

Table S1. The *B. burgdorferi* *ruvA* mutant T11P01A01 and the *ruvB* mutant T03TC051 exhibit decreased *vlsE* sequence variation during infection of C3H/HeN and C3H/SCID mice.

<i>B. burgdorferi</i> strain	Day post inoculation	Mouse strain	Total no. of clones sequenced	No. of clones with parental sequence (%)	No. of variants with unique sequence (%)	No. of variants with non-unique sequence (%)	No. of mice tested	No. of tissues tested
<i>ruvA</i> mutant	7	C3H/HeN	99	99 (100)	0 (0)	0 (0)	5	5 ^a
<i>ruvB</i> mutant	7	C3H/HeN	22	22 (100)	0 (0)	0 (0)	4	4 ^a
5A18NP1	7	C3H/HeN	65	7 (11)	38 (58)	20 (31)	5	5 ^a
<i>ruvA</i> mutant	14	C3H/HeN	16	16 (100)	0 (0)	0 (0)	3	3 ^b
5A18NP1	14	C3H/HeN	59	0 (0)	48 (81)	11 (19)	1	3 ^c
<i>ruvA</i> mutant	28	C3H/HeN	114	3 (3)	0 (0)	111 (97)	6	12 ^c
<i>ruvB</i> mutant	28	C3H/HeN	40	5 (12.5)	1 (2.5)	34 (85)	3	10 ^d
5A18NP1	28	C3H/HeN	63	0 (0)	31 (49)	32 (51)	1	4 ^d
<i>ruvA</i> mutant	14	C3H/SCID	85	85 (100)	0 (0)	0 (0)	5	20 ^d
5A18NP1	14	C3H/SCID	76	19 (25)	51 (67)	6 (8)	5	17 ^d
<i>ruvA</i> mutant	28	C3H/SCID	68	68 (100)	0 (0)	0 (0)	5	18 ^d
5A18NP1	28	C3H/SCID	47	0 (0)	41 (87)	6 (13)	5	16 ^d

^a skin isolates only

^b joint isolates only

^c skin, joint, bladder isolates

^d skin, joint, heart, and bladder isolates