

Supplemental Information

**Corticosteroids and cellulose purification
improve, respectively, the *in vivo* translation
and vaccination efficacy of sa-mRNAs**

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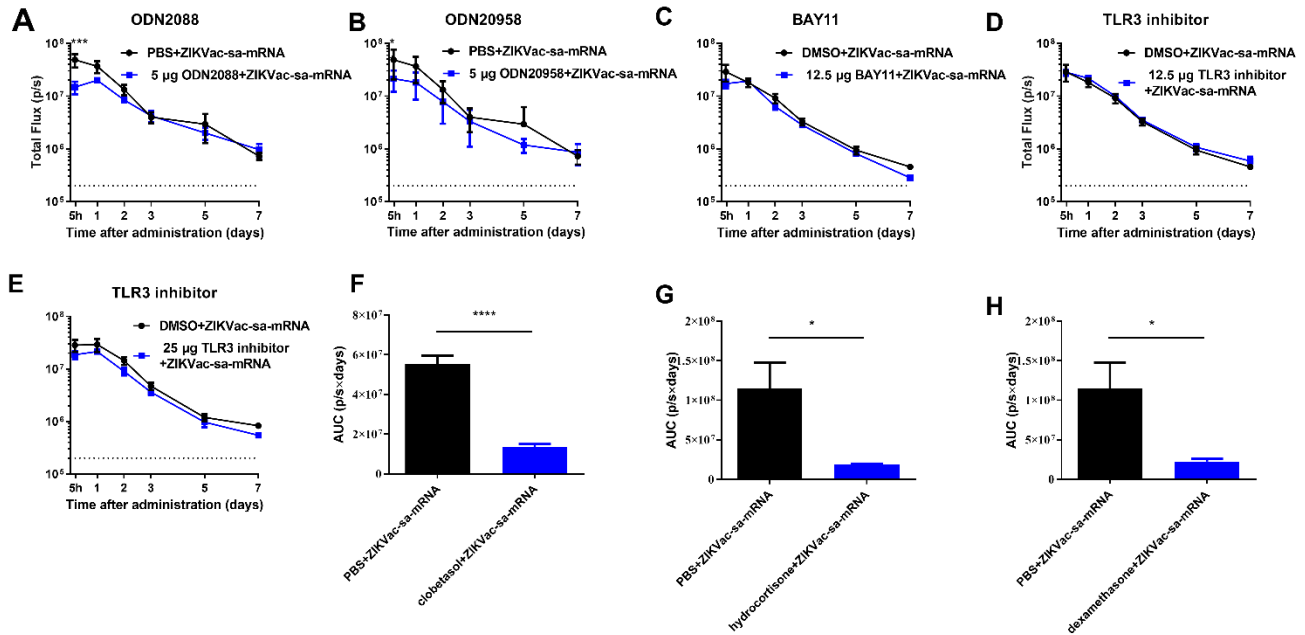


Figure S1. Effect of the TLR3 inhibitor and lower doses of ODN2088, ODN20958 and BAY11 on the type I IFN response after intradermal electroporation of ZIKVac-sa-mRNA in IFN- $\beta^{+/\Delta\beta}$ -luc reporter mice. The effects of 5 μ g ODN2088 (A), 5 μ g ODN20958 (B), 12.5 μ g BAY11 (C), 12.5 μ g and 25 μ g TLR3 inhibitor (D-E) on the type I IFN response of intradermally electroporated ZIKVac-sa-mRNA (1 μ g). These inhibitors were mixed with the ZIKVac-sa-mRNA upon administration. (n = 4, data are shown as means \pm SEM). In addition, the area under the curves (AUCs) of Fig. 2J-L are presented in (F-H).

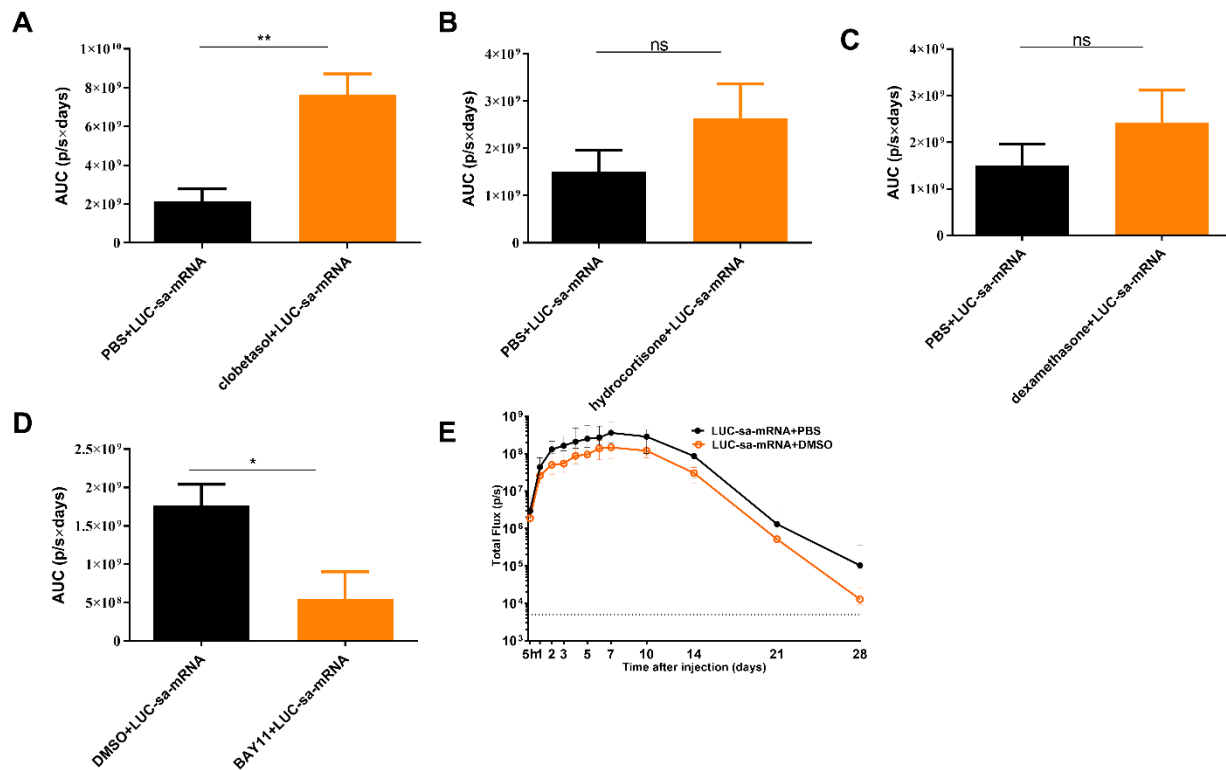


Figure S2. The influence of innate immune inhibitors on the translation of LUC-sa-mRNA in BALB/c mice. The area under the curves (AUCs) of Fig. 4B-E are presented in panels A-D, respectively. Each bar represents the mean of four individual mice and the error bars represent SEM. The luciferase expression was determined in BALB/c mice that were intradermally electroporated with 1 μ g of LUC-sa-mRNA with DMSO or PBS, each symbol represents the median of four individual mice and the error bars represent interquartile range (E).

Table S1. Significant difference for Figure 5b and Figure 5d.

Significant difference for Figure 5b

5 h		Sinificance	P value
silic ZIKVac-sa-mRNA+clobetasol	cellulose ZIKVac-sa-mRNA+clobetasol	ns	0.2241
silic ZIKVac-sa-mRNA+clobetasol	silic ZIKVac-sa-mRNA	****	< 0.0001
silic ZIKVac-sa-mRNA+clobetasol	cellulose ZIKVac-sa-mRNA	ns	> 0.9999
cellulose ZIKVac-sa-mRNA+clobetasol	silic ZIKVac-sa-mRNA	****	< 0.0001
cellulose ZIKVac-sa-mRNA+clobetasol	cellulose ZIKVac-sa-mRNA	ns	0.7716
silic ZIKVac-sa-mRNA	cellulose ZIKVac-sa-mRNA	****	< 0.0001
1 day		Sinificance	P value
silic ZIKVac-sa-mRNA+clobetasol	cellulose ZIKVac-sa-mRNA+clobetasol	ns	> 0.9999
silic ZIKVac-sa-mRNA+clobetasol	silic ZIKVac-sa-mRNA	****	< 0.0001
silic ZIKVac-sa-mRNA+clobetasol	cellulose ZIKVac-sa-mRNA	ns	> 0.9999
cellulose ZIKVac-sa-mRNA+clobetasol	silic ZIKVac-sa-mRNA	****	< 0.0001
cellulose ZIKVac-sa-mRNA+clobetasol	cellulose ZIKVac-sa-mRNA	ns	> 0.9999
silic ZIKVac-sa-mRNA	cellulose ZIKVac-sa-mRNA	****	< 0.0001

Significant difference for Figure 5d

		Sinificance	P value
2 days			
silic LUC-sa-mRNA + clobetasol	cellulose LUC-sa-mRNA + clobetasol	ns	> 0.9999
silic LUC-sa-mRNA + clobetasol	silic LUC-sa-mRNA	****	< 0.0001
silic LUC-sa-mRNA + clobetasol	cellulose LUC-sa-mRNA	****	< 0.0001
cellulose LUC-sa-mRNA + clobetasol	silic LUC-sa-mRNA	****	< 0.0001
cellulose LUC-sa-mRNA + clobetasol	cellulose LUC-sa-mRNA	***	0.0003
silic LUC-sa-mRNA	cellulose LUC-sa-mRNA	ns	> 0.9999
3 days			
silic LUC-sa-mRNA + clobetasol	cellulose LUC-sa-mRNA + clobetasol	**	0.0093
silic LUC-sa-mRNA + clobetasol	silic LUC-sa-mRNA	***	0.0001
silic LUC-sa-mRNA + clobetasol	cellulose LUC-sa-mRNA	ns	0.0958
cellulose LUC-sa-mRNA + clobetasol	silic LUC-sa-mRNA	****	< 0.0001
cellulose LUC-sa-mRNA + clobetasol	cellulose LUC-sa-mRNA	****	< 0.0001
silic LUC-sa-mRNA	cellulose LUC-sa-mRNA	ns	0.9991
4 days			
silic LUC-sa-mRNA + clobetasol	cellulose LUC-sa-mRNA + clobetasol	**	0.0081
silic LUC-sa-mRNA + clobetasol	silic LUC-sa-mRNA	***	0.0001
silic LUC-sa-mRNA + clobetasol	cellulose LUC-sa-mRNA	*	0.0235
cellulose LUC-sa-mRNA + clobetasol	silic LUC-sa-mRNA	****	< 0.0001
cellulose LUC-sa-mRNA + clobetasol	cellulose LUC-sa-mRNA	****	< 0.0001
silic LUC-sa-mRNA	cellulose LUC-sa-mRNA	ns	> 0.9999
5 days			
silic LUC-sa-mRNA + clobetasol	cellulose LUC-sa-mRNA + clobetasol	**	0.0015
silic LUC-sa-mRNA + clobetasol	silic LUC-sa-mRNA	ns	0.3438
silic LUC-sa-mRNA + clobetasol	cellulose LUC-sa-mRNA	ns	> 0.9999
cellulose LUC-sa-mRNA + clobetasol	silic LUC-sa-mRNA	****	< 0.0001
cellulose LUC-sa-mRNA + clobetasol	cellulose LUC-sa-mRNA	****	< 0.0001
Silic LUC-sa-mRNA	cellulose LUC-sa-mRNA	ns	> 0.9999
6 days			
silic LUC-sa-mRNA + clobetasol	cellulose LUC-sa-mRNA + clobetasol	ns	0.7251
silic LUC-sa-mRNA + clobetasol	silic LUC-sa-mRNA	ns	0.6574
silic LUC-sa-mRNA + clobetasol	cellulose LUC-sa-mRNA	ns	> 0.9999
cellulose LUC-sa-mRNA + clobetasol	silic LUC-sa-mRNA	***	0.0001
cellulose LUC-sa-mRNA + clobetasol	cellulose LUC-sa-mRNA	*	0.0205
silic LUC-sa-mRNA	cellulose LUC-sa-mRNA	ns	> 0.9999
7 days			
silic LUC-sa-mRNA + clobetasol	cellulose LUC-sa-mRNA + clobetasol	**	0.0087
silic LUC-sa-mRNA + clobetasol	silic LUC-sa-mRNA	ns	> 0.9999
silic LUC-sa-mRNA + clobetasol	cellulose LUC-sa-mRNA	ns	> 0.9999

cellulose LUC-sa-mRNA + clobetasol	silic LUC-sa-mRNA	****	< 0.0001
cellulose LUC-sa-mRNA + clobetasol	cellulose LUC-sa-mRNA	****	< 0.0001
silic LUC-sa-mRNA	cellulose LUC-sa-mRNA	ns	> 0.9999
14 days		Significance	P value
silic LUC-sa-mRNA + clobetasol	cellulose LUC-sa-mRNA + clobetasol	ns	0.9238
silic LUC-sa-mRNA + clobetasol	silic LUC-sa-mRNA	ns	0.6629
silic LUC-sa-mRNA + clobetasol	cellulose LUC-sa-mRNA	ns	0.3951
cellulose LUC-sa-mRNA + clobetasol	silic LUC-sa-mRNA	***	0.0005
cellulose LUC-sa-mRNA + clobetasol	cellulose LUC-sa-mRNA	***	0.0001
silic LUC-sa-mRNA	cellulose LUC-sa-mRNA	ns	> 0.9999