Electronic Supplementary Material (ESI) for Biomaterials Science.
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Figure S1a

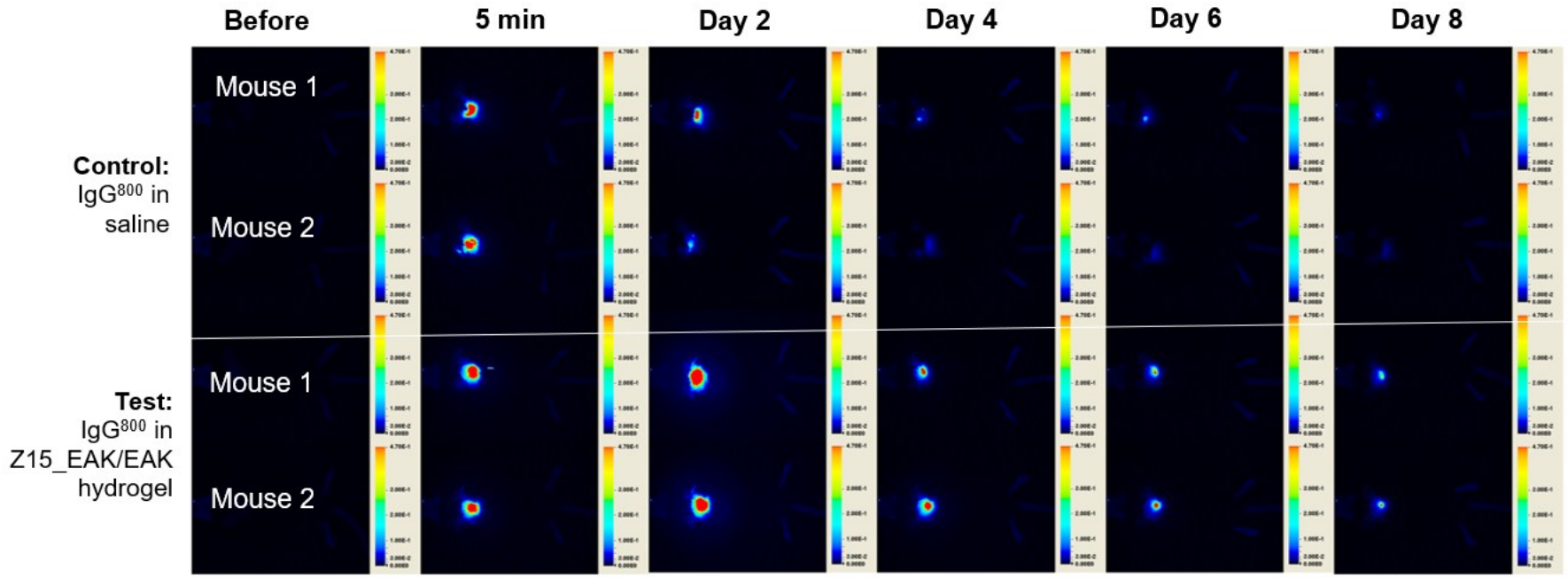

Figure S1b

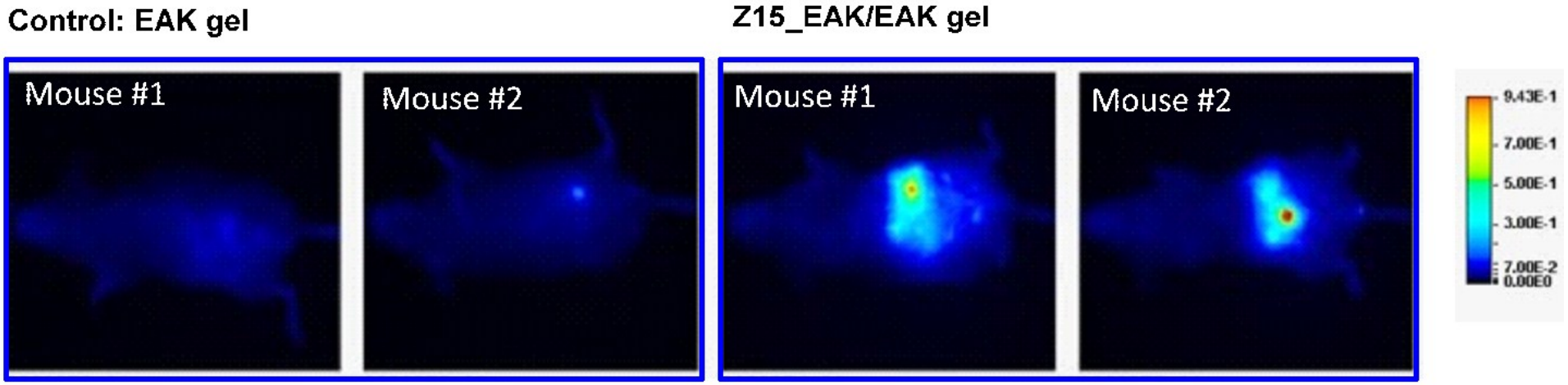

Figure S1c

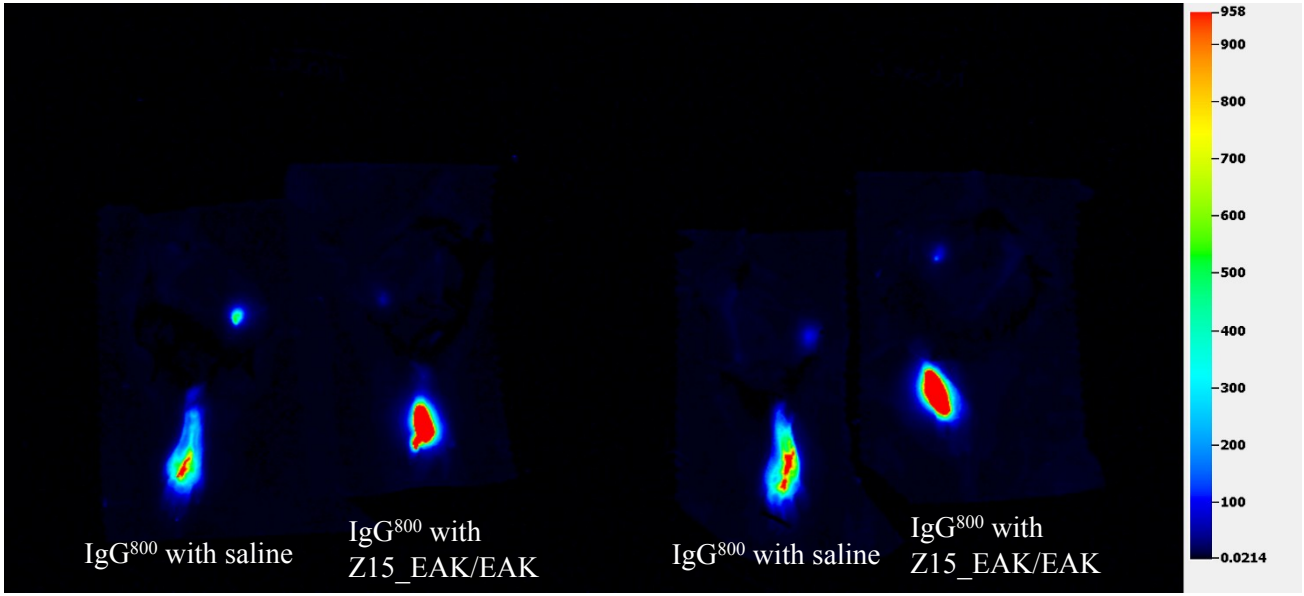

Figure S1 caption: Retention of IgG^{800} in flank and peritoneal space. (a) flank subcutaneous injection comparing Rabbit anti-sheep IgG^{800} formulated in saline or Z15_EAK (n = 2) and EAK (n=2); (b) Intra-peritoneal injection of IgG^{800} formulated with Z15_EAK and EAK on day 4. Live images in the same experiment were obtained at the same threshold and resolution (255 µm) settings and reported at the same color scale; (c) 6.5 µg of the IgG were injected into footpads, with saline (n=2) on the right and Z15_EAK/EAK gel (n=-2) on the left. The footpads were excised for *ex vivo* imaging using a Li-Cor Odyssey on day 3 with Z15_EAK/EAK group showed advantage over saline control. The image was captured in the 800-channel at 169 µm resolution, 3.2 mm focus offset.

Figure S2

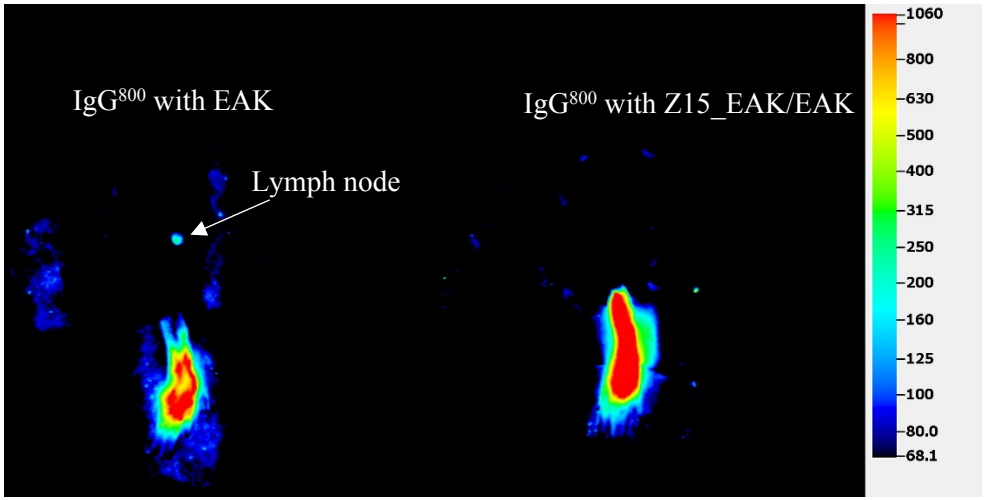

Figure S2 caption: *Ex vivo* end-point (day 28) images (Odyssey) of footpads injected with IgG^{800} admixed with EAK or Z15_EAK/EAK; images obtained in the 800-channel at 169 µm resolution, 3.2 mm focus offset and quantified with Image Studio Lite software 5.2.

Figure S3a

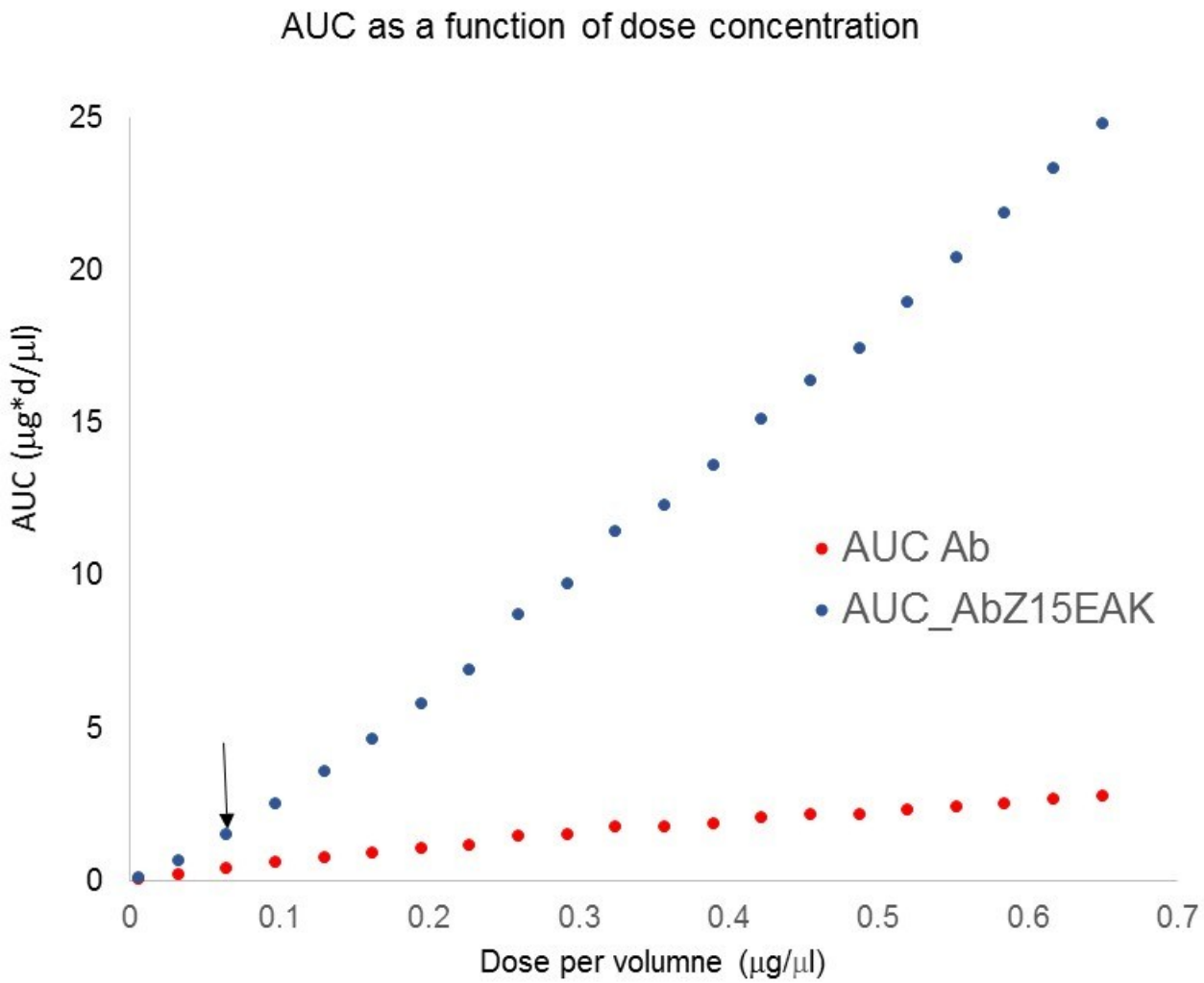
AUC as a function of dose concentration
AUC (µg*d/µl)
25
20
15
10
5
0
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
Dose per volumne (µg/µl)
AUC Ab
AUC_AbZ15EAK

Figure S3b

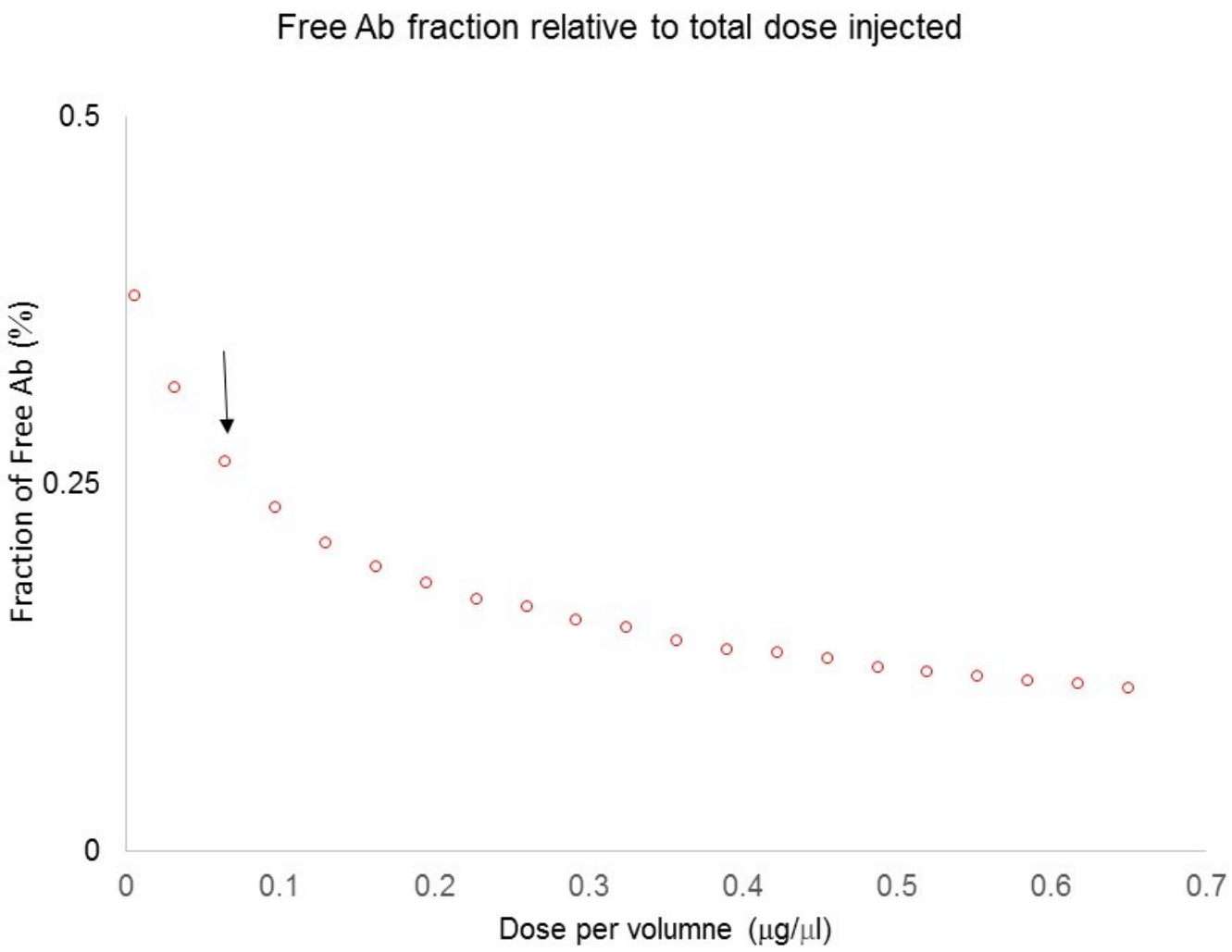
Free Ab fraction relative to total dose injected
Fraction of Free Ab (%)
0.5
0.25
0
0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
Dose per volumne (μg/μl)

Figure S3c

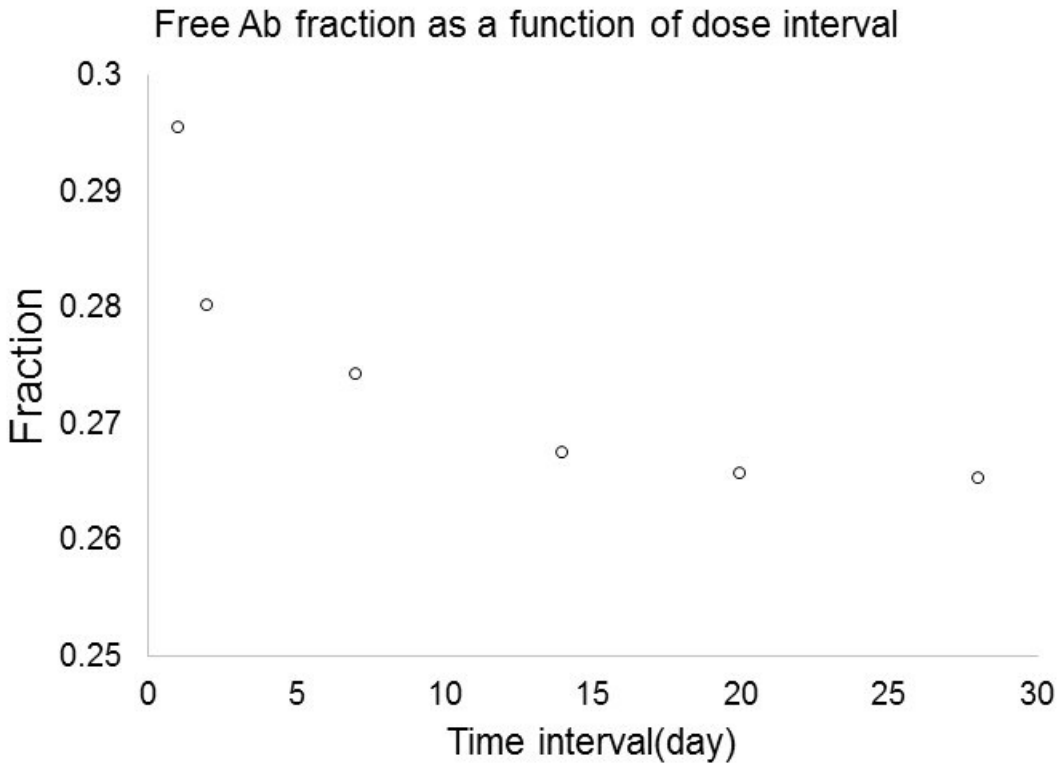

Figure S3 caption: Simulation of the impacts of dose and interval on free antibody fraction. Matlab Simbiology simulations were performed using kinetic parameters estimated from fitting *in vivo* footpad data into a one-compartmental model. Arrows indicate the *in vivo* dose of antibody (0.065 µg/µl) administered with the intact Z15_EAK/EAK system. (a) AUC change with the varying dose of antibody (± 10 times of 0.065 µg/µl). (b) AUC of free antibody and AUC of intact antibody and peptide coacervate were obtained from simulations. The free antibody fraction was then calculated by dividing AUC_Ab by AUC_AbZ15EAK. (c) Free antibody fraction when repeating the 0.65 µg/µl dose one time at different time intervals.

Figure S4

Figure S4 caption: A Cy3-labled IgG was mixed with EAK (left 3 vessels) or Z15_EAK/EAK (right 3) and incubated for 22 days at 37°C. The release medium at the top was replaced daily. The image showed retention of the antibody with the Z15_EAK/EAK coacervate on day 22.