

Communication

Signal Enhancement in Oriented Immunosorbent Assays: A Balance between Accessibility of Antigen Binding Sites and Avidity

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Table S1. ELISA for the detection of cTnI using non-oriented whole-IgG or oriented rIgG. Data are represented as mean \pm SD ($n = 4$). cTnI, cardiac troponin I.

cTnI (ng/ml)	Oriented antibodies (fluorescence a.u.)	Non-oriented antibodies (fluorescence a.u.)
0.41	102.30 \pm 9.21	9.45 \pm 7.84
0.82	185.42 \pm 7.51	102.01 \pm 44.18
1.64	321.72 \pm 21.8	131.13 \pm 14.57
3.27	457.96 \pm 28.4	248.21 \pm 45.67

Table S2. ELISA for the detection of PSA-ACT using non-oriented whole-IgG or oriented rIgG. Data are represented as mean \pm SD ($n = 4$). PSA-ACT, prostate-specific antigen-alpha(1)antichymotrypsin

PSA-ACT (ng/ml)	Oriented antibodies (fluorescence a.u.)	Non-oriented antibodies (fluorescence a.u.)
1.03	116.01 \pm 29.21	42.61 \pm 1.19
5.14	223.15 \pm 23.56	206.35 \pm 3.39
10.28	271.93 \pm 17.91	280.44 \pm 3.71
25.70	374.76 \pm 7.78	374.11 \pm 14.50

Table S3. ELISA for the detection of AFP using non-oriented whole-IgG or oriented rIgG. Data are represented as mean \pm SD ($n = 4$). AFP, alpha-fetoprotein.

AFP (ng/ml)	Oriented antibodies (fluorescence a.u.)	Non-oriented antibodies (fluorescence a.u.)
3.57	68.07 \pm 7.24	102.16 \pm 21.41
7.13	154.84 \pm 5.60	246.58 \pm 18.74
35.66	472.10 \pm 52.44	870.03 \pm 38.46
356.55	652.02 \pm 8.25	1257.82 \pm 78.43

Table S4. ELISA for the detection of ferritin using non-oriented whole-IgG or oriented rIgG. Data are represented as mean \pm SD ($n = 4$).

Ferritin (ng/ml)	Oriented antibodies (fluorescence a.u.)	Non-oriented antibodies (fluorescence a.u.)
3.26	20.55 \pm 3.65	16.37 \pm 2.83
16.32	62.20 \pm 6.96	67.32 \pm 3.94
40.80	71.13 \pm 2.39	101.88 \pm 14.48
81.60	95.65 \pm 11.91	131.88 \pm 33.08
163.2	110.87 \pm 18.07	152.78 \pm 22.63

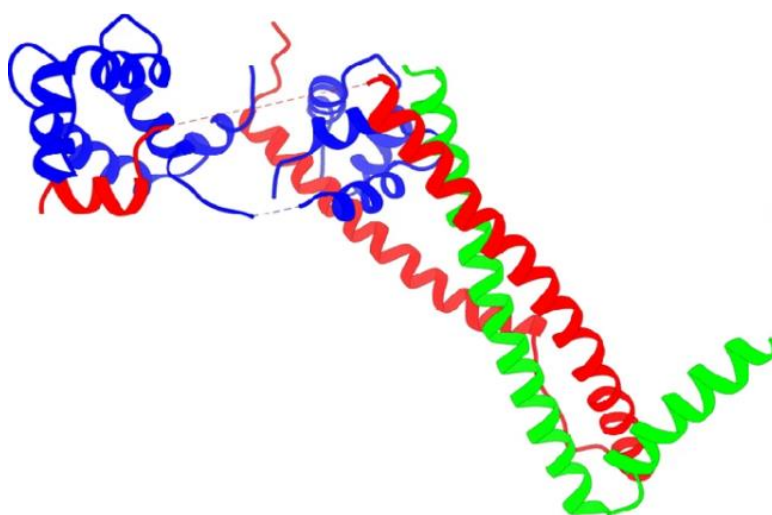


Figure S1. Core domain of human cardiac troponin. Cardiac troponin I (red) is a rod-shaped protein of 23.9 kDa and Stokes radius of 3 nm. In blue troponin C and in green troponin T. PDB accession code 1J1D [23].

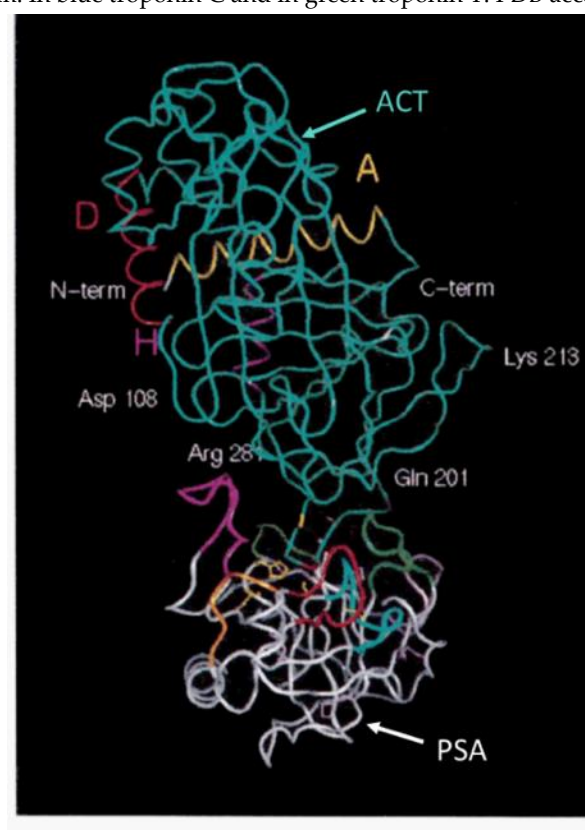


Figure S2. Prostate-specific antigen (PSA) in white complexed with alpha(1)-antichymotrypsin (ACT) in blue [15].

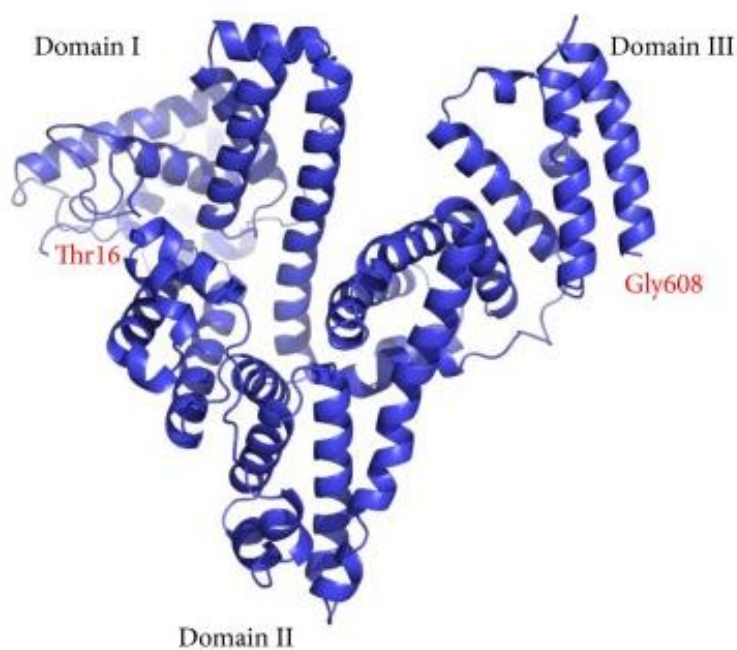


Figure S3. Alpha-fetoprotein (AFP) monomer structure model. AFP is a V-shaped protein of about 70 kDa with Stokes radius of 3.26 nm [24].

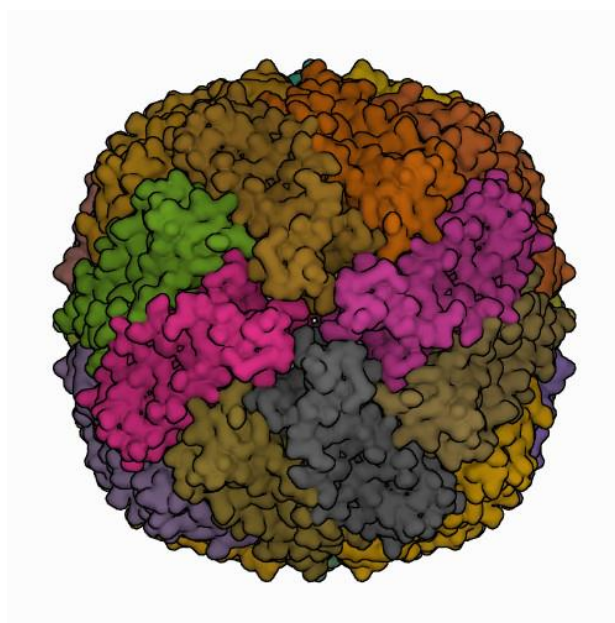


Figure S4. Cartoon representation of Ferritin, a globular heterodimeric protein of 474 kDa with hydrodynamic radius of 6 nm. PDB accession code 1FHA [25].