# Antibody Affinity Maturation and Optimization

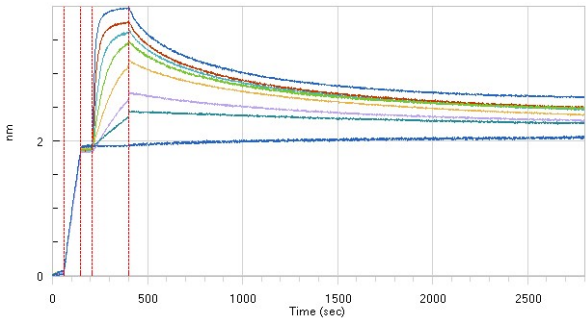
AvantGen's antibody affinity maturation and optimization platform is comprised of a comprehensive human antibody database that informs the rapid design of focused libraries based on the antibody to be optimized, and a proprietary eukaryotic yeast display system that enables the use of ultra-high-throughput, highly precise FACS to screen the focused libraries simultaneously for antibodies with higher affinity, expression levels, and thermo-stability. Our system routinely yields affinity improvement of ≥10-1,000 fold compared to the parental antibodies.

| AvantGen Technology Platform | |
|---|---|
| ***Attributes*** | ***Performance*** |
| **Affinity** | Improve affinity by 10-1,000 fold, primarily by reducing off-rate |
| **Specificity** | Fully retain parental antibody's antigen binding specificity |
| **Cross-reactivity** | Engineering-in species cross reactivity, or engineering-out isoform cross-reactivity, etc |
| **Developability** | Removal of undesirable residues, post-translational modification sites, increase of thermo-stability to improve developability |

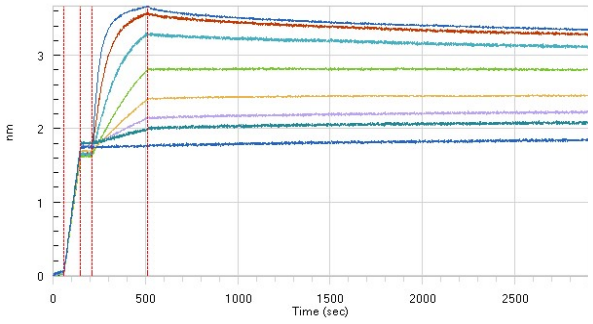
| Sample ID | $K_D$ (M) | $K_{on}$ (1/Ms) | $K_{off}$ (1/s) | Full $R^2$ | Fold Improvement |
|---|---|---|---|---|---|
| Wild Type | 5.24E-07 | 2.75E+05 | 1.44E-01 | 0.99 | 1 |
| Clone 1 | 2.60E-10 | 6.08E+04 | 1.58E-05 | 0.99 | **2,000** |
| Clone 2 | <1.0E-12 | 8.28E+04 | <1.0E-07 | 0.99 | **>1,000** |

***Affinity maturation results in antibody (Fab) clones with more than 1,000 fold improvement of affinity***

**Parental Antibody (WT)**




**Affinity Matured Antibody**

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