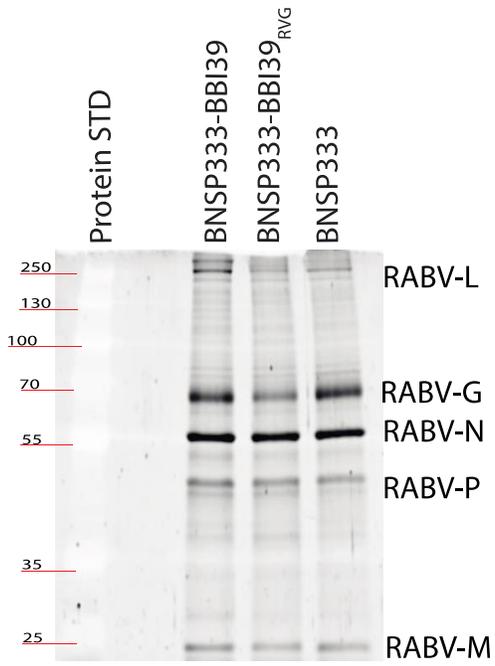


a.



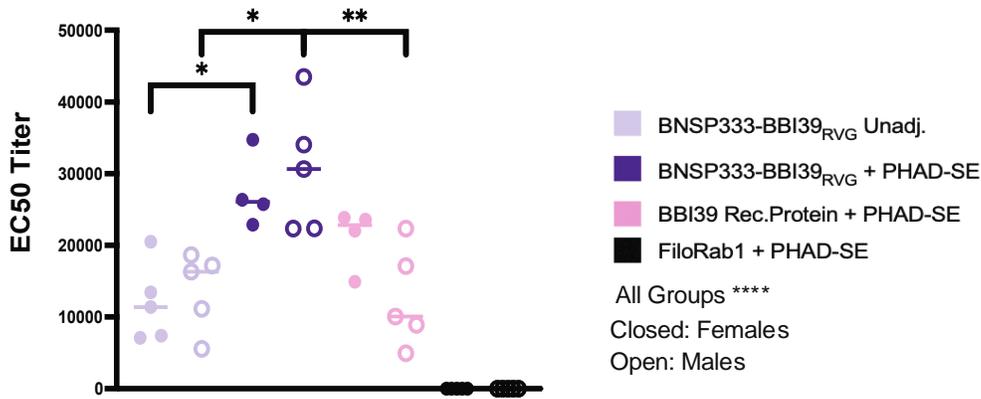
Supplementary Figure S1:

SDS-PAGE protein gel of RABV-based constructs.

(a) Protein gel of sucrose purified virions showing all RABV proteins.

a.

Day 56 BBI39 EC50 Females and Males

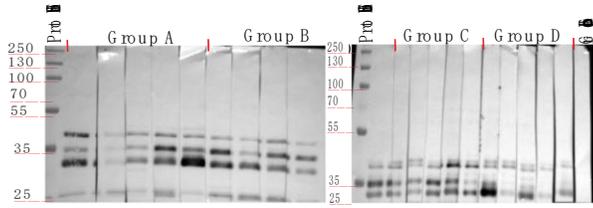


Supplementary Figure S2

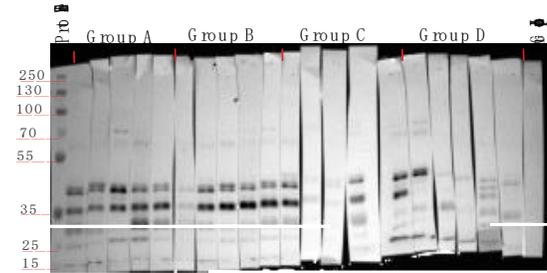
Sex differences in antibody titers from vaccinated female and male mice

(a) anti-BBI39 total IgG EC50 titers for comparing male and female vaccinated mice. Statistics were calculated by one-way ANOVA with post hoc Tukey's test of log-transformed data. $p > (ns)$, $p < 0.0332 (*)$, $p < 0.0021 (**)$, $p < 0.0002 (***)$, $p < 0.0001 (****)$.

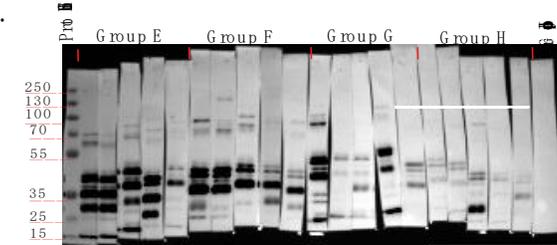
a.



b.



c.



d.

Groups	Groups	Number of Infected Mice		
		Heart	Joint	Skin
Group A/E	BNSP333-BBI39 _{RVG} Unadjuvanted	7/15	7/15	11/15
Group B/F	BNSP333-BBI39 _{RVG} + PHAD-SE	4/15	8/15	11/15
Group C/G	BB139 Protein + PHAD-SE	9/15	10/15	12/15
Group D/H	FiloRab1 + PHAD-SE	15/15	15/15	15/15
Group E/I/J	Unvaccinated/Unchallenged	0/15	0/15	0/15

Supplementary Figure S3

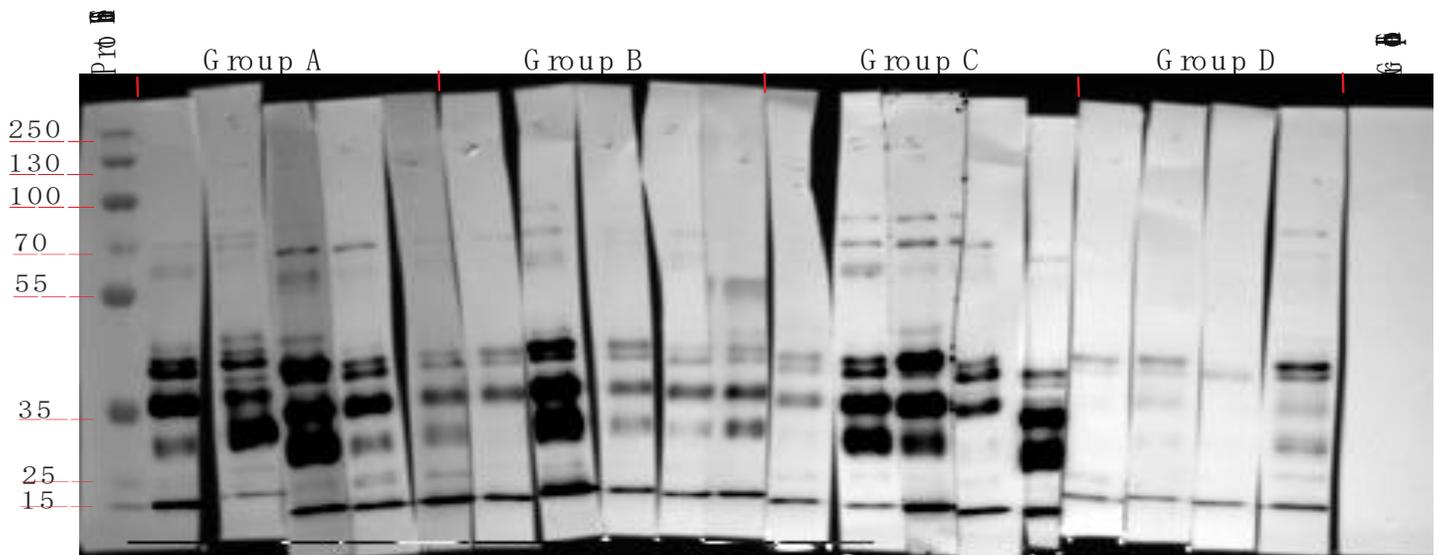
***Borrelia burgdorferi* depletion in infected organs by culture in BSK and confirmation of infection by western blot.**

(a-c) Western blot analysis of infected mice by serum. Whole borrelial lysates ran on gel and transferred to nitrocellulose membrane. Probed with individual infected mouse serum from 2 separate experiments of female (a-b) and male (c) mice. (d) Number of infected mouse organs by culture in BSK-H medium numerated under dark field microscopy for presence of *Borrelia*.

a.

	Groups	Number of Infected Mice		
		Heart	Joint	Skin
Group A	 BNSP333-BBI39_{RVG} Unadjuvanted	3/5	3/5	4/5
Group B	 BNSP333-BBI39_{RVG} + PHAD-SE	5/5	2/5	2/5
Group C	 BBI39 Protein + PHAD-SE	4/5	1/5	4/5
Group D	 FiloRab1 + PHAD-SE	5/5	5/5	5/5
Group E	 Unvaccinated/Unchallenged	0/5	0/5	0/5

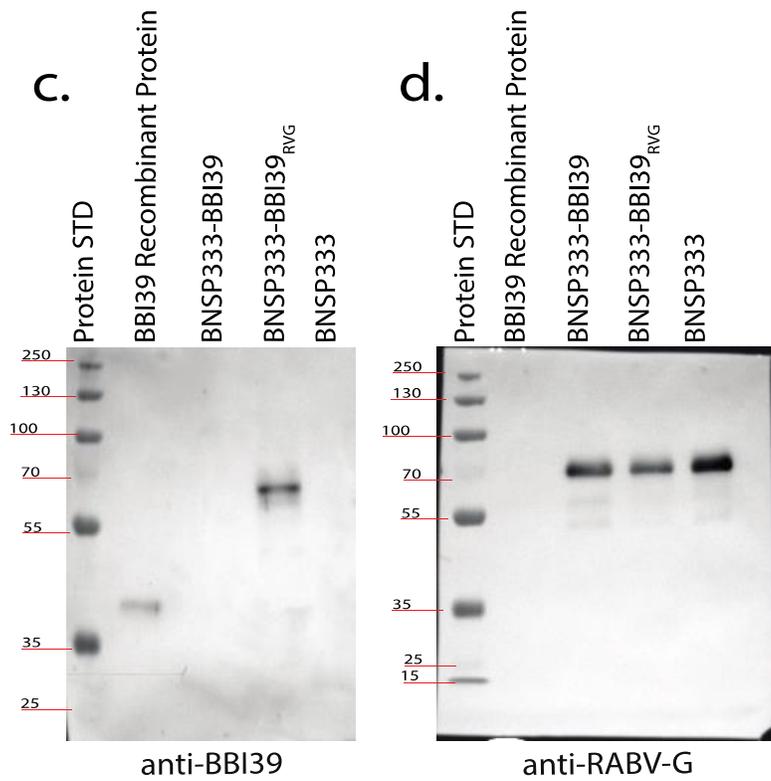
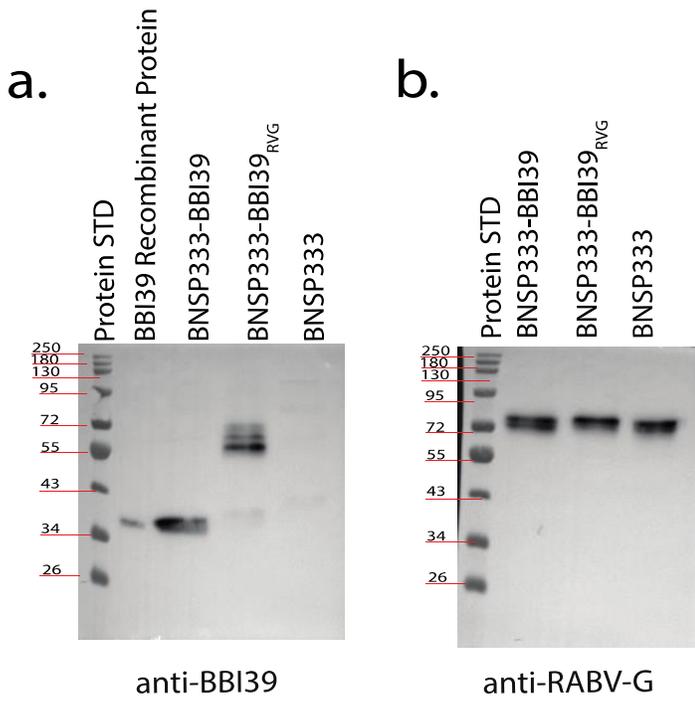
b.



Supplementary Figure S4

Long-term vaccination and challenge organ culture and western blot analysis.

(a-b) ELISA curves for anti-BBI39 and anti-RABV-G from individual mouse serum 8 months (224 days) post-initial immunization. Determination of EC50 titers in Figure 7.



Supplementary Figure S5:

Raw data of western blots from Figure 2.

Western blot from Figure 2b (a-b) and Figure 2d (c-d).