Figure S1a

Control: IgG<sub>Σ0</sub> in saline

Test: IgG<sub>Σ0</sub> in Z15_EAK/EAK hydrogel

Before | 5 min | Day 2 | Day 4 | Day 6 | Day 8

Mouse 1
Mouse 2

Mouse 1
Mouse 2

Figure S1b

Control: EAK gel

Z15_EAK/EAK gel

Mouse #1
Mouse #2

Mouse #1
Mouse #2
**Figure S1c**

---

**Figure S1 caption:** Retention of IgG\textsuperscript{800} in flank and peritoneal space. (a) flank subcutaneous injection comparing Rabbit anti-sheep IgG\textsuperscript{800} formulated in saline or Z15\_EAK (n = 2) and EAK (n=2); (b) Intra-peritoneal injection of IgG\textsuperscript{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 \(\mu\text{m}\)) settings and reported at the same color scale; (c) 6.5 \(\mu\text{g}\) 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 \(\mu\text{m}\) resolution, 3.2 mm focus offset.
Figure S2 caption: *Ex vivo* end-point (day 28) images (Odyssey) of footpads injected with IgG\textsuperscript{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
Figure S3b

Free Ab fraction relative to total dose injected
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 caption: A Cy3-labeled 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.