

1 **SUPPLEMENTAL INFORMATION TABLES**

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4 **Table S1.** Infectivity of *in vitro*-grown wtB31 mutants in naïve SCID and C3H mice.

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Tissue collected (at day post infection)	Naïve SCID mice inoculated with:		Naïve C3H mice inoculated with:	
	wtB31-kan ^r	wtB31-gent ^r	wtB31-kan ^r	wtB31-gent ^r
Blood (day 7)	4/4 ^a	4/4	5/5	5/5
Ear (day 14)	4/4	4/4	5/5	5/5
Ear (day 21)	4/4	4/4	5/5	5/5
Tissues (day 28)				
Ear	4/4	4/4	5/5	5/5
Heart	4/4	4/4	4/5	5/5
Bladder	4/4	4/4	5/5	4/5
Joint	4/4	4/4	5/5	5/5
Total infected mice (day 28) ^b	4/4	4/4	5/5	5/5

6 ^a Values listed correspond to numbers of cultures positive/numbers tested.

7 ^b Based on combined results obtained from culturing ear, heart, bladder and tibiotarsal joint.

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10 **Table S2.** Infectivity of host-adapted wtB31 mutants in naïve C3H and nude mice.

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Tissue collected (at day post infection)	Naïve C3H mice infected via tissue transplantation with:		Naïve nude mice infected via tissue transplantation with:	
	ha ^a wtB31- kan ^r	ha wtB31- gent ^r	ha wtB31-kan ^r	ha wtB31-gent ^r
Blood (day 7)	5/5 ^b	5/5	5/5	5/5
Ear (day 14)	5/5	5/5	5/5	5/5
Ear (day 21)	5/5	5/5	5/5	5/5
Tissues (day 28)				
Ear	5/5	5/5	5/5	5/5
Heart	5/5	5/5	NA ^c	NA
Bladder	3/5	3/5	NA	NA
Joint	5/5	5/5	NA	NA
Total infected mice (day 28) ^d	5/5	5/5	5/5	5/5

12 ^a ha denotes host-adapted clone.

13 ^b Values listed correspond to numbers of cultures positive/numbers tested.

14 ^c NA denotes non-assessed.

15 ^d Based on combined results obtained from culturing ear, heart, bladder and tibiotarsal joint.

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17 **Table S3.** Assessment of superinfection in C3H mice using *in-vitro* grown *Bb* clones.

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Tissue collected (at day post challenge)	wtB31gent ^r - infected C3H mice superinfected via inoculation with:	Control group (naïve C3H mice) infected via inoculation with:
	wtB31-kan ^r	wtB31-kan ^r
Blood (day 7)	0/5 ^a	5/5
Ear (day 14)	0/5	5/5
Ear (day 21)	0/5	5/5
Tissues (day 28)		
Ear	0/5	5/5
Heart	0/5	5/5
Bladder	0/5	4/5
Joint	0/5	5/5
Total infected mice (day 28) ^b	0/5	5/5

19 ^a Values listed correspond to numbers of cultures positive/numbers tested.

20 ^b Based on combined results obtained from culturing ear, heart, bladder and tibiotarsal joint.

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22 **Table S4.** Assessment of early-time point superinfection in C3H mice.

Tissue collected (at day post superinfection)	ha ^a wtB31-gent ^r -infected C3H mice superinfected with ha wtB31- kan ^r via tissue transplantation:	
	at day 6 post infection	at day 13 post infection
Blood (day 4)	0/5 ^b	0/5
Blood (day 7)	0/5	0/5
Ear (day 14)	0/5	0/5
Ear (day 21)	0/5	0/5
Tissues (day 28)		
Ear	0/5	0/5
Heart	0/5	0/5
Bladder	0/5	0/5
Joint	0/5	0/5
Total infected mice (day 28) ^c	0/5	0/5

23 ^a ha denotes host-adapted clone.

24 ^b Values listed correspond to numbers of cultures positive/numbers tested.

25 ^c Based on combined results obtained from culturing ear, heart, bladder and tibiotarsal joint.

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27 **Table S5.** Infectivity of host-adapted wtB31-gent^r in naïve SCID mice.

Tissue collected (at day post infection)	Naïve SCID mice infected via tissue transplantation with ha ^a wtB31-gent ^r :
Blood (day 7)	5/5 ^b
Blood (day 14)	5/5
Blood (day 21)	5/5
Ear (day 21)	5/5

28 ^a ha denotes host-adapted clone.

29 ^b Values listed correspond to numbers of cultures positive/numbers tested.

30 **Table S6.** Assessment of superinfection by homologous strains of *B. burgdorferi* in nude and
 31 SCID mice.

Tissue collected (at day post challenge)	ha ^a wtB31-gent ^r - infected nude mice	ha wtB31-gent ^r - infected SCID mice	
	superinfected via tissue transplantation with:	superinfected via inoculation with:	
		ha wtB31-kan ^r	ha wtB31-kan ^r
Blood (day 7)	0/5 ^b	0/5	0/3
Ear (day 14)	0/5	0/5	0/3
Ear (day 21)	0/5	0/5	0/3
Tissues (day 28)			
Ear	0/5	0/5	0/3
Heart	0/5	0/5	0/3
Bladder	0/5	0/5	0/3
Joint	0/5	0/5	0/3
Total infected mice (day 28) ^c	0/5	0/5	0/3

32 ^a ha denotes host-adapted clone.

33 ^b Values listed correspond to numbers of cultures positive/numbers tested.

34 ^c Based on combined results obtained from culturing ear, heart, bladder and tibiotarsal joint.

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