1.5	3.4	1.7	1.6	0.0	1.8	0.2	1.8	0.0	2.0	0.2	1.4	2.1	1.4	0.0	0.0	2.1	█	100.0	28
29	2.0	2.9	1.6	3.5	2.3	1.4	1.6	2.3	1.8	1.5	1.5	3.4	1.7	1.6	0.0	1.8	0.2	1.8	0.0	2.0	0.2	1.4	2.1	1.4	0.0	0.0	2.1	0.0	█	29
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	

Bucl1_Bps K96243.seq
 A4LPM8_BURPS_Bucl1_Bps 305.seq
 A3P738_BURP0_Bucl1_Bps 1106a.seq
 C4I6P3_BURPS_Bucl1_Bps MSHR346.seq
 Bucl1_Bps 1026b.seq
 Bucl1_Bps 1710b.seq
 Bucl1_Bps BPC006.seq
 Bucl1_Bps 668.seq
 Bucl1_Bps NCTC 13179.seq
 Bucl1_Bps MSHR146.seq
 Bucl1_Bps MSHR511.seq
 Bucl1_Bps MSHR520.seq
 Bucl1_Bps NAU20B-16.seq
 Bucl1_Bps NCTC 13178.seq
 Bucl1_Bm 2000031281.seq
 Bucl1_Bm 2002721280.seq
 Bucl1_Bm A188.seq
 Bucl1_Bm A193.seq
 Bucl1_Bm China 7.seq
 Bucl1_Bm PRL-20.seq
 Bucl1_Bm strain_6.seq
 Bucl1_Bm strain_11.seq
 A2S1L2_BURM9_Bucl1_Bm NCTC 10229.seq
 A3MCC9_BURM7_Bucl1_Bm NCTC 10247.seq
 A5J478_BURMA_Bucl1_Bm FMH.seq
 A5XL93_BURMA_Bucl1_Bm JHU.seq
 A9K4Y8_BURMA_Bucl1_Bm ATCC 10399.seq
 C4AZF6_BURMA_Bucl1_Bm GB8 horse 4.seq
 Q62AX7_BURMA_Bucl1_Bm ATCC 23344.seq

bucl1

Percent Identity

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27		
1	█	88.1	91.8	96.5	93.0	90.0	90.7	79.6	95.1	96.9	88.1	96.9	85.9	95.8	94.0	96.8	84.4	84.4	84.4	83.1	83.1	84.4	84.4	88.9	84.4	84.4	83.1	1	
2	4.7	█	95.6	87.2	93.7	93.9	81.4	86.9	91.4	89.2	100.0	89.2	95.3	85.9	84.9	87.5	91.8	91.8	91.8	91.4	91.4	91.8	91.8	95.1	91.8	91.8	91.4	2	
3	1.8	3.4	█	91.3	97.1	96.8	84.6	86.5	94.6	93.0	95.6	93.0	92.9	89.1	88.1	90.8	91.4	91.4	91.4	90.0	90.0	91.4	91.4	95.9	91.4	91.4	90.0	3	
4	2.3	4.2	1.0	█	91.3	88.9	91.8	78.2	93.3	94.9	87.2	94.9	84.7	96.1	94.6	97.7	83.3	83.3	83.3	82.0	82.0	83.3	83.3	87.8	83.3	83.3	82.0	4	
5	1.8	4.3	1.7	2.3	█	94.8	85.7	85.3	94.9	94.5	93.7	94.5	91.4	89.7	89.5	92.4	90.0	90.0	90.0	88.8	88.8	90.0	90.0	94.5	90.0	90.0	88.8	5	
6	3.9	5.8	3.6	3.6	4.3	█	83.0	86.5	92.1	90.7	93.9	90.7	92.9	86.6	85.7	88.6	91.4	91.4	91.4	90.0	90.0	91.4	91.4	95.5	91.4	91.4	90.0	6	
7	4.3	6.7	4.1	4.4	4.4	5.9	█	74.1	87.3	89.4	81.4	89.4	79.3	92.0	94.9	92.1	78.2	78.2	78.2	77.0	77.0	78.2	78.2	81.7	78.2	78.2	77.0	7	
8	0.8	1.8	0.4	1.0	0.4	0.6	1.4	█	82.2	80.9	86.9	80.9	89.7	77.4	76.1	78.7	92.9	92.9	92.9	93.9	93.9	92.9	92.9	88.9	92.9	92.9	93.9	8	
9	2.4	4.0	1.5	2.9	2.8	4.3	5.5	1.0	█	96.2	91.4	96.2	89.1	92.3	91.4	93.9	87.6	87.6	87.6	85.7	85.7	87.6	87.6	92.3	87.6	87.6	85.7	9	
10	1.7	5.1	1.8	2.5	1.8	4.4	4.5	1.0	2.7	█	89.2	100.0	87.2	93.3	92.1	95.9	85.7	85.7	85.7	84.4	84.4	85.7	85.7	90.2	85.7	85.7	84.4	10	
11	4.7	0.0	3.4	4.2	4.3	5.8	6.7	1.8	4.0	5.1	█	89.2	95.3	85.9	84.9	87.5	91.8	91.8	91.8	91.4	91.4	91.8	91.8	95.1	91.8	91.8	91.4	11	
12	1.7	5.1	1.8	2.5	1.8	4.4	4.5	1.0	2.7	0.0	5.1	█	87.2	93.3	92.1	95.9	85.7	85.7	85.7	84.4	84.4	85.7	85.7	90.2	85.7	85.7	84.4	12	
13	4.3	2.5	3.7	4.1	4.1	3.9	6.2	1.6	3.7	4.5	2.5	4.5	█	84.4	82.4	85.2	95.9	95.9	95.9	94.9	94.9	95.9	95.8	95.9	95.8	95.9	95.9	94.9	13
14	1.6	4.3	1.8	2.6	2.8	4.6	5.8	0.4	2.7	3.0	4.3	3.0	3.0	█	96.5	96.1	82.8	82.8	82.8	81.5	81.5	82.8	82.8	86.0	82.8	82.8	81.5	14	
15	2.0	4.0	1.5	2.8	1.5	4.1	4.0	0.4	2.3	2.9	4.0	2.9	3.9	2.3	█	95.5	80.9	80.9	80.9	79.6	79.6	80.9	80.9	84.9	80.9	80.9	79.6	15	
16	1.9	4.0	1.3	2.3	1.1	3.7	4.2	0.4	2.4	1.6	4.0	1.6	3.7	2.8	2.0	█	83.6	83.6	83.6	82.2	82.2	83.6	83.6	88.2	83.6	83.6	82.2	16	
17	2.9	3.7	2.4	2.7	2.7	2.5	4.4	0.8	2.4	3.1	3.7	3.1	1.8	1.8	2.5	2.5	█	100.0	100.0	97.2	97.2	100.0	100.0	94.8	100.0	100.0	97.2	17	
18	2.9	3.7	2.4	2.7	2.7	2.5	4.4	0.8	2.4	3.1	3.7	3.1	1.8	1.8	2.5	2.5	0.0	█	100.0	97.2	97.2	100.0	100.0	94.8	100.0	100.0	97.2	18	
19	2.9	3.7	2.4	2.7	2.7	2.5	4.4	0.8	2.4	3.1	3.7	3.1	1.8	1.8	2.5	2.5	0.0	0.0	█	97.2	97.2	100.0	100.0	94.8	100.0	100.0	97.2	19	
20	3.0	2.6	2.6	2.8	2.6	2.8	4.3	1.2	3.2	3.2	2.6	3.2	1.5	1.8	2.6	2.6	1.8	1.8	1.8	█	100.0	97.2	97.2	93.0	97.2	97.2	100.0	20	
21	3.0	2.6	2.6	2.8	2.6	2.8	4.3	1.2	3.2	3.2	2.6	3.2	1.5	1.8	2.6	2.6	1.8	1.8	1.8	0.0	█	97.2	97.2	93.0	97.2	97.2	100.0	21	
22	2.9	3.7	2.4	2.7	2.7	2.5	4.4	0.8	2.4	3.1	3.7	3.1	1.8	1.8	2.5	2.5	0.0	0.0	0.0	1.8	1.8	█	100.0	94.8	100.0	100.0	97.2	22	
23	2.9	3.7	2.4	2.7	2.7	2.5	4.4	0.8	2.4	3.1	3.7	3.1	1.8	1.8	2.5	2.5	0.0	0.0	0.0	1.8	1.8	0.0	█	94.8	100.0	100.0	97.2	23	
24	2.1	4.4	1.6	1.9	1.9	2.3	4.8	0.8	1.4	2.2	4.4	2.2	3.5	2.6	2.4	1.5	1.6	1.6	1.6	2.2	2.2	1.6	1.6	█	94.8	94.8	93.0	24	
25	2.9	3.7	2.4	2.7	2.7	2.5	4.4	0.8	2.4	3.1	3.7	3.1	1.8	1.8	2.5	2.5	0.0	0.0	0.0	1.8	1.8	0.0	0.0	1.6	█	100.0	97.2	25	
26	2.9	3.7	2.4	2.7	2.7	2.5	4.4	0.8	2.4	3.1	3.7	3.1	1.8	1.8	2.5	2.5	0.0	0.0	0.0	1.8	1.8	0.0	0.0	1.6	0.0	█	97.2	26	
27	3.0	2.6	2.6	2.8	2.6	2.8	4.3	1.2	3.2	3.2	2.6	3.2	1.5	1.8	2.6	2.6	1.8	1.8	1.8	0.0	0.0	1.8	1.8	2.2	1.8	1.8	█	27	

- Bud2_Bps K96243.seq
- Bud2_Bps MSHR305.seq
- Bud2_Bps 1106a.seq
- Bud2_Bps 1026b.seq
- Bud2_Bps 1710b.seq
- Bud2_Bps BPC006.seq
- A3NN74_BURP6_Bucl2_Bp 668.seq
- Bud2_Bps NCTC 13179.seq
- Bud2_Bps MSHR146.seq
- Bud2_Bps MSHR511.seq
- Bud2_Bps MSHR520.seq
- Bud2_Bps NAU20B-16.seq
- Bud2_Bps NCTC 13178.seq
- B7CQL7_BURPS_Bucl2_Bps 576.seq
- C0Y6X0_BURPS_Bucl2_Bps Pakistan 9.seq
- A8EN62_BURPS_Bucl2_Bp 406e.seq
- Bud2_Bm 2000031281.seq
- Bud2_Bm 2002721280.seq
- Bud2_Bm China 7.seq
- Bud2_Bm strain_11.seq
- Bud2_Bm NCTC 10247.seq
- Bud2_Bm FMH.seq
- Bud2_Bm JHU.seq
- Bud2_Bm ATCC 10399.seq
- Bud2_Bm GB8 horse 4.seq
- Bud2_Bm ATCC 23344.seq
- Bud2_Bm SAVP1.seq

bucl2

Percent Identity

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36							
1	█	97.2	92.8	93.9	97.4	92.8	91.7	94.1	95.6	95.6	97.2	95.6	96.6	96.7	98.6	96.7	95.8	98.6	97.7	97.7	97.7	96.7	96.7	97.2	96.7	97.2	71.2	68.8	71.2	71.2	74.5	70.6	70.7	67.1	70.2	1							
2	0.4	█	94.9	96.3	99.7	94.9	93.9	96.1	97.7	97.7	99.8	97.7	98.6	94.4	96.3	94.4	93.5	96.3	95.3	95.3	95.3	94.4	94.4	94.9	94.4	94.4	94.9	72.9	70.6	72.9	72.9	76.2	72.3	72.4	68.8	72.0	2						
3	0.0	0.3	█	91.6	95.0	99.8	95.8	98.3	97.0	97.0	94.9	97.0	94.2	94.4	91.6	94.4	95.3	91.6	93.5	93.5	93.5	94.4	94.4	93.9	94.4	94.4	93.9	70.7	67.9	70.7	70.7	72.1	69.2	68.1	69.2	70.7	3						
4	0.4	0.4	0.4	█	96.4	91.6	90.7	92.8	94.4	94.4	96.3	94.4	97.2	91.1	93.9	91.1	90.2	93.9	92.1	92.1	92.1	91.1	91.1	91.6	91.1	91.1	91.6	72.9	70.6	72.9	72.9	76.2	72.3	75.7	68.8	72.0	4						
5	0.2	0.2	0.2	0.2	█	95.0	94.1	96.3	97.8	97.8	99.7	97.8	98.8	94.5	96.4	94.5	93.6	96.4	95.5	95.5	95.5	94.5	94.5	95.0	94.5	94.5	95.0	73.1	70.7	73.1	73.1	76.3	72.4	72.6	69.0	72.1	5						
6	0.0	0.3	0.0	0.4	0.2	█	95.8	98.3	97.0	97.0	94.9	97.0	94.2	94.4	91.6	94.4	95.3	91.6	93.5	93.5	93.5	94.4	94.4	93.9	94.4	94.4	93.9	70.7	67.9	70.7	70.7	72.1	69.2	68.1	69.2	70.7	6						
7	0.2	0.3	0.3	0.4	0.2	0.3	█	97.0	95.8	95.8	93.9	95.8	93.0	93.6	90.8	93.6	94.5	90.8	92.7	92.7	92.7	93.6	93.6	93.1	93.6	93.6	93.1	69.8	67.0	69.8	69.8	71.2	72.7	67.1	71.3	69.8	7						
8	0.2	0.5	0.2	0.5	0.3	0.2	0.5	█	98.3	98.3	96.1	98.3	95.5	95.6	92.8	95.6	96.6	92.8	94.7	94.7	94.7	95.6	95.6	95.2	95.6	95.6	95.2	72.0	69.2	72.0	72.0	73.4	70.4	69.3	69.0	72.0	8						
9	0.0	0.3	0.0	0.4	0.2	0.0	0.3	0.2	█	99.8	97.7	99.8	97.0	96.3	94.4	96.3	95.3	94.4	96.3	96.3	96.3	96.3	96.3	96.7	96.3	96.3	96.7	73.2	70.7	73.2	73.2	74.9	72.0	70.9	69.2	72.3	9						
10	0.0	0.3	0.0	0.4	0.2	0.0	0.3	0.2	0.0	█	97.7	99.8	97.0	96.3	94.4	96.3	95.3	94.4	96.3	96.3	96.3	96.3	96.3	96.3	96.3	96.7	73.2	70.7	73.2	73.2	74.9	72.0	70.9	69.2	72.3	10							
11	0.4	0.0	0.3	0.4	0.2	0.3	0.3	0.5	0.3	0.3	█	97.7	98.6	94.4	96.3	94.4	93.5	96.3	95.3	95.3	95.3	94.4	94.4	94.9	94.4	94.4	94.9	72.9	70.6	72.9	72.9	76.2	72.3	72.4	68.8	72.0	11						
12	0.0	0.3	0.0	0.4	0.2	0.0	0.3	0.2	0.0	0.0	0.3	█	97.0	96.3	94.4	96.3	95.3	94.4	96.3	96.3	96.3	96.3	96.3	96.3	96.7	96.3	96.3	73.2	70.7	73.2	73.2	74.9	72.0	70.9	69.2	72.3	12						
13	0.0	0.3	0.0	0.4	0.2	0.0	0.3	0.2	0.0	0.0	0.3	0.0	█	93.5	96.3	93.5	92.5	96.3	94.4	94.4	94.4	93.5	93.5	93.9	93.5	93.5	93.9	73.2	70.9	73.2	73.2	76.5	72.6	73.7	69.2	72.3	13						
14	0.4	0.4	0.3	0.4	0.2	0.3	0.2	0.5	0.3	0.3	0.4	0.3	0.4	█	97.0	99.8	98.9	97.0	98.9	98.9	98.9	98.9	98.9	98.9	98.9	98.9	99.4	70.2	67.4	70.2	70.2	71.7	68.7	67.6	66.4	69.5	14						
15	0.4	0.4	0.4	0.4	0.2	0.4	0.2	0.5	0.4	0.4	0.4	0.4	0.4	0.0	█	97.0	96.1	99.8	98.0	98.0	98.0	97.0	97.0	97.5	97.0	97.0	97.5	70.4	68.1	70.4	70.4	73.7	69.8	70.4	66.4	69.5	15						
16	0.4	0.4	0.3	0.4	0.2	0.3	0.2	0.5	0.3	0.3	0.4	0.3	0.4	0.0	0.0	█	98.9	97.0	98.9	98.9	98.9	98.9	98.9	98.9	98.9	98.9	99.4	70.2	67.4	70.2	70.2	71.7	68.7	67.6	66.4	69.5	16						
17	0.4	0.4	0.3	0.4	0.2	0.3	0.2	0.5	0.3	0.3	0.4	0.3	0.4	0.0	0.0	0.0	█	96.1	98.0	98.0	98.0	98.9	98.9	98.9	98.9	98.9	98.4	69.3	66.5	69.3	69.3	70.7	67.8	66.7	66.4	69.3	17						
18	0.4	0.4	0.4	0.4	0.2	0.4	0.2	0.5	0.4	0.4	0.4	0.4	0.4	0.0	0.0	0.0	0.0	█	98.0	98.0	98.0	97.0	97.0	97.5	97.0	97.0	97.5	70.4	68.1	70.4	70.4	73.7	69.8	70.4	66.4	69.5	18						
19	0.4	0.4	0.3	0.4	0.2	0.3	0.2	0.5	0.3	0.3	0.4	0.3	0.4	0.0	0.0	0.0	0.0	0.0	█	99.8	99.8	98.9	98.9	98.9	98.9	98.9	99.4	70.4	68.1	70.4	70.4	72.6	69.6	68.5	66.4	69.5	19						
20	0.4	0.4	0.3	0.4	0.2	0.3	0.2	0.5	0.3	0.3	0.4	0.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	█	99.8	98.9	98.9	98.9	98.9	98.9	99.4	70.4	68.1	70.4	70.4	72.6	69.6	68.5	66.4	69.5	20					
21	0.4	0.4	0.3	0.4	0.2	0.3	0.2	0.5	0.3	0.3	0.4	0.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	98.9	98.9	98.9	98.9	98.9	99.4	70.4	68.1	70.4	72.6	69.6	68.5	66.4	69.5	21		
22	0.4	0.4	0.3	0.4	0.2	0.3	0.2	0.5	0.3	0.3	0.4	0.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	99.8	99.4	99.8	99.8	99.4	70.2	67.4	70.2	70.2	71.7	68.7	67.6	66.4	69.5	22		
23	0.4	0.4	0.3	0.4	0.2	0.3	0.2	0.5	0.3	0.3	0.4	0.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	99.4	99.8	99.8	99.4	70.2	67.4	70.2	70.2	71.7	68.7	67.6	66.4	69.5	23			
24	0.4	0.4	0.3	0.4	0.2	0.3	0.2	0.5	0.3	0.3	0.4	0.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	99.4	99.4	99.8	99.8	70.4	67.9	70.4	70.4	72.1	69.2	68.1	66.4	69.5	24			
25	0.4	0.4	0.3	0.4	0.2	0.3	0.2	0.5	0.3	0.3	0.4	0.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	99.8	99.4	70.2	67.4	70.2	70.2	71.7	68.7	67.6	66.4	69.5	25					
26	0.4	0.4	0.3	0.4	0.2	0.3	0.2	0.5	0.3	0.3	0.4	0.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	99.4	70.2	67.4	70.2	70.2	71.7	68.7	67.6	66.4	69.5	26						
27	0.4	0.4	0.3	0.4	0.2	0.3	0.2	0.5	0.3	0.3	0.4	0.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	█	70.4	67.9	70.4	70.4	72.1	69.2	68.1	66.4	69.5	27						
28	33.6	33.6	35.8	29.5	33.4	35.8	35.8	36.0	35.4	35.4	33.6	35.4	31.9	37.2	33.8	37.2	37.2	33.8	36.2	36.2	37.2	37.2	36.8	37.2	37.2	36.8	37.2	37.2	36.8	37.2	37.2	36.8	0.0	8.7	91.6	99.8	99.8	96.6	95.8	84.3	91.7	98.9	28
29	38.4	38.2	39.8	34.1	38.0	39.8	39.8	40.1	39.8	39.8	38.2	39.8	36.5	41.4	38.6	41.4	41.4	38.6	41.0	41.0	41.4	41.4	41.4	41.4	41.4	41.4	8.7	█	91.6	91.6	89.6	88.8	91.7	83.8	90.7	91.7	98.9	29					
30	33.6	33.6	35.8	29.5	33.4	35.8	35.8	36.0	35.4	35.4	33.6	35.4	31.9	37.2	33.8	37.2	37.2	33.8	36.2	36.2	37.2	37.2	36.8	37.2	37.2	36.8	0.0	8.7	█	99.8	96.6	95.8	84.3	91.7	98.9	30							
31	33.6	33.6	35.8	29.5	33.4	35.8	35.8	36.0	35.4	35.4	33.6	35.4	31.9	37.2	33.8	37.2	37.2	33.8	36.2	36.2	37.2	37.2	36.8	37.2	37.2	36.8	0.0	8.7	0.0	█	96.6	95.8	84.3	91.7	98.9	31							
32	31.2	31.3	31.1	27.2	31.0	31.1	31.1	31.4	31.1	31.1	31.3	31.1	29.6	32.4	31.4	32.4	32.4	31.4	32.4	32.4	32.4	32.4	32.4	32.4	32.4	32.4	1.5	10.2	1.5	1.5	█	96.0	85.0	91.3	95.6	32							
33	32.3	32.3	33.3	28.2	32.1	33.3	32.6	33.6	33.3	33.3	32.3	33.3	30.6	34.6	32.4	34.6	34.6	32.4	34.6	34.6	34.6	34.6	34.6	34.6	34.6	34.6	0.8	9.3	0.8	0.8	0.7	█	82.4	93.9	94.9	33							
34	30.5	30.6	30.0	30.6	30.3	30.0	30.0	30.3	30.0	30.0	30.6	30.0	30.0	31.3	31.3	31.3	31.3	31.3	31.3	31.3	31.3	31.3	31.3	31.3	31.3	31.3	9.3	0.7	9.3	9.3	10.8	9.9	█	76.5	83.3	34							
35	30.2	30.3	35.4	26.2	30.0	35.4	32.9	34.0	32.0	32.0	30.3	32.0	28.6	33.8	30.3	33.8	35.0	30.3	32.7	32.7	32.7	33.8	33.8	33.3	33.8	33.3	2.2	10.8	2.2	2.2	0.7	1.3	11.6	█	92.7	35							
36	33.6	33.6	36.9	29.5	33.4	36.9	36.9	37.2	35.4	35.4	33.6	35.4	31.9	37.4	33.8	37.4	38.4	33.8	36.2	36.2	37.4	37.4	36.8	37.4	37.4	36.8	0.0	8.7	0.0	0.0	1.5	0.8	9.3	2.2	█	36							
1	2	3	4	5	6																																						

Percent Identity

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34			
1		90.5	93.5	92.0	96.1	93.5	93.9	95.5	95.5	90.0	90.5	83.4	98.6	95.5	92.0	96.7	97.3	98.4	96.8	96.7	99.1	99.1	94.8	93.1	96.7	96.7	98.3	96.7	96.7	79.8	79.1	81.0	80.5	80.1	1	Q63JT5_BURPS_Bps_K96243.seq	
2	1.1		96.0	97.6	93.6	96.0	95.8	93.7	87.3	80.8	100.0	80.1	89.4	86.4	83.3	93.0	92.2	89.7	88.1	93.0	90.5	90.5	94.8	85.0	93.0	93.0	91.3	93.0	93.0	77.6	88.0	80.4	82.0	84.8	2	Bucl4_Bps MSHR 305.seq	
3	1.1	1.1		97.9	96.4	100.0	99.6	96.7	90.4	83.8	96.0	81.6	92.7	89.8	86.9	96.4	95.5	92.6	90.9	96.4	93.3	93.5	97.5	87.8	96.4	96.4	94.5	96.4	96.4	78.2	84.5	80.9	82.5	85.3	3	Bucl4_Bps 1106a.seq	
4	1.1	1.0	0.6		95.0	97.9	97.6	95.6	89.2	82.5	97.6	81.2	91.3	88.5	85.4	94.8	93.9	91.1	89.5	94.8	91.9	91.9	96.2	86.4	94.8	94.8	92.8	94.8	94.8	77.9	86.2	80.7	82.2	85.0	4	Bucl4_Bps 1026b.seq	
5	0.9	1.1	1.5	1.3		96.4	96.8	98.3	91.7	86.5	93.6	82.6	94.8	91.8	88.2	98.0	97.1	95.5	94.1	98.0	96.5	96.1	97.6	90.8	98.0	98.0	96.7	98.0	98.0	78.2	82.3	80.9	82.5	83.0	5	Bucl4_Bps 1710b.seq	
6	1.1	1.1	0.0	0.6	1.5		99.6	96.7	90.4	83.8	96.0	81.6	92.7	89.8	86.9	96.4	95.5	92.6	90.9	96.4	93.3	93.5	97.5	87.8	96.4	96.4	94.5	96.4	96.4	78.2	84.5	80.9	82.5	85.3	6	Bucl4_Bps BPC006.seq	
7	0.7	1.3	0.5	1.1	1.0	0.5		96.4	90.0	84.2	95.8	82.0	93.1	90.1	86.5	96.1	95.2	92.9	91.3	96.1	93.6	93.9	97.2	88.1	96.1	96.1	94.8	96.1	96.1	77.8	84.6	80.6	82.2	85.0	7	Bucl4_Bps 668.seq	
8	1.5	1.0	1.1	0.5	1.9	1.1	1.5		92.8	85.7	93.7	82.2	94.6	91.8	88.6	98.2	97.4	94.5	92.7	98.2	95.2	95.5	98.4	89.2	98.2	98.2	96.4	98.2	98.2	79.4	82.5	81.9	83.5	84.1	8	Bucl4_Bps NCTC 13179.seq	
9	1.6	1.1	1.1	0.6	2.3	1.1	1.6	1.0		92.5	87.3	83.6	96.2	98.1	95.5	93.2	93.7	95.6	97.0	93.2	94.8	94.9	91.9	94.8	93.2	93.2	94.4	93.2	93.2	81.3	76.0	78.7	78.1	77.8	9	Bucl4_Bps MSHR146.seq	
10	0.6	1.4	1.5	1.2	1.0	1.5	1.0	2.0	1.3		80.8	83.9	90.5	93.8	96.9	86.7	87.3	90.5	91.8	86.7	89.6	89.4	84.9	94.1	86.7	86.7	88.5	86.7	86.7	80.0	69.4	71.3	70.8	70.4	10	Bucl4_Bps MSHR511.seq	
11	1.1	0.0	1.1	1.0	1.1	1.1	1.3	1.0	1.1	1.4		80.1	89.4	86.4	83.3	93.0	92.2	89.7	88.1	93.0	90.5	90.5	94.8	85.0	93.0	91.3	93.0	93.0	77.6	88.0	80.4	82.0	84.8	11	Bucl4_Bps MSHR520.seq		
12	10.0	3.7	5.7	4.3	7.3	5.7	5.2	7.8	13.3	16.7	3.7		83.9	84.3	84.8	82.7	82.9	83.6	84.1	82.7	83.4	83.6	81.8	84.8	82.7	82.7	83.4	82.7	82.7	82.1	70.6	73.9	73.2	72.6	12	Bucl4_Bps NAU20B-16.seq	
13	0.7	1.4	1.1	1.1	1.4	1.1	0.7	1.7	1.7	1.0	1.4	10.2		96.1	92.7	95.7	96.4	98.8	97.2	95.7	98.1	98.1	94.0	93.2	95.7	95.7	97.4	95.7	95.7	80.2	78.1	80.1	79.7	79.4	13	Bucl4_Bps NCTC 13178.seq	
14	0.6	1.3	0.9	0.6	1.3	0.9	0.5	1.3	1.2	0.7	1.3	13.3	0.9		96.2	92.6	93.1	95.7	97.0	92.6	94.8	95.0	90.6	96.4	92.6	92.6	94.5	92.6	92.6	80.5	75.0	77.3	76.7	76.4	14	B1H7D0_BURPS_Bps S13.seq	
15	1.1	1.2	0.6	0.5	1.8	0.6	1.0	1.3	0.6	0.8	1.2	16.1	1.2	0.7		89.7	90.2	92.1	93.4	89.7	91.3	91.4	87.7	95.8	89.7	89.7	90.9	89.7	80.8	71.7	74.4	73.8	73.5	15	B2HC63_BURPS_Bps 1655.seq		
16	1.1	0.9	0.5	0.6	1.4	0.5	0.9	1.2	1.5	1.7	0.9	8.1	1.3	1.3	1.0		99.0	96.0	94.2	100.0	96.7	96.8	97.8	90.6	100.0	100.0	97.7	100.0	100.0	79.3	81.5	81.8	83.1	82.9	16	Bucl4_Bm 2000031281.seq	
17	1.3	0.9	0.6	0.7	1.5	0.6	1.0	1.2	1.8	1.9	0.9	8.7	1.4	1.6	1.3	0.2		96.7	94.9	99.0	97.3	97.6	97.2	91.2	99.0	99.0	98.5	99.0	99.0	79.3	80.7	81.8	82.2	82.1	17	A5TN55_BURMA_Bm_2002721280.seq	
18	0.9	1.1	1.4	1.3	0.6	1.4	0.9	1.8	2.2	1.0	1.1	10.5	1.4	1.3	1.8	1.0	1.1		98.0	96.0	98.9	98.9	94.0	94.1	96.0	96.0	97.7	96.0	96.0	80.0	78.3	80.0	79.5	79.4	18	Bucl4_Bm A188.seq	
19	1.0	1.1	1.5	1.3	0.5	1.5	1.0	2.0	2.4	1.2	1.1	11.8	1.4	1.5	2.0	1.2	1.3	0.5		94.2	97.5	97.1	92.3	95.8	94.2	94.2	96.0	94.2	94.2	79.9	76.7	78.2	77.9	77.6	19	Bucl4_Bm A193.seq	
20	1.1	0.9	0.5	0.6	1.4	0.5	0.9	1.2	1.5	1.7	0.9	8.1	1.3	1.3	1.0	0.0	0.2	1.0	1.2		96.7	96.8	97.8	90.6	100.0	100.0	97.7	100.0	100.0	79.3	81.5	81.8	83.1	82.9	20	Bucl4_Bm China 7.seq	
21	1.0	1.1	1.5	1.3	0.4	1.5	1.0	1.9	2.4	1.1	1.1	10.0	1.3	1.4	1.9	1.1	1.3	0.4	0.2	1.1		99.5	94.7	93.4	96.7	96.7	98.3	96.7	96.7	79.3	79.1	80.6	80.1	80.0	21	Bucl4_Bm PRL-20.seq	
22	1.0	1.1	1.1	1.3	0.9	1.1	0.7	1.5	2.2	1.3	1.1	9.7	1.3	1.2	1.7	1.0	0.9	0.4	0.6	1.0	0.6		94.9	93.1	96.8	96.8	98.9	96.8	96.8	79.5	79.1	80.8	80.4	80.3	22	Bucl4_Bm strain_11.seq	
23	1.4	0.6	1.1	0.8	2.0	1.1	1.5	0.9	1.2	2.1	0.6	7.3	1.5	1.7	1.5	0.7	0.5	1.5	1.6	0.7	1.6	1.3		89.0	97.8	97.8	95.9	97.8	97.8	79.0	83.4	81.5	83.1	84.7	23	A2S1C1_BURM9_Bm NCTC 10229.seq	
24	1.6	1.1	1.5	1.3	0.6	1.5	1.0	2.5	3.1	2.1	1.1	14.4	2.3	2.2	2.8	1.8	2.0	1.4	1.1	1.8	1.2	1.6	1.8		90.6	90.6	92.2	90.6	90.6	79.2	73.6	74.5	74.1	74.3	24	Bucl4_Bm NCTC 10247.seq	
25	1.1	0.9	0.5	0.6	1.4	0.5	0.9	1.2	1.5	1.7	0.9	8.1	1.3	1.3	1.0	0.0	0.2	1.0	1.2	0.0	1.1	1.0	0.7	1.8		100.0	97.7	100.0	100.0	79.3	81.5	81.8	83.1	82.9	25	Bucl4_Bm FMH.seq	
26	1.1	0.9	0.5	0.6	1.4	0.5	0.9	1.2	1.5	1.7	0.9	8.1	1.3	1.3	1.0	0.0	0.2	1.0	1.2	0.0	1.1	1.0	0.7	1.8	0.0		97.7	100.0	100.0	79.3	81.5	81.8	83.1	82.9	26	A5XLG9_BURMA_Bm JHU.seq	
27	1.1	1.1	0.9	1.1	1.1	0.9	0.5	1.4	1.9	1.4	1.1	9.0	1.2	0.9	1.4	0.8	0.8	0.8	1.0	0.8	1.0	0.4	1.1	1.7	0.8	0.8	0.8		97.7	97.7	79.5	79.9	81.7	81.4	81.2	27	A9K4R2_BURMA_Bm ATCC 10399.seq
28	1.1	0.9	0.5	0.6	1.4	0.5	0.9	1.2	1.5	1.7	0.9	8.1	1.3	1.3	1.0	0.0	0.2	1.0	1.2	0.0	1.1	1.0	0.7	1.8	0.0	0.8		100.0	79.3	81.5	81.8	83.1	82.9	28	C4AZL9_BURMA_Bm GB8 horse 4.seq		
29	1.1	0.9	0.5	0.6	1.4	0.5	0.9	1.2	1.5	1.7	0.9	8.1	1.3	1.3	1.0	0.0	0.2	1.0	1.2	0.0	1.1	1.0	0.7	1.8	0.0	0.0	0.8	0.0		79.3	81.5	81.8	83.1	82.9	29	Q62AR6_BURMA_Bm ATCC 23344.seq	
30	21.7	13.1	16.5	14.8	19.6	16.5	17.0	18.1	21.6	23.4	13.1	20.5	22.1	22.7	22.3	19.3	20.3	22.4	23.5	19.3	22.3	22.1	17.6	24.5	19.3	19.3	21.1	19.3	19.3		81.6	97.0	95.2	91.8	30	Bucl4_Bt E264.seq	
31	12.3	11.9	12.4	12.3	12.1	12.4	12.3	11.9	12.1	12.7	11.9	12.7	12.5	12.5	12.7	12.3	12.3	12.3	12.3	12.3	12.3	12.3	11.7	12.3	12.3	12.3	12.3	12.3	12.3	6.5		86.3	87.8	90.8	31	Bucl4_Bt MSMB121.seq	
32	20.5	13.2	16.6	14.9	19.6	16.6	17.1	18.1	19.3	20.9	13.2	18.8	20.7	20.3	19.9	19.3	20.3	20.9	21.2	19.3	21.2	20.9	17.7	22.1	19.3	19.3	20.7	19.3	19.3	0.0	6.8		98.4	95.5	32	Bucl4_Bt 2002721723.seq	
33	19.3	13.2	16.6	14.9	19.6	16.6	17.1	18.1	18.2	19.7	13.2	17.9	19.3	19.1	18.7	18.9	19.2	19.6	19.7	18.9	19.9	19.5	17.7	20.7	18.9	18.9	19.2	18.9	18.9	0.0	6.8	0.0		97.0	33	Bucl4_Bt E444.seq	
34	16.9	12.6	15.9	14.3	17.3	15.9	16.4	15.7	15.7	17.2	12.6	15.8	16.9	16.6	16.2	16.2	16.3	16.9	17.1	16.2	17.1	16.6	15.9	17.4	16.2	16.2	16.5	16.2	16.2	0.7	5.9	0.7	0.7		34	Bucl4_Bt H0587.seq	

bucl4

Percent Identity

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29		
1	████	86.8	84.6	87.6	97.0	82.9	84.2	79.1	83.8	83.8	86.8	83.8	76.5	85.9	83.3	85.5	92.7	85.9	89.3	93.2	85.0	84.6	90.6	85.9	85.9	90.2	85.9	85.9	87.6	1	Bucl5_Bps K96243.seq
2	5.9	████	88.5	83.8	87.6	87.6	87.2	83.8	86.8	86.8	99.6	86.8	82.5	93.2	91.0	93.2	88.9	93.2	90.6	88.9	94.4	80.8	85.0	93.2	93.2	89.7	93.2	93.2	94.4	2	Bucl5_Bps MSHR305.seq
3	7.9	9.1	████	79.1	83.3	97.9	95.7	86.8	92.3	92.3	88.5	92.3	86.3	92.3	93.2	92.7	85.9	92.3	88.0	85.9	91.5	76.1	82.1	92.3	92.3	86.8	92.3	92.3	91.0	3	Bucl5_Bps 1106a.seq
4	8.8	3.8	9.2	████	89.3	79.9	79.5	73.9	78.2	78.2	83.8	78.2	77.8	82.5	78.2	82.5	87.6	82.5	85.5	87.2	82.1	85.9	92.7	82.5	82.5	86.8	82.5	82.5	84.6	4	Bucl5_Bps 1026b.seq
5	2.9	4.8	9.7	6.6	████	81.6	82.9	79.9	82.5	82.5	87.6	82.5	77.4	87.2	83.3	86.8	92.7	87.2	90.6	93.2	86.3	84.6	90.6	87.2	87.2	91.5	87.2	87.2	88.9	5	Q3JHM0_BURP1_Bucl5_Bp 1710b.seq
6	7.9	9.1	0.0	9.1	9.7	████	96.6	85.0	90.6	90.6	87.6	90.6	87.2	91.5	92.3	91.9	85.0	91.5	86.3	85.0	90.6	75.2	81.2	91.5	91.5	85.9	91.5	91.5	89.3	6	Bucl5_Bps BPC006.seq
7	6.7	9.1	3.3	10.3	8.5	3.2	████	85.0	90.2	90.2	87.2	90.2	86.3	89.3	89.3	89.7	82.9	89.3	85.0	82.9	88.5	73.1	79.1	89.3	89.3	83.8	89.3	89.3	88.0	7	Bucl5_Bps 668.seq
8	4.9	4.9	6.9	5.6	3.7	6.9	7.5	████	91.5	91.5	83.8	91.5	88.9	86.3	88.0	86.8	80.3	86.3	84.2	80.3	85.9	70.5	76.5	86.3	86.3	81.6	86.3	86.3	85.5	8	Bucl5_Bps NCTC 13179.seq
9	4.6	7.0	5.2	8.3	6.4	5.2	6.4	2.5	████	99.6	86.8	99.6	88.9	88.9	92.3	89.7	83.3	88.9	86.3	83.3	88.5	73.5	79.5	88.9	88.9	84.6	88.9	88.9	88.5	9	Bucl5_Bps MSHR146.seq
10	4.6	7.0	5.2	8.3	6.4	5.2	6.4	2.5	0.0	████	86.8	99.6	88.9	88.9	92.3	89.7	83.3	88.9	86.3	83.3	88.5	73.5	79.5	88.9	88.9	84.6	88.9	88.9	88.5	10	Bucl5_Bps MSHR511.seq
11	5.9	0.0	9.1	3.8	4.8	9.1	9.1	4.9	7.0	7.0	████	86.8	82.5	93.2	91.0	93.2	88.9	93.2	90.6	88.9	94.4	80.8	85.0	93.2	93.2	89.7	93.2	93.2	94.4	11	Bucl5_Bps MSHR520.seq
12	4.6	7.0	5.2	8.3	6.4	5.2	6.4	2.5	0.0	0.0	7.0	████	88.9	88.9	92.3	89.7	83.3	88.9	86.3	83.3	88.5	73.5	79.5	88.9	88.9	84.6	88.9	88.9	88.5	12	Bucl5_Bps NAU20B-16.seq
13	8.1	6.1	6.8	5.4	6.8	6.7	8.6	6.4	8.1	8.1	6.1	8.1	████	85.9	87.2	85.5	79.1	85.9	82.5	79.1	84.6	69.2	75.2	85.9	85.9	80.3	85.9	85.9	85.0	13	Bucl5_Bps NCTC 13178.seq
14	6.6	5.4	6.7	5.0	4.9	6.7	9.1	4.3	7.0	7.0	5.4	7.0	4.2	████	93.2	98.7	90.2	99.6	90.6	90.2	98.3	80.3	86.3	99.6	99.6	91.0	99.6	99.6	95.7	14	Bucl5_Bm 2000031281.seq
15	5.7	6.1	4.5	6.3	5.7	4.5	8.0	4.3	4.6	4.6	6.1	4.6	4.9	3.9	████	93.6	87.2	93.2	88.5	87.2	94.0	79.1	83.3	93.2	93.2	88.9	93.2	93.2	90.2	15	Bucl5_Bm 2002721280.seq
16	7.2	5.4	6.1	5.0	5.5	6.1	8.5	3.7	5.8	5.8	5.4	5.8	4.9	1.0	3.3	████	91.0	98.7	91.0	91.0	98.3	81.2	87.2	98.7	98.7	91.9	98.7	98.7	94.9	16	Bucl5_Bm A188.seq
17	5.6	5.9	6.7	6.2	5.6	6.7	9.1	3.7	5.8	5.8	5.9	5.8	4.9	3.7	3.3	2.7	████	90.2	91.9	98.3	89.7	87.2	92.7	90.2	90.2	96.2	90.2	90.2	89.7	17	Bucl5_Bm A193.seq
18	6.6	5.4	6.7	5.0	4.9	6.7	9.1	4.3	7.0	7.0	5.4	7.0	4.2	0.0	3.9	1.0	3.7	████	90.6	90.2	98.3	80.3	86.3	99.6	99.6	91.0	99.6	99.6	95.7	18	Bucl5_Bm China 7.seq
19	8.0	5.9	8.5	6.9	6.3	8.5	10.9	3.0	6.4	6.4	5.9	6.4	4.9	5.5	3.9	4.9	5.2	5.5	████	91.9	90.2	82.5	88.5	90.6	90.6	94.4	90.6	90.6	92.7	19	Bucl5_Bm PRL-20.seq
20	5.1	5.9	6.7	6.7	5.1	6.7	9.1	3.7	5.8	5.8	5.9	5.8	4.9	3.7	3.3	2.7	1.5	3.7	5.2	████	89.7	87.6	93.2	90.2	90.2	94.9	90.2	90.2	89.7	20	Bucl5_Bm strain_6.seq
21	6.6	4.8	6.7	4.4	4.9	6.7	9.1	3.7	6.4	6.4	4.8	6.4	4.9	0.5	3.8	0.5	3.2	0.5	4.9	3.2	████	81.6	85.9	98.3	98.3	90.6	98.3	98.3	94.4	21	Bucl5_Bm strain_11.seq
22	6.5	5.8	6.7	5.4	6.5	6.7	9.1	3.7	5.8	5.8	5.8	5.8	4.9	3.7	3.3	2.7	3.0	3.7	4.7	2.5	3.2	████	91.0	80.3	80.3	85.5	80.3	80.3	79.9	22	Bucl5_Bm NCTC 10229.seq
23	6.5	5.9	6.7	4.4	6.5	6.7	9.1	3.7	5.8	5.8	5.9	5.8	4.9	3.7	3.3	2.7	3.5	3.7	4.7	3.0	3.2	2.8	████	86.3	86.3	91.5	86.3	86.3	85.9	23	Bucl5_Bm NCTC 10247.seq
24	6.6	5.4	6.7	5.0	4.9	6.7	9.1	4.3	7.0	7.0	5.4	7.0	4.2	0.0	3.9	1.0	3.7	0.0	5.5	3.7	0.5	3.7	3.7	████	99.6	91.0	99.6	99.6	95.7	24	Bucl5_Bm FMH.seq
25	6.6	5.4	6.7	5.0	4.9	6.7	9.1	4.3	7.0	7.0	5.4	7.0	4.2	0.0	3.9	1.0	3.7	0.0	5.5	3.7	0.5	3.7	3.7	0.0	████	91.0	99.6	99.6	95.7	25	Bucl5_Bm JHU.seq
26	7.3	6.4	7.3	5.7	5.7	7.3	9.7	3.7	5.8	5.8	6.4	5.8	4.9	4.3	2.7	3.2	2.5	4.3	3.6	4.0	3.7	3.5	3.5	4.3	4.3	████	91.0	91.0	90.6	26	Bucl5_Bm ATCC 10399.seq
27	6.6	5.4	6.7	5.0	4.9	6.7	9.1	4.3	7.0	7.0	5.4	7.0	4.2	0.0	3.9	1.0	3.7	0.0	5.5	3.7	0.5	3.7	3.7	0.0	0.0	4.3	████	99.6	95.7	27	Bucl5_Bm GB8 horse 4.seq
28	6.6	5.4	6.7	5.0	4.9	6.7	9.1	4.3	7.0	7.0	5.4	7.0	4.2	0.0	3.9	1.0	3.7	0.0	5.5	3.7	0.5	3.7	3.7	0.0	0.0	4.3	0.0	████	95.7	28	Bucl5_Bm ATCC 23344.seq
29	7.1	4.3	7.9	4.9	5.4	7.9	10.3	4.9	7.0	7.0	4.3	7.0	4.9	2.1	5.1	3.2	4.8	2.1	5.4	4.8	2.7	4.8	4.8	2.1	2.1	5.4	2.1	2.1	████	29	Bucl5_Bm SAVP1.seq
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29		

bucl5

Percent Identity

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
1	█	80.9	95.1	64.0	44.2	63.7	95.1	56.6	76.0	98.9	98.9	80.9	98.9	52.1	50.2	56.6	56.6	53.2	50.2	60.3	46.8	43.1	49.8	53.6	50.2	50.2	63.3	50.2	50.2	60.3	1	Bucl6_Bps K96243.seq
2	5.1	█	85.0	77.9	61.8	80.1	85.0	71.5	92.1	82.0	82.0	100.0	82.0	68.9	66.7	73.0	73.0	69.7	66.7	77.2	63.3	59.2	66.3	70.0	66.7	66.7	80.1	66.7	66.7	77.2	2	Bucl6_Bps MSHR 305.seq
3	3.3	3.1	█	66.3	48.3	67.4	100.0	59.6	78.3	95.5	95.5	85.0	95.5	55.8	53.9	60.3	60.3	56.9	53.9	64.0	50.6	46.4	53.6	57.3	53.9	53.9	67.0	53.9	53.9	64.0	3	Bucl6_Bps 1106a.seq
4	5.0	8.9	7.2	█	73.0	95.9	66.3	87.6	74.5	63.7	63.7	77.9	63.7	83.1	82.4	88.4	88.4	85.0	82.4	91.0	78.7	74.2	81.3	85.8	82.4	82.4	94.8	82.4	82.4	91.0	4	Bucl6_Bps MSHR 346.seq
5	4.2	1.8	2.3	9.0	█	74.2	48.3	80.1	55.4	45.3	45.3	61.8	45.3	76.4	87.6	80.1	80.1	83.5	87.6	78.7	90.3	94.0	87.3	84.3	87.6	87.6	75.3	87.6	87.6	78.7	5	Bucl6_Bps 1026b.seq
6	5.9	4.9	4.7	5.4	7.4	█	67.4	86.5	75.3	64.8	64.8	80.1	64.8	86.5	84.3	91.0	91.0	87.6	84.3	93.6	81.3	77.5	84.6	87.6	84.3	84.3	97.4	84.3	84.3	93.6	6	Bucl6_Bps 1710b.seq
7	3.3	3.1	0.0	7.2	2.3	4.7	█	59.6	78.3	95.5	95.5	85.0	95.5	55.8	53.9	60.3	60.3	56.9	53.9	64.0	50.6	46.4	53.6	57.3	53.9	53.9	67.0	53.9	53.9	64.0	7	Bucl6_Bps BPC006.seq
8	6.8	8.2	7.2	7.4	7.8	9.0	7.2	█	67.4	56.9	56.9	71.5	56.9	88.0	87.3	94.0	94.0	89.9	87.3	91.4	83.5	79.0	86.1	90.6	87.3	87.3	87.6	87.3	87.3	91.4	8	A3N8K6_BURP6_Bucl6_Bp 668.seq
9	5.7	5.4	8.0	6.8	4.7	5.4	8.0	7.5	█	75.7	75.7	92.1	75.7	73.8	61.8	68.2	68.2	64.8	61.8	72.3	58.4	54.3	61.4	65.2	61.8	61.8	75.3	61.8	61.8	72.3	9	Bucl6_Bps NCTC 13179.seq
10	2.5	2.5	2.5	6.0	1.6	3.3	2.5	5.9	6.7	█	100.0	82.0	100.0	53.2	51.3	57.7	57.7	54.3	51.3	61.4	47.9	44.2	50.9	54.7	51.3	51.3	64.4	51.3	51.3	61.4	10	Bucl6_Bps MSHR146.seq
11	2.5	2.5	2.5	6.0	1.6	3.3	2.5	5.9	6.7	0.0	█	82.0	100.0	53.2	51.3	57.7	57.7	54.3	51.3	61.4	47.9	44.2	50.9	54.7	51.3	51.3	64.4	51.3	51.3	61.4	11	Bucl6_Bps MSHR511.seq
12	5.1	0.0	3.1	8.9	1.8	4.9	3.1	8.2	5.4	2.5	2.5	█	82.0	68.9	66.7	73.0	73.0	69.7	66.7	77.2	63.3	59.2	66.3	70.0	66.7	66.7	80.1	66.7	66.7	77.2	12	Bucl6_Bps MSHR520.seq
13	2.5	2.5	2.5	6.0	1.6	3.3	2.5	5.9	6.7	0.0	0.0	2.5	█	53.2	51.3	57.7	57.7	54.3	51.3	61.4	47.9	44.2	50.9	54.7	51.3	51.3	64.4	51.3	51.3	61.4	13	Bucl6_Bps NAU20B-16.seq
14	6.7	4.7	5.2	7.4	6.7	2.5	5.2	9.3	4.7	3.7	3.7	4.7	3.7	█	85.8	91.8	91.8	89.1	85.8	87.6	82.8	79.0	86.1	89.1	85.8	85.8	83.9	85.8	85.8	87.6	14	Bucl6_Bps NCTC 13178.seq
15	5.9	4.9	4.7	5.4	6.3	2.9	4.7	7.3	5.4	3.3	3.3	4.9	3.3	3.3	█	91.0	91.0	94.4	100.0	87.6	94.8	90.3	98.1	95.9	100.0	100.0	83.9	100.0	100.0	87.6	15	Bucl6_Bm 2000031281.seq
16	6.8	5.6	5.5	6.5	7.7	2.9	5.5	7.3	6.1	4.2	4.2	5.6	4.2	4.2	2.6	█	100.0	95.9	91.0	93.6	88.8	84.3	91.4	94.4	91.0	91.0	90.6	91.0	91.0	93.6	16	Bucl6_Bm 2002721280.seq
17	6.8	5.6	5.5	6.5	7.7	2.9	5.5	7.3	6.1	4.2	4.2	5.6	4.2	4.2	2.6	0.0	█	95.9	91.0	93.6	88.8	84.3	91.4	94.4	91.0	91.0	90.6	91.0	91.0	93.6	17	Bucl6_Bm A188.seq
18	6.8	5.6	5.5	6.5	7.4	2.9	5.5	8.3	6.1	4.2	4.2	5.6	4.2	3.3	2.5	0.9	0.9	█	94.4	90.3	92.1	87.6	94.8	98.5	94.4	94.4	87.3	94.4	94.4	90.3	18	Bucl6_Bm A193.seq
19	5.9	4.9	4.7	5.4	6.3	2.9	4.7	7.3	5.4	3.3	3.3	4.9	3.3	3.3	0.0	2.6	2.6	2.5	█	87.6	94.8	90.3	98.1	95.9	100.0	100.0	83.9	100.0	100.0	87.6	19	Bucl6_Bm China 7.seq
20	5.9	4.3	4.7	7.4	5.6	3.9	4.7	6.6	4.7	3.3	3.3	4.3	3.3	5.5	2.8	3.7	3.7	3.7	2.8	█	83.9	79.4	86.5	91.0	87.6	87.6	95.5	87.6	87.6	100.0	20	Bucl6_Bm PRL-20.seq
21	5.9	4.9	4.7	5.9	6.9	2.4	4.7	7.8	5.4	3.3	3.3	4.9	3.3	2.8	2.0	1.3	1.3	1.3	2.0	3.2	█	94.0	94.4	91.4	94.8	94.8	80.1	94.8	94.8	83.9	21	Bucl6_Bm strain_6.seq
22	6.8	6.2	6.3	7.5	6.2	2.9	6.3	9.3	6.8	4.2	4.2	6.2	4.2	3.3	3.3	2.6	2.6	2.5	3.3	4.7	2.8	█	92.1	86.9	90.3	90.3	76.4	90.3	90.3	79.4	22	Bucl6_Bm strain_11.seq
23	6.8	5.6	5.5	7.0	6.7	2.4	5.5	8.8	6.1	4.2	4.2	5.6	4.2	2.8	2.0	2.2	2.2	2.1	2.0	4.2	2.5	1.2	█	94.0	98.1	98.1	83.5	98.1	98.1	86.5	23	Bucl6_Bm NCTC 10229.seq
24	5.9	4.9	4.7	5.4	6.5	2.9	4.7	7.3	5.4	3.3	3.3	4.9	3.3	3.3	0.8	2.6	2.6	1.7	0.8	2.8	2.1	3.4	3.0	█	95.9	95.9	87.3	95.9	95.9	91.0	24	Bucl6_Bm NCTC 10247.seq
25	5.9	4.9	4.7	5.4	6.3	2.9	4.7	7.3	5.4	3.3	3.3	4.9	3.3	3.3	0.0	2.6	2.6	2.5	0.0	2.8	2.0	3.3	2.0	0.8	█	100.0	83.9	100.0	100.0	87.6	25	Bucl6_Bm FMH.seq
26	5.9	4.9	4.7	5.4	6.3	2.9	4.7	7.3	5.4	3.3	3.3	4.9	3.3	3.3	0.0	2.6	2.6	2.5	0.0	2.8	2.0	3.3	2.0	0.8	0.0	█	83.9	100.0	100.0	87.6	26	Bucl6_Bm JHU.seq
27	6.8	4.9	5.5	6.9	5.9	3.4	5.5	7.4	5.4	4.2	4.2	4.9	4.2	6.3	3.4	3.4	3.4	3.4	3.4	1.4	3.9	4.4	3.9	3.4	3.4	3.4	█	83.9	83.9	95.5	27	Bucl6_Bm ATCC 10399.seq
28	5.9	4.9	4.7	5.4	6.3	2.9	4.7	7.3	5.4	3.3	3.3	4.9	3.3	3.3	0.0	2.6	2.6	2.5	0.0	2.8	2.0	3.3	2.0	0.8	0.0	0.0	3.4	█	100.0	87.6	28	Bucl6_Bm GB8 horse 4.seq
29	5.9	4.9	4.7	5.4	6.3	2.9	4.7	7.3	5.4	3.3	3.3	4.9	3.3	3.3	0.0	2.6	2.6	2.5	0.0	2.8	2.0	3.3	2.0	0.8	0.0	0.0	3.4	0.0	█	87.6	29	Bucl6_Bm ATCC 23344.seq
30	5.9	4.3	4.7	7.4	5.6	3.9	4.7	6.6	4.7	3.3	3.3	4.3	3.3	5.5	2.8	3.7	3.7	3.7	2.8	0.0	3.2	4.7	4.2	2.8	2.8	2.8	1.4	2.8	2.8	█	30	Bucl6_Bm SAVP1.seq

bucl6

Percent Identity

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	
1																												
2	4.4																											
3	4.4	7.6																										
4	3.8	4.2	5.3																									
5	3.3	4.3	4.9	4.3																								
6	4.4	7.6	0.0	5.3	4.9																							
7	3.8	3.8	5.5	3.8	3.8	5.5																						
8	3.8	3.2	4.2	2.1	3.2	4.2	2.7																					
9	4.4	2.1	6.5	4.2	3.2	6.5	2.7	2.1																				
10	4.4	2.1	6.5	4.2	3.2	6.5	2.7	2.1	0.0																			
11	4.4	0.0	7.6	4.2	4.3	7.6	3.8	3.2	2.1	2.1																		
12	4.4	2.1	6.5	4.2	3.2	6.5	2.7	2.1	0.0	0.0	2.1																	
13	3.8	3.7	5.3	4.8	3.8	5.3	2.7	2.6	2.6	2.6	3.7	2.6																
14	3.3	3.2	4.9	5.4	2.1	4.9	3.8	4.3	3.2	3.2	3.2	3.2	2.7															
15	3.3	3.2	4.9	5.4	2.1	4.9	3.8	4.3	3.2	3.2	3.2	3.2	2.7	0.0														
16	3.3	3.2	4.9	5.4	2.1	4.9	3.8	4.3	3.2	3.2	3.2	3.2	2.7	0.0	0.0													
17	3.3	3.2	4.9	5.4	2.1	4.9	3.8	4.3	3.2	3.2	3.2	3.2	2.7	0.0	0.0	0.0												
18	3.3	3.2	4.9	5.4	2.1	4.9	3.8	4.3	3.2	3.2	3.2	3.2	2.7	0.0	0.0	0.0	0.0											
19	3.3	3.2	4.9	5.4	2.1	4.9	3.8	4.3	3.2	3.2	3.2	3.2	2.7	0.0	0.0	0.0	0.0	0.0										
20	3.3	3.2	4.9	5.4	2.1	4.9	3.8	4.3	3.2	3.2	3.2	3.2	2.7	0.0	0.0	0.0	0.0	0.0	0.0									
21	3.3	3.2	4.9	5.4	2.1	4.9	3.8	4.3	3.2	3.2	3.2	3.2	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0								
22	3.3	3.2	4.9	5.4	2.1	4.9	3.8	4.3	3.2	3.2	3.2	3.2	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0							
23	3.3	3.2	4.9	5.4	2.1	4.9	3.8	4.3	3.2	3.2	3.2	3.2	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0						
24	3.3	3.2	4.9	5.4	2.1	4.9	3.8	4.3	3.2	3.2	3.2	3.2	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0					
25	3.3	2.1	5.3	4.2	3.2	5.3	3.8	3.2	2.1	2.1	2.1	2.1	2.6	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.1
26	3.3	3.2	4.9	5.4	2.1	4.9	3.8	4.3	3.2	3.2	3.2	3.2	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	1.1
27	3.3	3.2	4.9	5.4	2.1	4.9	3.8	4.3	3.2	3.2	3.2	3.2	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	1.1
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27		

Bud7_Bps K96243.seq
 Bud7_Bps MSHR 305.seq
 A3P4A7_BURP0_Bucl7_Bp 1106a.seq
 Bud7_Bps 1026b.seq
 Bud7_Bps 1710b.seq
 Bud7_Bps BPC006.seq
 Bud7_Bps 668.seq
 Bud7_Bps NCTC 13179.seq
 Bud7_Bps MSHR146.seq
 Bud7_Bps MSHR511.seq
 Bud7_Bps MSHR520.seq
 Bud7_Bps NAU20B-16.seq
 Bud7_Bps NCTC 13178.seq
 Bud7_Bm 2000031281.seq
 Bud7_Bm 2002721280.seq
 Bud7_Bm A188.seq
 Bud7_Bm China 7.seq
 Bud7_Bm PRL-20.seq
 Bud7_Bm strain_6.seq
 Bud7_Bm strain_11.seq
 Bud7_Bm NCTC 10229.seq
 Bud7_Bm NCTC 10247.seq
 Bud7_Bm FMH.seq
 Bud7_Bm JHU.seq
 Bud7_Bm ATCC 10399.seq
 Bud7_Bm GB8 horse 4.seq
 Bud7_Bm ATCC 23344.seq

bucl7

Percent Identity

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	
1	█	98.0	88.7	93.8	79.8	94.0	81.5	94.0	81.5	95.6	83.3	79.8	81.5	87.5	96.0	92.3	83.3	86.9	92.3	86.9	78.0	85.1	92.3	88.7	97.6	76.2	79.8	70.8	1
2	0.3	█	86.7	95.4	77.8	92.1	79.6	95.6	79.6	97.6	81.3	77.8	83.1	89.1	97.6	90.3	84.9	88.5	90.3	84.9	76.0	83.1	90.3	90.3	95.6	77.8	81.3	68.8	2
3	0.9	1.3	█	86.7	86.9	94.0	91.9	90.1	91.9	88.5	93.7	90.1	78.6	83.1	88.7	95.8	79.4	82.9	88.3	94.0	85.1	84.7	95.8	84.7	90.5	72.2	75.8	81.2	3
4	1.3	1.7	1.3	█	78.4	92.7	80.2	96.2	80.2	97.8	81.9	78.4	86.7	93.3	97.4	90.9	89.1	92.7	90.9	85.5	76.6	83.7	90.9	94.4	96.2	81.9	85.5	69.4	4
5	0.9	1.3	0.8	0.3	█	85.7	87.5	78.6	94.6	80.2	89.3	89.3	65.5	72.0	79.8	87.5	67.9	71.4	76.8	92.9	98.2	73.2	87.5	73.2	82.1	60.7	64.3	91.1	5
6	0.9	1.3	0.9	0.3	0.0	█	87.5	92.9	87.5	94.4	89.3	85.7	79.8	86.3	94.0	98.2	82.1	85.7	91.1	92.9	83.9	87.5	98.2	87.5	96.4	75.0	78.6	76.8	6
7	0.9	1.3	1.3	0.3	0.0	0.0	█	83.9	92.9	81.9	98.2	98.2	77.4	77.0	81.5	89.3	73.2	76.8	89.3	94.6	85.7	85.5	89.3	78.6	83.9	73.0	76.8	85.7	7
8	1.0	1.3	1.5	0.3	0.0	0.0	0.0	█	83.9	98.0	85.7	82.1	86.5	93.1	97.6	91.1	89.3	92.9	94.6	85.7	76.8	87.5	91.1	94.6	96.4	82.1	85.7	73.2	8
9	0.9	1.3	1.3	0.3	0.0	0.0	0.0	0.0	█	81.9	94.6	94.6	70.4	77.0	81.5	89.3	73.2	76.8	82.1	94.6	92.9	78.6	89.3	78.6	83.9	66.1	69.6	89.3	9
10	1.3	1.0	1.2	0.6	0.3	0.3	0.3	0.3	0.3	█	83.7	80.2	84.9	91.5	99.2	92.7	87.3	90.9	92.7	87.3	78.4	85.5	92.7	92.7	98.0	80.2	83.7	71.2	10
11	0.9	1.3	1.3	0.3	0.0	0.0	0.0	0.0	0.0	0.3	█	96.4	75.8	78.8	83.3	91.1	75.0	78.6	87.5	96.4	87.5	83.9	91.1	80.4	85.7	71.4	75.0	87.5	11
12	0.9	1.3	1.3	0.3	0.0	0.0	0.0	0.0	0.0	0.3	0.0	█	75.6	75.2	79.8	87.5	71.4	75.0	87.5	92.9	87.5	83.7	87.5	76.8	82.1	71.2	75.0	87.5	12
13	1.0	1.4	0.0	1.3	1.0	1.0	1.8	1.6	1.6	1.3	1.6	1.8	█	86.7	85.1	78.0	82.9	86.5	88.1	72.6	63.7	91.9	78.0	88.3	83.3	86.5	86.3	63.3	13
14	3.2	3.6	4.4	2.4	2.1	2.1	2.7	2.7	2.7	2.4	2.7	2.7	4.4	█	91.1	84.5	93.7	96.8	87.7	79.2	70.2	80.6	84.5	98.4	89.9	86.7	90.1	66.3	14
15	1.0	1.3	0.6	1.0	0.6	0.6	0.6	0.6	0.6	0.9	0.6	0.6	0.7	2.8	█	92.3	86.9	90.5	92.3	86.9	78.0	85.1	92.3	92.3	97.6	79.8	83.3	70.8	15
16	0.9	1.3	0.8	0.3	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	1.0	2.1	0.6	█	80.4	83.9	89.3	94.6	85.7	85.7	100.0	85.7	94.6	73.2	76.8	78.6	16
17	1.2	1.6	1.8	0.4	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	1.8	1.8	0.7	0.0	█	96.4	83.9	75.0	66.1	76.8	80.4	94.6	85.7	92.9	96.4	62.5	17
18	1.1	1.5	1.7	0.3	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	1.7	2.4	0.7	0.0	0.0	█	87.5	78.6	69.6	80.4	83.9	98.2	89.3	89.3	92.9	66.1	18
19	0.9	1.3	1.5	0.3	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	1.8	2.7	0.6	0.0	0.0	0.0	█	83.9	75.0	92.7	89.3	89.3	94.6	83.7	87.5	75.0	19
20	0.9	1.3	0.8	0.3	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	1.0	2.1	0.6	0.0	0.0	0.0	0.0	█	91.1	80.4	94.6	80.4	89.3	67.9	71.4	83.9	20
21	0.9	1.3	0.8	0.3	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	1.0	2.1	0.6	0.0	0.0	0.0	0.0	0.0	█	71.4	85.7	71.4	80.4	58.9	62.5	92.9	21
22	0.9	1.3	1.4	0.3	0.0	0.0	0.3	0.0	0.0	0.3	0.0	0.3	1.4	2.7	0.6	0.0	0.0	0.0	0.3	0.0	0.0	█	85.7	82.1	87.5	80.4	80.2	71.4	22
23	0.9	1.3	0.8	0.3	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	1.0	2.1	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	█	85.7	94.6	73.2	76.8	78.6	23
24	1.1	1.4	1.7	0.3	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	1.7	2.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	█	91.1	87.5	91.1	67.9	24
25	0.9	1.3	0.9	0.3	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	1.0	2.1	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	█	78.6	82.1	73.2	25
26	1.2	1.6	1.9	0.4	0.0	0.0	0.3	0.0	0.0	0.4	0.0	0.3	1.7	1.5	0.8	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	█	96.2	58.9	26
27	1.2	1.6	1.8	0.4	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	2.1	1.8	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	█	62.5	27
28	0.9	1.3	1.3	0.3	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	1.6	2.7	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	█	28
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	

B2GYG4_BURPS_Bucl10_Bps 1655.seq
 COY5B0_BURPS_Bucl10_Bps Pakistan 9.seq
 Q3JSM5_BURP1_Bucl10_Bps 1710b.seq
 Bucl10_Bps NCTC 13179.seq
 Bucl10_Bps K96243.seq
 Bucl10_Bps 1026b.seq
 A1V459_BURMS_Bucl10_Bm SAVP1.seq
 A2S325_BURM9_Bucl10_Bm NCTC 10229.seq
 A3MJE6_BURM7_Bucl10_Bm NCTC 10247.seq
 A3NUX3_BURP0_Bucl10_Bps 1106a.seq
 A5TLC5_BURMA_Bucl10_Bm 2002721280.seq
 A9K814_BURMA_Bucl10_Bm ATCC 10399.seq
 B7CPT6_BURPS_Bucl10a_Bps 576.seq
 Bucl10_Bps 668.seq
 Bucl10_Bps BPC006_2.seq
 A8EDY0_BURPS_Bucl10_Bps 406e.seq
 Bucl10_Bm A188.seq
 Bucl10_Bm A193.seq
 Bucl10_Bm PRL-20.seq
 Bucl10_Bps MSHR146.seq
 Bucl10_Bps MSHR511.seq
 Bucl10_Bps MSHR520.seq
 Bucl10_Bps NAU20B-16.seq
 Bucl10_Bps NCTC 13178.seq
 C4KXC1_BURPS_Bucl10_MSHR 346.seq
 A4LQ22_BURPS_Bucl10_Bps 305.seq
 Bucl10_Bm strain_6.seq
 Bucl10_Bm strain_11.seq

bucl10

Percent Identity

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31		
1	█	92.4	90.3	89.6	90.1	90.1	89.6	90.1	86.6	87.3	91.2	87.3	88.7	96.5	93.5	90.1	94.9	90.8	92.9	90.1	92.2	92.2	94.0	93.5	93.1	90.1	90.1	91.5	90.1	90.1	92.2	1	Buc1f3_Bps K96243.seq
2	2.9	█	94.5	95.6	94.9	94.9	92.9	87.3	90.8	91.9	96.8	91.9	94.7	93.1	93.3	95.9	94.2	95.9	94.9	95.9	96.8	95.4	94.7	95.6	96.3	95.9	95.9	95.6	95.9	95.9	96.8	2	Buc1f3_Bps MSHR 305.seq
3	6.1	5.3	█	92.6	92.9	93.3	91.9	86.4	89.9	89.4	94.0	89.4	93.8	91.5	92.4	94.2	93.3	95.4	93.1	94.2	94.7	94.2	94.2	94.7	95.6	94.2	94.2	95.2	94.2	94.2	94.7	3	Buc1f3_Bps 1106a.seq
4	4.5	3.1	5.9	█	94.5	94.0	94.0	88.7	93.5	94.7	95.2	94.7	95.9	90.8	92.9	96.3	93.3	96.3	92.6	96.3	96.3	93.1	93.8	94.7	95.4	96.3	96.3	95.6	96.3	96.3	96.3	4	Buc1f3_Bps 1026b.seq
5	3.6	1.6	4.7	3.6	█	99.3	94.9	89.9	92.6	93.1	95.6	93.1	94.0	90.8	90.8	92.2	91.7	93.1	92.9	92.2	93.8	93.8	92.6	93.5	94.2	92.2	92.2	92.9	92.2	93.8	5	Buc1f3_Bps 1710b.seq	
6	3.6	1.6	4.2	4.1	0.5	█	94.9	89.9	92.6	93.1	95.6	93.1	94.0	90.8	90.8	92.2	91.7	93.1	92.9	92.2	93.8	93.8	92.6	93.5	94.2	92.2	92.2	92.9	92.2	93.8	6	Buc1f3_Bps BPC006.seq	
7	4.9	3.1	5.0	3.4	4.6	4.6	█	92.4	93.1	93.8	94.0	93.8	95.2	91.2	94.2	92.4	94.2	93.1	92.4	92.4	93.1	91.5	94.7	94.5	93.8	92.4	92.4	92.4	92.4	93.1	7	Buc1f3_Bps 668.seq	
8	5.3	3.1	5.0	3.1	4.1	4.1	2.0	█	90.3	91.0	88.0	91.0	89.6	90.3	91.2	86.9	90.3	87.3	86.4	86.9	87.3	85.9	89.4	88.5	88.2	86.9	86.9	86.6	86.9	87.3	8	Buc1f3_Bps NCTC 13179.seq	
9	4.0	4.8	5.1	3.1	4.4	4.4	3.1	3.5	█	98.6	93.1	98.6	94.7	87.3	89.9	92.6	89.9	93.8	88.9	92.6	92.4	89.9	90.6	91.0	91.7	92.6	92.6	93.1	92.6	92.6	92.4	9	Buc1f3_Bps MSHR146.seq
10	3.9	4.2	6.4	2.6	4.6	4.6	3.0	3.5	0.5	█	92.4	99.8	93.5	88.0	90.6	92.2	90.6	92.6	89.9	92.2	93.1	90.3	91.0	91.9	92.6	92.2	92.2	91.9	92.2	93.1	10	Buc1f3_Bps MSHR511.seq	
11	1.8	1.0	3.4	4.4	1.5	1.5	2.6	3.1	4.4	4.4	█	92.4	97.2	91.5	91.7	94.9	92.6	95.6	93.1	94.9	94.7	93.5	93.3	93.8	94.5	94.9	94.9	95.4	94.9	94.9	94.7	11	Buc1f3_Bps MSHR520.seq
12	3.9	4.2	6.4	2.6	4.6	4.6	3.0	3.5	0.5	0.0	4.4	█	93.5	88.0	90.6	92.2	90.6	92.6	89.9	92.2	93.1	90.3	91.0	91.9	92.6	92.2	92.2	91.9	92.2	93.1	12	Buc1f3_Bps NAU20B-16.seq	
13	4.8	3.4	3.7	3.6	3.4	3.4	1.3	1.3	2.6	3.1	2.8	3.1	█	90.3	93.3	95.6	92.9	96.8	91.9	95.6	95.4	92.9	93.5	94.0	94.7	95.6	95.6	96.1	95.6	95.4	13	Buc1f3_Bps NCTC 13178.seq	
14	2.7	2.9	5.5	3.9	3.6	3.6	3.9	4.3	4.0	3.9	2.4	3.9	3.7	█	94.9	91.7	96.5	92.4	95.4	91.7	93.8	94.7	95.6	95.2	94.7	91.7	93.1	91.7	91.7	93.8	14	A8EP72_BURPS_Buc1f3_Bps 406e.seq	
15	5.4	3.4	5.3	2.3	4.4	4.4	1.3	2.5	1.8	1.8	2.9	1.8	1.0	4.6	█	93.8	97.2	94.5	93.8	93.8	94.5	92.9	97.0	95.9	95.2	93.8	93.8	93.8	93.8	94.5	15	B2HC24_BURPS_Buc1f3_Bps 1655.seq	
16	4.0	2.9	4.0	0.8	3.2	3.2	2.1	2.1	2.6	2.4	3.2	2.4	2.4	2.9	1.3	█	94.2	98.6	93.5	99.8	97.0	94.0	94.9	95.6	96.3	99.8	99.8	97.9	99.8	97.0	16	Buc1f3_Bm 2000031281.seq	
17	3.0	3.1	5.0	2.6	4.2	4.2	2.0	2.8	2.6	2.6	2.6	2.6	2.4	2.0	2.0	1.6	█	94.9	95.6	94.2	96.3	94.7	98.6	97.7	97.0	94.2	94.2	95.6	94.2	96.3	17	Buc1f3_Bm 2002721280.seq	
18	4.0	3.7	3.4	1.6	2.9	2.9	2.1	2.4	2.1	2.6	3.2	2.6	1.8	2.9	1.3	0.5	1.6	█	94.0	98.6	97.9	94.9	95.6	96.1	96.8	98.6	98.6	99.1	98.6	97.9	18	Buc1f3_Bm A188.seq	
19	3.9	3.9	6.9	5.0	4.4	4.4	5.2	5.8	5.3	5.0	3.7	5.0	5.1	1.8	4.4	4.0	3.1	4.2	█	93.5	95.6	98.6	96.5	97.7	96.8	93.5	93.5	94.7	93.5	95.6	19	Buc1f3_Bm A193.seq	
20	4.0	2.9	4.0	0.8	3.2	3.2	2.1	2.1	2.6	2.4	3.2	2.4	2.4	2.9	1.3	0.0	1.6	0.5	4.0	█	97.0	94.0	94.9	95.6	96.3	99.8	99.8	97.9	99.8	97.0	20	Buc1f3_Bm China 7.seq	
21	3.1	3.4	5.0	2.3	2.9	2.9	2.9	3.1	2.9	2.9	3.4	2.9	2.6	2.1	2.1	1.6	0.8	1.3	3.1	1.6	█	96.5	96.8	97.7	98.4	97.0	97.0	98.6	97.0	99.8	21	Buc1f3_Bm PRL-20.seq	
22	3.9	4.2	6.4	5.3	3.6	3.6	5.5	5.5	5.1	5.3	4.0	5.3	4.8	1.8	4.7	4.3	3.4	4.0	0.5	4.3	2.9	█	95.6	96.5	97.5	94.0	94.0	95.6	94.0	96.5	22	Buc1f3_Bm strain_6.seq	
23	3.3	3.4	4.7	2.9	3.9	3.9	2.3	3.1	2.6	2.9	2.6	2.9	2.4	2.3	1.5	1.6	0.5	1.6	2.8	1.6	1.0	3.1	█	98.6	97.9	94.9	94.9	96.3	94.9	96.8	23	Buc1f3_Bm strain_11.seq	
24	3.1	3.1	5.0	2.6	3.6	3.6	2.8	3.4	2.9	2.6	2.9	2.6	2.6	2.0	2.0	1.6	0.8	1.8	2.3	1.6	0.8	2.8	0.5	█	98.8	95.6	95.6	96.8	95.6	97.7	24	Buc1f3_Bm NCTC 10229.seq	
25	2.8	3.1	4.7	2.6	3.1	3.1	2.8	2.8	2.9	2.6	2.9	2.6	2.6	1.8	2.1	1.6	0.8	1.8	2.6	1.6	0.8	2.6	0.5	0.3	█	96.3	96.3	97.5	96.3	98.4	25	Buc1f3_Bm NCTC 10247.seq	
26	4.0	2.9	4.0	0.8	3.2	3.2	2.1	2.1	2.6	2.4	3.2	2.4	2.4	2.9	1.3	0.0	1.6	0.5	4.0	0.0	1.6	4.3	1.6	1.6	1.6	█	99.8	97.9	99.8	97.0	26	Buc1f3_Bm FMH.seq	
27	4.0	2.9	4.0	0.8	3.2	3.2	2.1	2.1	2.6	2.4	3.2	2.4	2.4	2.9	1.3	0.0	1.6	0.5	4.0	0.0	1.6	4.3	1.6	1.6	1.6	0.0	█	97.9	99.8	97.0	27	Buc1f3_Bm JHU.seq	
28	3.2	4.0	3.7	2.4	3.2	3.2	2.9	3.2	2.9	3.4	3.4	3.4	2.6	2.1	2.1	1.3	0.8	0.8	3.4	1.3	0.5	3.2	0.8	1.0	1.0	1.3	1.3	█	97.9	97.9	98.6	28	Buc1f3_Bm ATCC 10399.seq
29	4.0	2.9	4.0	0.8	3.2	3.2	2.1	2.1	2.6	2.4	3.2	2.4	2.4	2.9	1.3	0.0	1.6	0.5	4.0	0.0	1.6	4.3	1.6	1.6	1.6	0.0	0.0	1.3	█	99.8	97.0	29	Buc1f3_Bm GB8 horse 4.seq
30	4.0	2.9	4.0	0.8	3.2	3.2	2.1	2.1	2.6	2.4	3.2	2.4	2.4	2.9	1.3	0.0	1.6	0.5	4.0	0.0	1.6	4.3	1.6	1.6	1.6	0.0	0.0	1.3	0.0	█	97.0	30	Buc1f3_Bm ATCC 23344.seq
31	3.1	3.4	5.0	2.3	2.9	2.9	2.9	3.1	2.9	2.9	3.4	2.9	2.6	2.1	2.1	1.6	0.8	1.3	3.1	1.6	0.0	2.9	1.0	0.8	0.8	1.6	1.6	0.5	1.6	1.6	█	31	Buc1f3_Bm SAVP1.seq

buc13

Percent Identity

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30				
1	■	43.4	50.2	48.8	42.0	43.4	46.2	49.3	49.1	46.2	46.2	47.7	47.7	47.7	46.2	46.2	46.2	46.2	46.2	46.2	50.5	49.1	51.6	51.6	42.0	51.6	43.9	43.6	43.4	42.4	1	A3N630_BURP6_Bucl14_Bps 668.seq		
2	4.0	■	92.0	93.6	97.6	99.7	96.0	92.5	92.7	96.0	96.0	94.3	94.3	94.3	96.0	96.0	96.0	96.0	95.8	96.0	91.1	92.7	90.5	90.5	97.6	90.5	99.1	99.5	99.7	97.2	2	Bucl14_Bps 1026b.seq		
3	2.4	4.0	■	97.4	90.6	92.0	94.6	98.8	98.6	94.6	94.6	96.4	96.4	96.4	94.6	94.6	94.6	94.6	94.6	94.6	96.4	98.6	97.0	97.0	90.6	97.0	92.5	92.2	92.0	91.0	3	Bucl14_Bps 1106a.seq		
4	2.1	4.0	2.1	■	92.2	93.6	96.5	96.9	96.7	96.5	96.5	99.0	99.0	99.0	96.5	96.5	96.5	96.5	96.5	96.5	95.1	96.7	95.5	95.5	92.2	95.5	94.1	93.8	93.6	92.5	4	Bucl14_Bps BPC006.seq		
5	3.7	2.0	3.7	3.7	■	97.6	94.3	91.0	91.0	94.3	94.3	92.5	92.5	92.5	94.3	94.3	94.3	94.3	94.1	94.3	89.4	91.0	89.1	89.1	100.0	89.1	96.9	97.0	97.6	99.3	5	Bucl14_Bps MSHR 305.seq		
6	4.0	0.8	4.0	4.0	2.0	■	96.0	92.5	92.7	96.0	96.0	94.3	94.3	94.3	96.0	96.0	96.0	96.0	95.8	96.0	91.1	92.7	90.5	90.5	97.6	90.5	99.1	99.5	100.0	97.2	6	Bucl14_Bps NCTC 13179.seq		
7	4.5	2.0	4.9	4.1	2.4	2.0	■	95.8	96.0	100.0	100.0	97.6	97.6	97.6	100.0	100.0	100.0	100.0	99.8	100.0	94.4	96.0	93.1	93.1	94.3	93.1	95.8	95.8	96.0	94.3	7	Bucl14_Bm ATCC 23344.seq		
8	4.2	2.8	2.4	3.2	2.9	2.8	2.2	■	99.8	95.8	95.8	97.6	97.6	97.6	95.8	95.8	95.8	95.8	95.7	95.8	97.6	99.8	95.8	95.8	91.0	95.8	92.4	92.4	92.5	91.0	8	Bucl14_Bm NCTC 10229.seq		
9	4.6	2.4	2.8	3.6	2.9	2.4	1.8	0.3	■	96.0	96.0	97.7	97.7	97.7	96.0	96.0	96.0	96.0	95.8	96.0	97.7	100.0	95.7	95.7	91.0	95.7	92.5	92.5	92.7	91.0	9	Bucl14_Bm NCTC 10247.seq		
10	4.5	2.0	4.9	4.1	2.4	2.0	0.0	2.2	1.8	■	100.0	97.6	97.6	97.6	100.0	100.0	100.0	100.0	99.8	100.0	94.4	96.0	93.1	93.1	94.3	93.1	95.8	95.8	96.0	94.3	10	Bucl14_Bm SAVP1.seq		
11	4.5	2.0	4.9	4.1	2.4	2.0	0.0	2.2	1.8	0.0	■	97.6	97.6	97.6	100.0	100.0	100.0	100.0	99.8	100.0	94.4	96.0	93.1	93.1	94.3	93.1	95.8	95.8	96.0	94.3	11	Bucl14_Bm 2000031281.seq		
12	4.4	2.4	4.4	2.1	2.9	2.4	1.8	1.8	1.4	1.8	1.8	■	100.0	100.0	97.6	97.6	97.6	97.6	97.6	97.6	97.4	97.6	96.2	97.7	94.4	94.4	92.5	94.4	94.1	94.1	94.3	92.5	12	Bucl14_Bm 2002721280.seq
13	4.4	2.4	4.4	2.1	2.9	2.4	1.8	1.8	1.4	1.8	1.8	0.0	■	100.0	97.6	97.6	97.6	97.6	97.4	97.6	96.2	97.7	94.4	94.4	92.5	94.4	94.1	94.1	94.3	92.5	13	Bucl14_Bm A188.seq		
14	4.4	2.4	4.4	2.1	2.9	2.4	1.8	1.8	1.4	1.8	1.8	0.0	0.0	■	97.6	97.6	97.6	97.6	97.4	97.6	96.2	97.7	94.4	94.4	92.5	94.4	94.1	94.1	94.3	92.5	14	Bucl14_Bm A193.seq		
15	4.5	2.0	4.9	4.1	2.4	2.0	0.0	2.2	1.8	0.0	0.0	1.8	1.8	1.8	■	100.0	100.0	100.0	99.8	100.0	94.4	96.0	93.1	93.1	94.3	93.1	95.8	95.8	96.0	94.3	15	Bucl14_Bm ATCC 10399.seq		
16	4.5	2.0	4.9	4.1	2.4	2.0	0.0	2.2	1.8	0.0	0.0	1.8	1.8	1.8	0.0	■	100.0	100.0	99.8	100.0	94.4	96.0	93.1	93.1	94.3	93.1	95.8	95.8	96.0	94.3	16	Bucl14_Bm China 7.seq		
17	4.5	2.0	4.9	4.1	2.4	2.0	0.0	2.2	1.8	0.0	0.0	1.8	1.8	1.8	0.0	0.0	■	100.0	99.8	100.0	94.4	96.0	93.1	93.1	94.3	93.1	95.8	95.8	96.0	94.3	17	Bucl14_Bm FMH.seq		
18	4.5	2.0	4.9	4.1	2.4	2.0	0.0	2.2	1.8	0.0	0.0	1.8	1.8	1.8	0.0	0.0	0.0	■	99.8	100.0	94.4	96.0	93.1	93.1	94.3	93.1	95.8	95.8	96.0	94.3	18	Bucl14_Bm GB8 horse 4.seq		
19	4.1	2.0	4.5	3.7	2.5	2.0	0.0	2.2	1.8	0.0	0.0	1.8	1.8	1.8	0.0	0.0	0.0	0.0	■	99.8	94.3	95.8	93.1	93.1	94.1	93.1	95.8	95.7	95.8	94.1	19	Bucl14_Bm JHU.seq		
20	4.5	2.0	4.9	4.1	2.4	2.0	0.0	2.2	1.8	0.0	0.0	1.8	1.8	1.8	0.0	0.0	0.0	0.0	0.0	■	94.4	96.0	93.1	93.1	94.3	93.1	95.8	95.8	96.0	94.3	20	Bucl14_Bm PRL-20.seq		
21	4.8	2.4	4.2	3.6	2.9	2.4	1.8	1.7	1.4	1.8	1.8	1.4	1.4	1.4	1.8	1.8	1.8	1.8	1.8	1.8	■	97.7	97.9	97.9	89.4	97.9	91.0	91.0	91.1	89.4	21	Bucl14_Bm strain_6.seq		
22	4.6	2.4	2.8	3.6	2.9	2.4	1.8	0.3	0.0	1.8	1.8	1.4	1.4	1.4	1.8	1.8	1.8	1.8	1.8	1.8	1.4	■	95.7	95.7	91.0	95.7	92.5	92.5	92.7	91.0	22	Bucl14_Bm strain_11.seq		
23	2.7	4.0	2.8	2.9	3.7	4.0	4.9	5.3	5.7	4.9	4.9	5.1	5.1	5.1	4.9	4.9	4.9	4.9	4.5	4.9	4.1	5.7	■	100.0	89.1	100.0	91.0	90.6	90.5	89.4	23	Bucl14_Bps MSHR146.seq		
24	2.7	4.0	2.8	2.9	3.7	4.0	4.9	5.3	5.7	4.9	4.9	5.1	5.1	5.1	4.9	4.9	4.9	4.9	4.5	4.9	4.1	5.7	0.0	■	89.1	100.0	91.0	90.6	90.5	89.4	24	Bucl14_Bps MSHR511.seq		
25	3.7	2.0	3.7	3.7	0.0	2.0	2.4	2.9	2.9	2.4	2.4	2.9	2.9	2.9	2.4	2.4	2.4	2.4	2.5	2.4	2.9	2.9	3.7	3.7	■	89.1	96.9	97.0	97.6	99.3	25	Bucl14_Bps MSHR520.seq		
26	2.7	4.0	2.8	2.9	3.7	4.0	4.9	5.3	5.7	4.9	4.9	5.1	5.1	5.1	4.9	4.9	4.9	4.9	4.5	4.9	4.1	5.7	0.0	0.0	3.7	■	91.0	90.6	90.5	89.4	26	Bucl14_Bps NAU20B-16.seq		
27	2.8	2.0	2.8	2.8	3.7	2.0	2.4	3.2	2.8	2.4	2.4	2.8	2.8	2.8	2.4	2.4	2.4	2.4	2.0	2.4	2.8	2.8	2.8	2.8	3.7	2.8	■	99.3	99.1	97.2	27	Bucl14_Bps NCTC 13178.seq		
28	3.6	1.2	3.6	3.6	3.3	1.2	2.4	3.2	2.8	2.4	2.4	2.8	2.8	2.8	2.4	2.4	2.4	2.4	2.4	2.4	2.4	2.8	2.8	3.6	3.6	3.3	3.6	1.6	■	99.5	97.4	28	Bucl14_Bps 1710b.seq	
29	4.0	0.8	4.0	4.0	2.0	0.0	2.0	2.8	2.4	2.0	2.0	2.4	2.4	2.4	2.0	2.0	2.0	2.0	2.0	2.0	2.4	2.4	4.0	4.0	2.0	4.0	2.0	1.2	■	97.2	29	Bucl14_Bps K96243.seq		
30	2.9	2.9	2.9	2.9	1.6	2.9	2.4	2.9	2.9	2.4	2.4	2.9	2.9	2.9	2.4	2.4	2.4	2.4	2.5	2.4	2.9	2.9	2.9	1.6	2.9	2.9	2.4	2.9	■	30	Bucl14_Bps MSHR 346.seq			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30				

bucl14

Percent Identity

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28		
1	█	95.5	89.9	100.0	95.0	89.9	71.7	77.3	70.6	95.5	72.8	74.5	94.1	91.6	94.1	91.6	91.6	91.6	91.6	91.6	91.6	91.6	94.1	94.1	91.3	94.1	94.1	91.3	1	Bucl15_Bps_K96243.seq
2	3.9	█	93.6	95.5	98.0	93.6	73.7	75.6	68.9	100.0	71.1	72.3	89.9	87.4	89.9	87.4	89.9	87.7	87.7	87.4	87.4	87.4	89.9	89.9	87.7	89.9	89.9	87.7	2	Bucl15_Bps_MSHR_305.seq
3	6.2	3.6	█	89.9	93.3	100.0	75.1	76.2	69.5	93.6	71.7	67.2	85.2	82.6	85.2	82.6	85.2	82.6	82.9	82.6	82.6	82.6	85.2	85.2	82.6	85.2	85.2	82.6	3	Bucl15_Bps_1106a.seq
4	0.0	3.9	6.2	█	95.0	89.9	71.7	77.3	70.6	95.5	72.8	74.5	94.1	91.6	94.1	91.6	94.1	91.3	91.6	91.6	91.6	91.6	94.1	94.1	91.3	94.1	94.1	91.3	4	Bucl15_Bps_1026b.seq
5	5.0	3.9	4.3	5.0	█	93.3	73.1	75.1	68.3	98.0	70.6	73.1	89.4	86.8	89.4	86.8	89.4	86.6	86.6	86.8	86.8	86.8	89.4	89.4	86.6	89.4	89.4	86.6	5	Bucl15_Bps_1710b.seq
6	6.2	3.6	0.0	6.2	4.3	█	75.1	76.2	69.5	93.6	71.7	67.2	85.2	82.6	85.2	82.6	85.2	82.6	82.9	82.6	82.6	82.6	85.2	85.2	82.6	85.2	85.2	82.6	6	Bucl15_Bps_BPC006.seq
7	7.7	7.7	4.3	7.7	9.0	4.3	█	51.8	45.1	73.7	47.3	48.7	71.7	73.9	71.7	73.9	71.7	74.2	69.7	73.9	73.9	73.9	71.7	71.7	74.2	71.7	71.7	74.2	7	A3NDA8_BURP6_Bucl15_Bps_668.seq
8	3.9	3.5	3.0	3.9	4.7	3.0	6.2	█	93.3	75.6	95.5	86.8	76.5	73.9	76.5	73.9	76.5	73.9	78.4	73.9	73.9	73.9	76.5	76.5	73.9	76.5	76.5	73.9	8	Bucl15_Bps_MSHR146.seq
9	3.9	3.5	3.0	3.9	4.7	3.0	6.2	0.0	█	68.9	97.8	88.8	69.7	67.2	69.7	67.2	69.7	67.2	71.7	67.2	67.2	67.2	69.7	69.7	67.2	69.7	69.7	67.2	9	Bucl15_Bps_MSHR511.seq
10	3.9	0.0	3.6	3.9	3.9	3.6	7.7	3.5	3.5	█	71.1	72.3	89.9	87.4	89.9	87.4	89.9	87.7	87.7	87.4	87.4	87.4	89.9	89.9	87.7	89.9	89.9	87.7	10	Bucl15_Bps_MSHR520.seq
11	3.9	3.5	3.0	3.9	4.7	3.0	6.2	0.0	0.0	3.5	█	91.0	72.0	69.5	72.0	69.5	72.0	69.5	73.9	69.5	69.5	69.5	72.0	72.0	69.5	72.0	72.0	69.5	11	Bucl15_Bps_NAU20B-16.seq
12	5.8	5.6	6.8	5.8	3.8	6.8	8.9	8.9	8.8	5.6	8.8	█	72.8	70.3	72.8	70.3	72.8	70.0	74.5	70.3	70.3	70.3	72.8	72.8	70.0	72.8	72.8	70.0	12	Bucl15_Bps_NCTC_13178.seq
13	2.1	5.6	6.3	2.1	6.8	6.3	7.9	4.8	4.8	5.6	4.8	8.3	█	96.9	100.0	96.9	100.0	96.6	96.6	96.9	96.9	96.9	100.0	100.0	96.6	100.0	100.0	96.6	13	Bucl15_Bm_2000031281.seq
14	2.1	5.6	6.3	2.1	6.8	6.3	8.1	4.8	4.8	5.6	4.8	8.3	0.9	█	96.9	100.0	96.9	99.7	93.6	100.0	100.0	100.0	96.9	96.9	99.7	96.9	96.9	99.7	14	Bucl15_Bm_2002721280.seq
15	2.1	5.6	6.3	2.1	6.8	6.3	7.9	4.8	4.8	5.6	4.8	8.3	0.0	0.9	█	96.9	100.0	96.6	96.6	96.9	96.9	96.9	100.0	100.0	96.6	100.0	100.0	96.6	15	Bucl15_Bm_A188.seq
16	2.1	5.6	6.3	2.1	6.8	6.3	8.1	4.8	4.8	5.6	4.8	8.3	0.9	0.0	0.9	█	96.9	99.7	93.6	100.0	100.0	100.0	96.9	96.9	99.7	96.9	96.9	99.7	16	Bucl15_Bm_A193.seq
17	2.1	5.6	6.3	2.1	6.8	6.3	7.9	4.8	4.8	5.6	4.8	8.3	0.0	0.9	0.0	0.9	█	96.6	96.6	96.9	96.9	96.9	100.0	100.0	96.6	100.0	100.0	96.6	17	Bucl15_Bm_China_7.seq
18	2.6	5.0	6.3	2.6	7.4	6.3	7.5	4.8	4.8	5.0	4.8	8.9	1.4	0.5	1.4	0.5	1.4	█	93.8	99.7	99.7	99.7	96.6	96.6	100.0	96.6	96.6	100.0	18	Bucl15_Bm_PRL-20.seq
19	2.6	5.6	6.3	2.6	8.0	6.3	7.3	5.2	5.2	5.6	5.2	9.0	1.9	2.9	1.9	2.9	1.9	2.4	█	93.6	93.6	93.6	96.6	96.6	93.8	96.6	96.6	93.8	19	Bucl15_Bm_strain_6.seq
20	2.1	5.6	6.3	2.1	6.8	6.3	8.1	4.8	4.8	5.6	4.8	8.3	0.9	0.0	0.9	0.0	0.9	0.5	2.9	█	100.0	100.0	96.9	96.9	99.7	96.9	96.9	99.7	20	Bucl15_Bm_strain_11.seq
21	2.1	5.6	6.3	2.1	6.8	6.3	8.1	4.8	4.8	5.6	4.8	8.3	0.9	0.0	0.9	0.0	0.9	0.5	2.9	0.0	█	100.0	96.9	96.9	99.7	96.9	96.9	99.7	21	Bucl15_Bm_NCTC_10229.seq
22	2.1	5.6	6.3	2.1	6.8	6.3	8.1	4.8	4.8	5.6	4.8	8.3	0.9	0.0	0.9	0.0	0.9	0.5	2.9	0.0	0.0	█	96.9	96.9	99.7	96.9	96.9	99.7	22	Bucl15_Bm_NCTC_10247.seq
23	2.1	5.6	6.3	2.1	6.8	6.3	7.9	4.8	4.8	5.6	4.8	8.3	0.0	0.9	0.0	0.9	0.0	1.4	1.9	0.9	0.9	0.9	█	100.0	96.6	100.0	100.0	96.6	23	Bucl15_Bm_JHU.seq
24	2.1	5.6	6.3	2.1	6.8	6.3	7.9	4.8	4.8	5.6	4.8	8.3	0.0	0.9	0.0	0.9	0.0	1.4	1.9	0.9	0.9	0.9	0.0	█	96.6	100.0	100.0	96.6	24	Bucl15_Bm_FMh.seq
25	2.6	5.0	6.3	2.6	7.4	6.3	7.5	4.8	4.8	5.0	4.8	8.9	1.4	0.5	1.4	0.5	1.4	0.0	2.4	0.5	0.5	0.5	1.4	1.4	█	96.6	96.6	100.0	25	Bucl15_Bm_ATCC_10399.seq
26	2.1	5.6	6.3	2.1	6.8	6.3	7.9	4.8	4.8	5.6	4.8	8.3	0.0	0.9	0.0	0.9	0.0	1.4	1.9	0.9	0.9	0.9	0.0	0.0	1.4	█	100.0	96.6	26	Bucl15_Bm_GB8_horse_4.seq
27	2.1	5.6	6.3	2.1	6.8	6.3	7.9	4.8	4.8	5.6	4.8	8.3	0.0	0.9	0.0	0.9	0.0	1.4	1.9	0.9	0.9	0.9	0.0	0.0	1.4	0.0	█	96.6	27	Bucl15_Bm_ATCC_23344.seq
28	2.6	5.0	6.3	2.6	7.4	6.3	7.5	4.8	4.8	5.0	4.8	8.9	1.4	0.5	1.4	0.5	1.4	0.0	2.4	0.5	0.5	0.5	1.4	1.4	0.0	1.4	1.4	█	28	Bucl15_Bm_SAVP1.seq
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28			

bucl15

Percent Identity

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30			
1	█	86.3	79.7	86.2	82.3	88.5	79.7	86.2	88.5	86.2	83.3	81.4	85.2	90.6	85.7	84.7	85.7	90.5	85.7	83.7	85.7	85.7	73.0	76.9	84.7	84.7	77.2	84.7	84.7	82.7	1	Buc16_Bps K96243.seq	
2	1.5	█	90.1	86.3	91.9	94.0	90.1	86.3	92.3	95.1	94.2	94.8	96.0	90.9	96.3	95.3	96.3	92.6	96.3	94.3	96.3	96.3	83.6	87.5	95.3	95.3	87.8	95.3	95.3	93.3	2	Buc16_Bps MSHR 305.seq	
3	1.2	3.7	█	78.7	96.8	85.8	100.0	78.7	86.5	86.5	88.6	94.0	87.2	84.5	91.6	92.6	91.6	86.7	91.6	93.5	91.6	91.6	92.6	96.4	92.6	92.6	96.8	92.6	92.6	94.5	3	A3NSP4_BURP0_Buc16_Bp 1106a.seq	
4	3.2	4.1	5.1	█	80.7	88.8	78.7	100.0	90.8	86.4	83.4	81.6	85.4	92.6	86.6	85.7	86.6	91.5	86.6	84.7	86.6	86.6	74.0	77.9	85.7	85.7	79.5	85.7	85.7	83.7	4	Buc16_Bps MSHR346.seq	
5	0.3	3.8	1.4	5.1	█	87.6	96.8	80.7	88.0	89.0	91.0	95.9	89.6	86.3	93.0	94.0	93.0	88.1	93.0	94.9	93.0	93.0	90.1	94.0	94.0	94.0	94.3	94.0	94.0	95.9	5	Buc16_Bps 1026b.seq	
6	2.5	3.9	5.7	4.7	5.8	█	85.8	88.8	93.3	95.8	92.8	89.0	94.8	91.5	91.3	90.3	91.3	93.2	91.3	89.3	91.3	91.3	78.6	82.5	90.3	90.3	83.3	90.3	90.3	88.3	6	Buc16_Bps 1710b.seq	
7	1.2	3.7	0.0	5.1	1.4	5.7	█	78.7	86.5	86.5	88.6	94.0	87.2	84.5	91.6	92.6	91.6	86.7	91.6	93.5	91.6	91.6	92.6	96.4	92.6	92.6	96.8	92.6	92.6	94.5	7	Buc16_Bps BPC006.seq	
8	3.2	4.1	5.1	0.0	5.1	4.7	5.1	█	90.8	86.4	83.4	81.6	85.4	92.6	86.6	85.7	86.6	91.5	86.6	84.7	86.6	86.6	74.0	77.9	85.7	85.7	79.5	85.7	85.7	83.7	8	Buc16_Bps 668.seq	
9	2.5	3.5	2.3	3.6	2.8	6.0	2.3	3.6	█	91.2	88.3	87.6	90.2	95.7	94.2	93.2	94.2	97.1	94.2	92.2	94.2	94.2	81.6	85.4	93.2	93.2	86.2	93.2	93.2	91.3	9	Buc16_Bps NCTC 13179.seq	
10	3.0	4.7	7.0	5.3	6.3	2.8	7.0	5.3	6.3	█	97.0	90.2	99.0	89.9	92.4	91.5	92.4	91.2	92.4	90.5	92.4	92.4	79.8	83.7	91.5	91.5	84.7	91.5	91.5	89.5	10	Buc16_Bps MSHR146.seq	
11	3.0	4.6	7.9	5.4	7.2	2.9	7.9	5.4	6.1	0.1	█	92.9	98.0	87.1	91.6	92.2	91.6	88.3	91.6	92.9	91.6	91.6	81.9	85.8	92.2	92.2	86.7	92.2	92.2	91.6	11	Buc16_Bps MSHR511.seq	
12	1.5	0.4	4.6	3.9	4.6	4.0	4.6	3.9	3.3	4.8	4.9	█	91.0	86.2	91.6	92.3	91.6	87.8	91.6	93.1	91.6	91.6	87.5	91.4	92.3	92.3	91.7	92.3	92.3	93.9	12	Buc16_Bps MSHR520.seq	
13	3.0	4.8	7.4	5.3	6.7	2.8	7.4	5.3	6.3	0.0	0.1	4.9	█	88.9	93.4	92.1	93.4	90.2	93.4	91.2	93.4	93.4	80.5	84.4	92.1	92.1	85.3	92.1	92.1	90.2	13	Buc16_Bps NAU20B-16.seq	
14	2.2	2.9	2.5	4.8	2.6	6.0	2.5	4.8	2.2	5.6	5.4	2.7	5.6	█	92.3	91.4	92.3	97.2	92.3	90.4	92.3	92.3	79.7	83.6	91.4	91.4	83.9	91.4	91.4	89.4	14	Buc16_Bps NCTC 13178.seq	
15	1.5	3.6	1.1	4.5	1.8	6.5	1.1	4.5	2.0	7.3	7.1	3.5	7.2	1.9	█	98.7	100.0	94.8	100.0	97.7	100.0	100.0	87.1	90.9	98.7	98.7	91.3	98.7	98.7	96.8	15	Buc16_Bm 2000031281.seq	
16	1.5	3.7	1.1	4.5	1.8	6.5	1.1	4.5	2.0	7.3	7.4	3.7	7.7	1.9	0.4	█	98.7	93.9	98.7	98.7	98.7	98.7	88.0	91.9	100.0	100.0	92.2	100.0	100.0	97.7	16	Buc16_Bm 2002721280.seq	
17	1.5	3.6	1.1	4.5	1.8	6.5	1.1	4.5	2.0	7.3	7.1	3.5	7.2	1.9	0.0	0.4	█	94.8	100.0	97.7	100.0	100.0	87.1	90.9	98.7	98.7	91.3	98.7	98.7	96.8	17	Buc16_Bm A188.seq	
18	1.5	2.4	1.2	4.5	1.9	5.4	1.2	4.5	2.0	5.5	5.4	2.3	5.5	1.9	0.4	0.4	0.4	█	94.8	92.9	94.8	94.8	82.2	86.1	93.9	93.9	86.4	93.9	93.9	91.9	18	Buc16_Bm A193.seq	
19	1.5	3.6	1.1	4.5	1.8	6.5	1.1	4.5	2.0	7.3	7.1	3.5	7.2	1.9	0.0	0.4	0.0	0.4	█	97.7	100.0	100.0	87.1	90.9	98.7	98.7	91.3	98.7	98.7	96.8	19	Buc16_Bm China 7.seq	
20	1.5	3.7	1.1	4.5	1.7	6.5	1.1	4.5	2.0	7.3	7.8	3.9	7.7	1.9	0.4	0.4	0.4	0.4	0.4	█	97.7	97.7	89.0	92.9	98.7	98.7	93.2	98.7	98.7	98.7	20	Buc16_Bm PRL-20.seq	
21	1.5	3.6	1.1	4.5	1.8	6.5	1.1	4.5	2.0	7.3	7.1	3.5	7.2	1.9	0.0	0.4	0.0	0.4	0.0	0.4	█	100.0	87.1	90.9	98.7	98.7	91.3	98.7	98.7	96.8	21	Buc16_Bm strain_6.seq	
22	1.5	3.6	1.1	4.5	1.8	6.5	1.1	4.5	2.0	7.3	7.1	3.5	7.2	1.9	0.0	0.4	0.0	0.4	0.0	0.4	0.0	█	87.1	90.9	98.7	98.7	91.3	98.7	98.7	96.8	22	Buc16_Bm strain_11.seq	
23	1.5	3.7	1.0	4.5	1.7	6.5	1.0	4.5	2.0	7.3	8.2	4.6	7.7	1.9	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	█	95.8	88.0	88.0	94.2	88.0	88.0	90.0	23	Buc16_Bm NCTC 10229.seq
24	1.5	3.7	1.0	4.5	1.7	6.5	1.0	4.5	2.0	7.3	8.2	4.6	7.7	1.9	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.3	█	91.9	91.9	98.1	91.9	91.9	93.9	24	Buc16_Bm NCTC 10247.seq
25	1.5	3.7	1.1	4.5	1.8	6.5	1.1	4.5	2.0	7.3	7.4	3.7	7.7	1.9	0.4	0.0	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.0	100.0	92.2	100.0	100.0	97.7	25	Buc16_Bm FMH.seq
26	1.5	3.7	1.1	4.5	1.8	6.5	1.1	4.5	2.0	7.3	7.4	3.7	7.7	1.9	0.4	0.0	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.0	█	92.2	100.0	100.0	97.7	26	Buc16_Bm JHU.seq
27	2.4	4.5	1.8	3.6	2.4	6.8	1.8	3.6	2.2	7.3	8.2	5.4	7.7	2.7	1.1	1.1	1.1	1.2	1.1	1.1	1.1	1.1	1.0	1.0	1.1	1.1	█	92.2	92.2	94.2	27	Buc16_Bm ATCC 10399.seq	
28	1.5	3.7	1.1	4.5	1.8	6.5	1.1	4.5	2.0	7.3	7.4	3.7	7.7	1.9	0.4	0.0	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.0	0.0	1.1	█	100.0	97.7	28	Buc16_Bm GB8 horse 4.seq
29	1.5	3.7	1.1	4.5	1.8	6.5	1.1	4.5	2.0	7.3	7.4	3.7	7.7	1.9	0.4	0.0	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.0	0.0	1.1	0.0	█	97.7	29	Buc16_Bm ATCC 23344.seq
30	1.5	3.7	1.1	4.5	1.7	6.5	1.1	4.5	2.0	7.3	8.2	4.1	7.7	1.9	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4	1.1	0.4	0.4	█	30	Buc16_Bm SAVP1.seq

buc16

Bucl No.	% identity range	Average % identity
1	73.1-100	90.37
2	74.1-100	89.96
3	66.4-99.8	85.95
4	70.4-100	89.88
5	69.2-99.6	88.36
6	43.1-100	76.45
7	83.6-99.5	94.91
8	78.3-100	94.14
10	58.9-100	84.63
13	86.9-99.8	93.87
14	42-100	92.17
15	45.1-100	86.36
16	73-100	91.17