

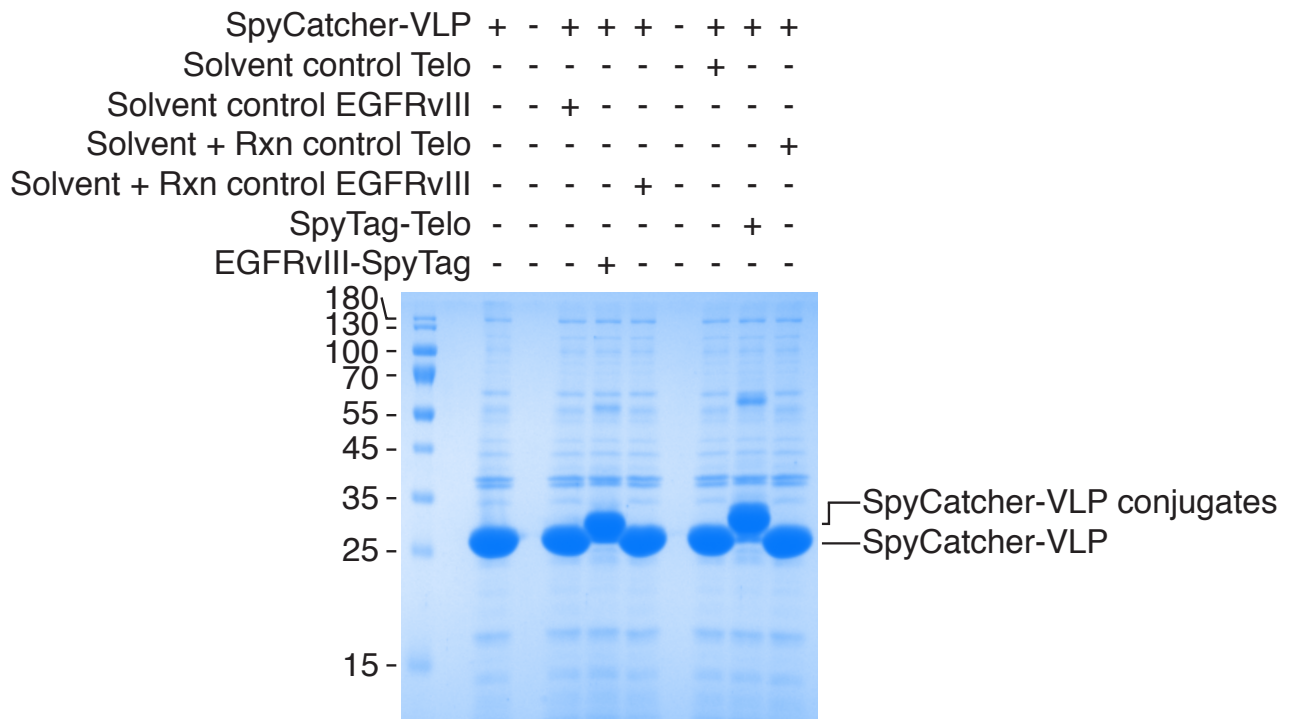
## Supplementary Information

### Plug-and-Display: decoration of Virus-Like Particles via isopeptide bonds for modular immunization

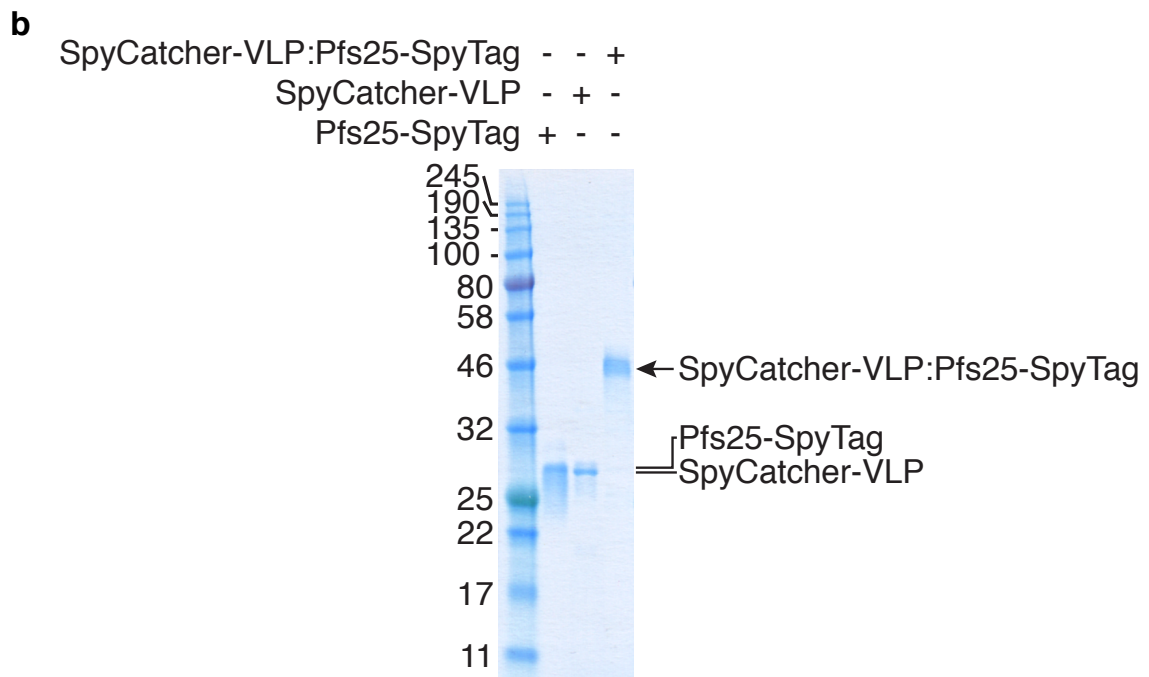
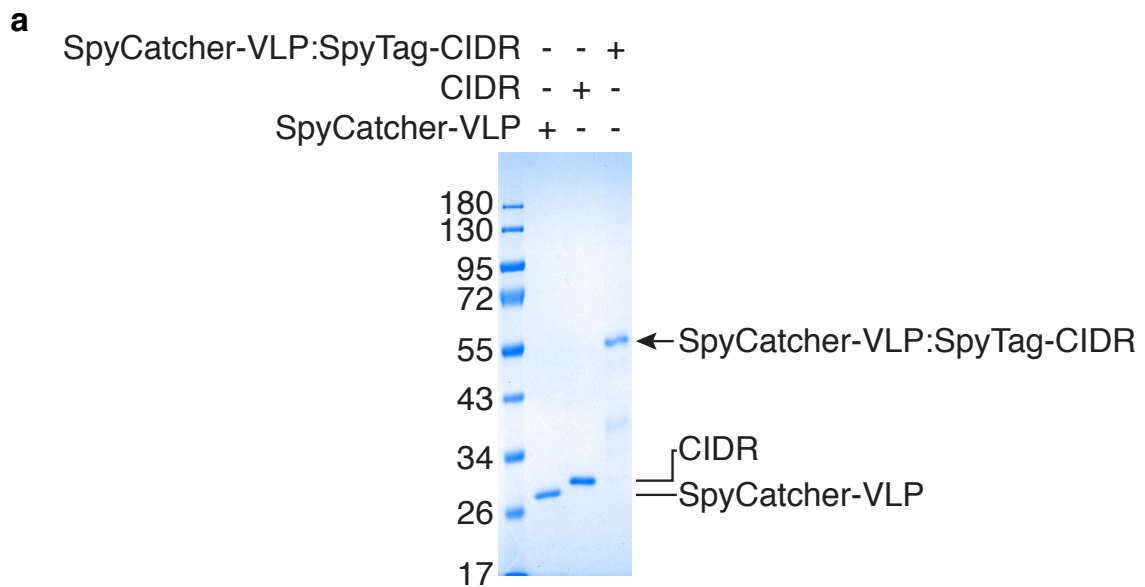
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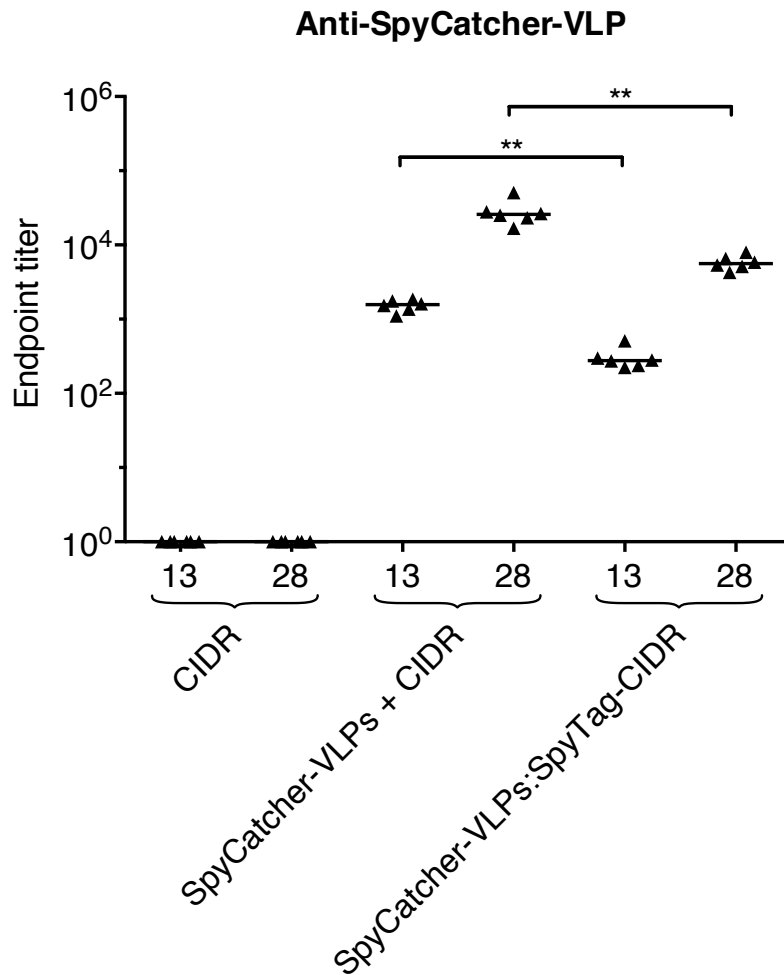
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**Supplementary Figure S1.** SpyCatcher-VLPs reacted efficiently with SpyTag-linked peptides. SpyCatcher-VLPs were incubated for 3 h at 22 °C with the synthetic peptides SpyTag-Telo or EGFRvIII-SpyTag. Control incubations of SpyCatcher-VLPs with solvent or solvent plus reaction buffer (Solvent + Rxn) appropriate to each peptide were also performed. Samples were then boiled in SDS-loading buffer and analyzed by SDS-PAGE with Coomassie staining.



**Supplementary Figure S2.** SDS-PAGE on conjugates used for immunization. (a) SpyCatcher-VLP:SpyTag-CIDR conjugation. SpyCatcher-VLPs, CIDR(IT4var07) and the purified SpyCatcher-VLP:SpyTag-CIDR(IT4var07) conjugate were boiled in SDS-loading buffer and analyzed by SDS-PAGE with Coomassie staining. (b) SpyCatcher-VLP:Pfs25-SpyTag conjugation. SpyCatcher-VLPs, Pfs25-SpyTag and the purified SpyCatcher-VLP:Pfs25-SpyTag conjugate were boiled in SDS-loading buffer and analyzed by SDS-PAGE with Coomassie staining.



**Supplementary Figure S3.** Antibody response to SpyCatcher-VLP after immunization. 6 mice per condition were immunized on days 0 and 14 with CIDR, SpyCatcher-VLPs mixed with CIDR, or SpyCatcher-VLPs covalently conjugated to SpyTag-CIDR. The total IgG anti-SpyCatcher-VLP titer was determined by ELISA at day 13 or 28, by coating the ELISA plate with purified SpyCatcher-VLP. Triangles represent the value for each mouse, while the horizontal bars represent the medians for each group. \*\*  $p < 0.01$ , determined by Mann-Whitney test ( $n=6$ ).