**Supplementary material**

# Integrating Single Domain Antibodies into Field-Deployable Rapid Assays

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**Table S1.** Tail names and amino acid sequences

| Tail name | Tail sequence |
|-----------|---------------|
| Hop tail | GAGGSGGAPASNRCSQGSCWN |
| Spy tag (ST) | AHIVMVDAYKPTK |
| Gold binding peptide (gbp) 1 | MHGKTQATSGTIQS |
| Gbp2 | LKAHLPPSRLPS |
| Synthetic zipper (synzip) 5 | NTVKELKNYIQELEERNAELKNLKEHLKFAKAELEFELAAHKFE |
| synzip 6 | QKVAQLKNRVAYKLKENAKLENIVARLENDNANLEKDIANLEKDIANLERDVAR |
| synzip 17 | NEKEELKSKKAELRNRIEQLKQKREQLKQKIANLRKEIEAYK |
| synzip 18 | SIAATLENDLARLENENARLEKDIANLERDLAKLEREEAYF |
| E34 | ITIRAAFLEKENTALRTEIAELEKEVGRSENIVSKYETRYGPL |
| Rhizavidin (RZ) | FDASNFKDFSSIASASSSWQNQSGSTMIIQVDSFGNVSGQYVNRAQGTGCQN SPYPLTGRVNGTFIAFSVGWNNSTENCNSATGWTGYAQVNGNNTEIVTSWNL AYEGGSGPAIEQGGQDTFQYVPTTENKSLLKD |


**Table S2.** Sequences of sdAb used in the VFA

| SdAb name | SdAb sequence |
|-----------|---------------|
| ACVE | DVQLVESGGGLVQPGGSLRLTCAASGLIFGSYAMGWFRQAPGKAREFVAAISWSGGDTYADSVK GRFTISRDNAKNTVYLQMNSLEPEDTAVYSCAAVGSKYYISKDAKDYGYWGQGTQVTVSS |
| A3H2 | EVQLVESGGGLVQAGDSLRLSCTASGRIFSRAVMGWFRQAPGKEREFVAAISAAPGTAYYAFYADS VRGRFIISADSAKNTVYLQMNSLKPEDTAVYYCAADLKMQVAAYMNQRSVDYWGQGTQVTVSS |
| D12f | EVQLQASGGGLVQDGGSLRLSCAVAGRPLSDYGVGWFRQASGKEREFVAVISGSGIVTDYANSVK GRFTISRDVAKNVVHLQMNSLKPEDTAVYYCAALTNPVYAASRNSNDYGYWGQGTQVTVSS |
| F6H2Y | QVQLVESGGGLVQAGGSLRLSCATSGGTFSDYGMGWFRQAPGKEREFVAAIRRNGNGGNGIEYA DSVKGRFTISRDNAKNTVYLQMNSLTPEDTAVYYCAASISGYAYNTIERYNYWGQGTQVTVSS |
| E2 | EVQLQASGGGLVQAGGSLRLSCAASGRTDSTQHMAWFRQAPGKEREFVTAIQWRGGGTSYTDS VKGRFTISRDNAKNTVYLEMNSLKPEDTAVYYCATNTRWTYFSPTVPDRYDYWGQGTQVTVSS |
| C2 | EVQLQASGGGLVRPGGSLRLSCAASGFTFSSYAMMWVRQAPGKGLEWVSAINGGGGSTSYADS VKGRFTISRDNAKNTLYLQMNSLKPEDTAVYYCAKYQAAVHQEKEDYWGQGTQVTVSS |
| B6 | EVQLQASGGGLVQAGDSLRLSCVAVSGRTISTFAMGWFRQAPGKEREFVATINWSGSSARYADPV EGRFTISRDDAKNTVYLEMSSLKPGDSAVYYCASGRYLGGITSYSQGDFAPWGQGTQVTVSS |

**Figure S1**.



Evaluation of different ACVE capture formats.  Upper left spot = ACVE; upper right spot = ACVE-ACVE; lower left spot = SCVE-ST; lower right spot = ACVE-synthetic zipper 17

**Figure S2**.



Evaluation of two ACVE-based constructs on AuNPs.  Left is ACVE-hop and right is the trivalent construct ACVE-ACVE-ACVE.  Miriad test cartridges were spotted with a monoclonal anti-SEB (mAb 2F2) on the top, and SEBv on the bottom.  Next 100 µL of SEBv (10 µg/mL) was applied to the cartridge, followed by a wash and the AuNPs.  Cartridges were washed again and photographed.