

Supporting Information

# **Immune Potentiation of PLGA Controlled Release Vaccines for Improved Immunological Outcomes**

Britteny J. Cassaidy<sup>1</sup>, Brittany A. Moser<sup>1</sup>, Ani Solanki<sup>2</sup>, Qing Chen<sup>1</sup>, Jingjing Shen<sup>1</sup>, Kristen Gotsis<sup>1</sup>, Zoe Lockhart<sup>1</sup>, Nakisha Rutledge<sup>1</sup>, Matthew G. Rosenberger<sup>1</sup>, Yixiao Dong<sup>1</sup>, Delaney Davis<sup>1</sup>, Aaron P. Esser-Kahn<sup>1\*</sup>

<sup>1</sup> Pritzker School of Molecular Engineering, University of Chicago, 5640 S. Ellis Ave., Chicago, IL 60637, USA

<sup>2</sup> Animal Resource Center, University of Chicago, Chicago, IL 60637, USA

\*Corresponding author E-mail: [aesserkahn@uchicago.edu](mailto:aesserkahn@uchicago.edu)

**Table of Contents**

Encapsulation Efficiency.....	3
Payload Injection Tables.....	3
Anti-OVA IgG subclasses.....	5
Example of Gating Strategy.....	7

**Table S1** Encapsulation efficiency of microparticle formulations

Encapsulation Efficiency formula

$$EE(\%) = \frac{\text{Total Amount Encapsulated}}{\text{Total Amount Initially Loaded}} \times 100\%$$

Group	CpG 1826 (%)	OVA(%)	SN50(%)	Honokiol(%)	Capsaicin(%)	Diameter (µm)
CpG OVA Micro	71.2	75.9	-	-	-	16.0 ±9.17
CpG OVA SN50 Micro	58.6	81.2	32.8	-	-	11.3 ±5.55
CpG OVA Hon Micro	31.2	65.8	-	0.07	-	11.4 ±4.07
CpG OVA Cap Micro	40.7	86.8	-	-	59.6	11.0±4.04
Empty Microparticles	-	-	-	-	-	24.1±10.3

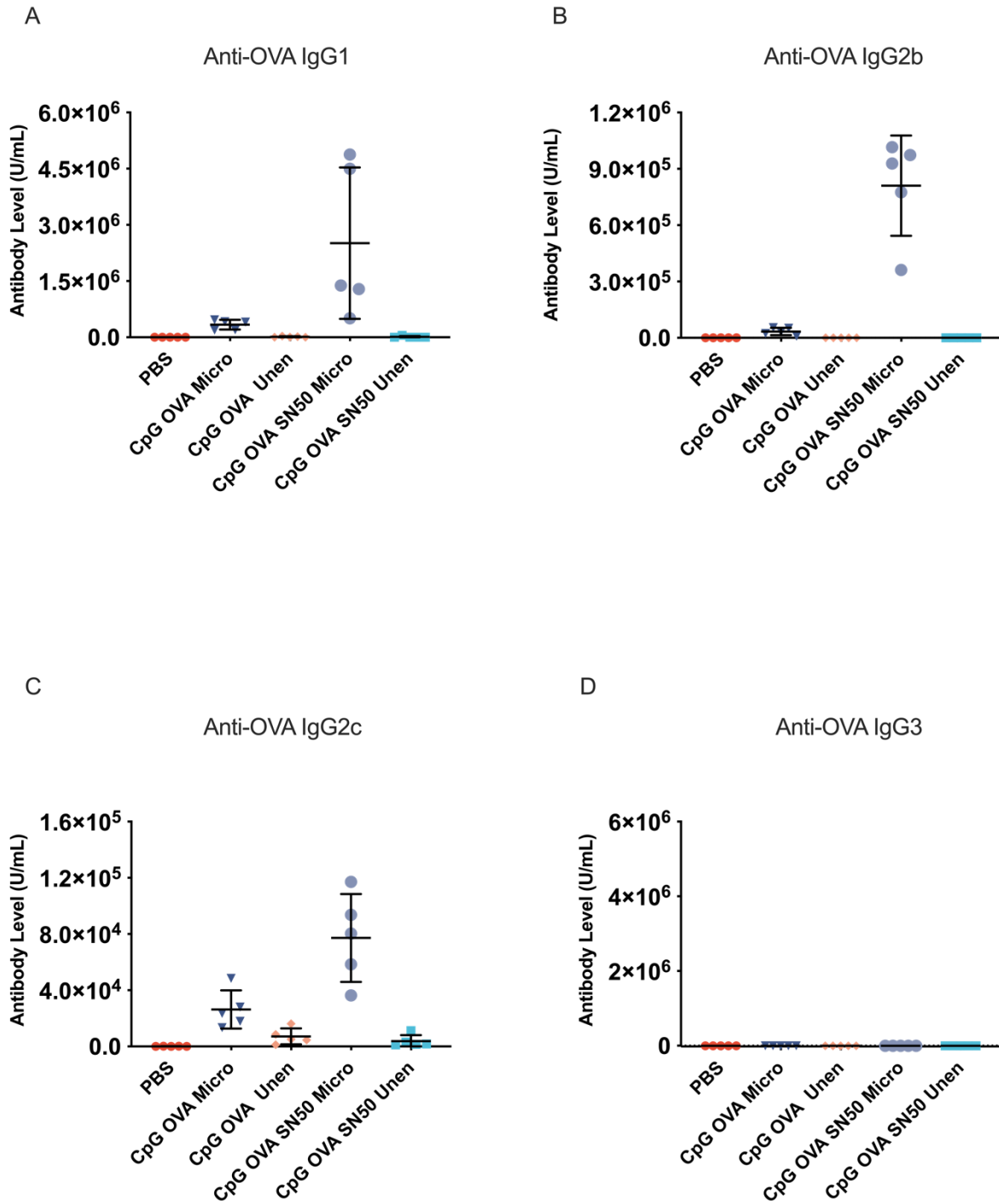
**Table S2** Payload injections for SN50 *in vivo* experiment

Group	N	CpG (µg)	OVA(µg)	SN50 (µg)	Particles (mg)	Empty Particles (mg)
PBS	10	-	-	-	-	-
CpG OVA Micro	10	6.50	52.0	-	1.00	0.13
Unencapsulated CpG OVA	10	6.50	52.0	-	-	-
CpG OVA SN50 Micro	10	6.50	45.0	17.2	1.13	-
Unencapsulated CpG OVA SN50	10	6.50	45.0	17.2	-	-

**Table S3** Payload injections for small molecule *in vivo* experiment

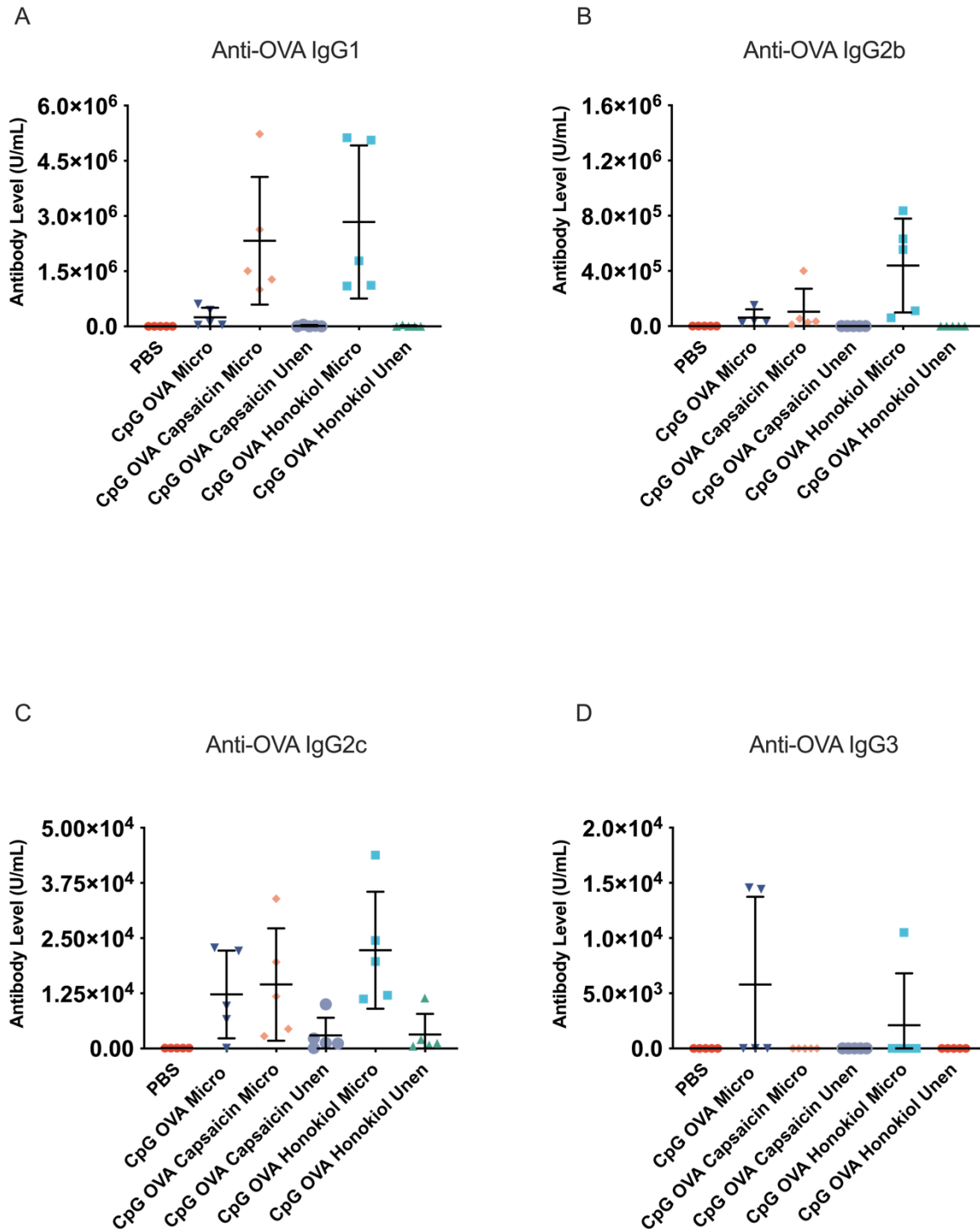
<b>Group</b>	<b>N</b>	<b>CpG (μg)</b>	<b>OVA(μg)</b>	<b>Capsaicin (μg)</b>	<b>Honokiol (μg)</b>	<b>Particles (mg)</b>	<b>Empty Particles (mg)</b>
PBS	10	-	-	-	-	-	-
CpG OVA Micro	10	5.70	41.9	-	-	-	-
CpG OVA Capsaicin Micro	10	5.70	61.2	22.3	-	1.00	0.120
Unencapsulated CpG OVA Capsaicin	10	5.70	61.2	22.3	-	0.802	0.318
CpG OVA Honokiol Micro	10	5.70	64.6	-	.0367	1.12	-
Unencapsulated CpG OVA Honokiol	10	5.70	64.6	-	.0367	-	-

**Figure S1** SN50 experiment 's anti-OVA IgG subclasses from day 28 serum. A) Anti-OVA IgG1 B) Anti-OVA IgG2b C)Anti-OVA IgG2c D) Anti-OVA IgG3





**Figure S2** Small molecule experiment's anti-OVA IgG subclasses from day 28 serum.  
 A) Anti-OVA IgG1 B) Anti-OVA IgG2b C) Anti-OVA IgG2c D) Anti-OVA IgG3



**Figure S3** Gating strategy used for tetramers staining.

