
Dedication to the IVD industry?
We I.V.DO that ™

Antibody engineering for IVD applications

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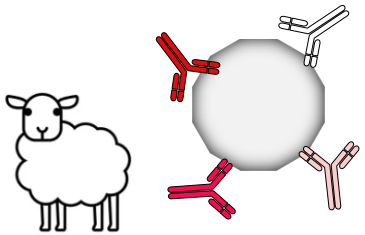
History of the antibodies

1800's
Nobel Prize 1901

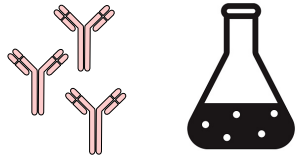
1970's: Mouse hybridomas
Nobel Prize 1984

Now: Recombinant technologies
Nobel Prize 2018

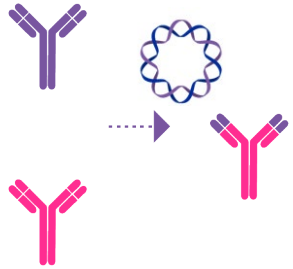
Polyclonal antibodies



Monoclonal antibodies



Engineered antibodies



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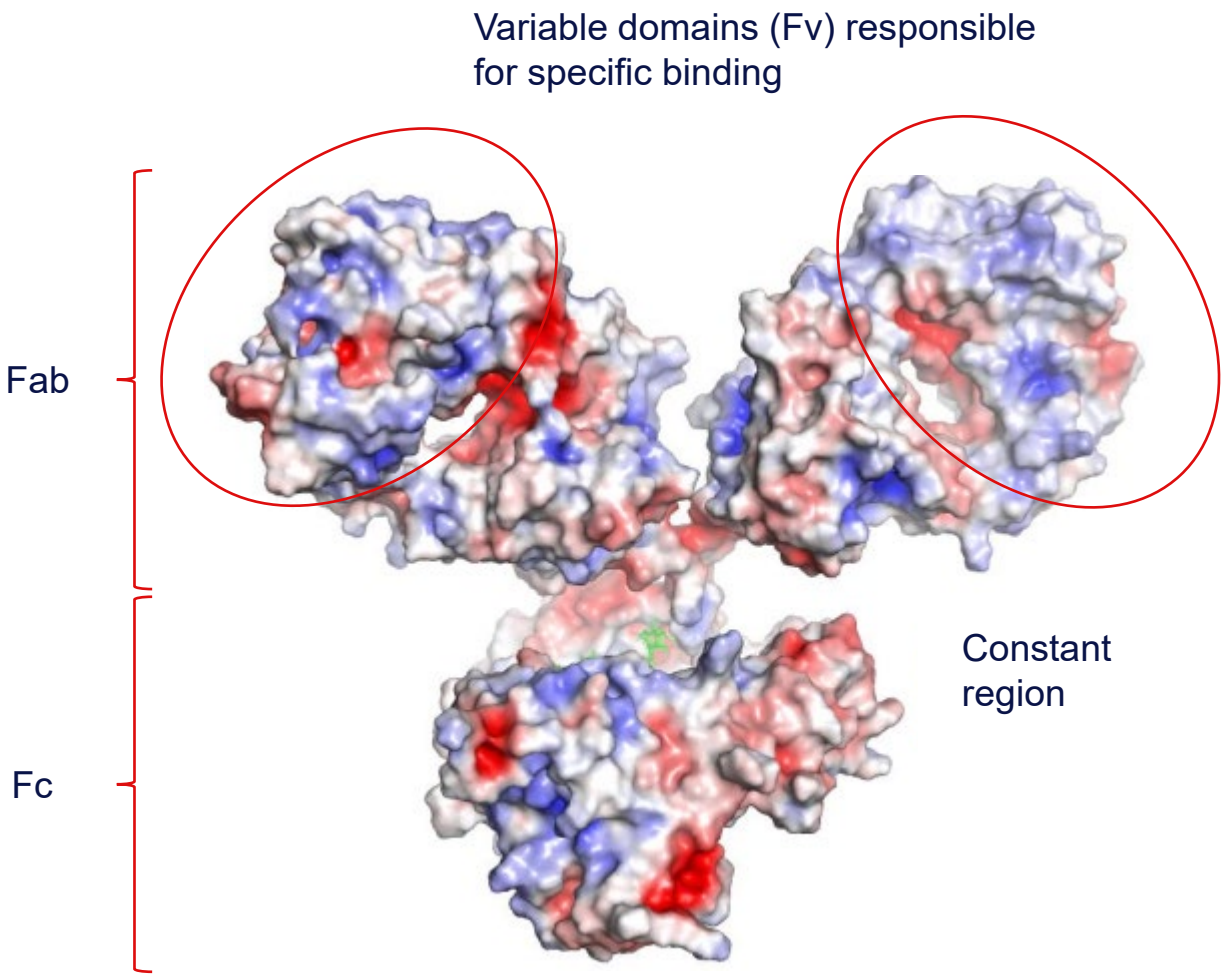
Antibody engineering means modification of antibody sequence to enhance or reduce wanted properties



- ✓ Enhancing specificity or affinity
- ✓ Improving stability or reducing aggregation
- ✓ Directed evolution through structure analysis and rational design

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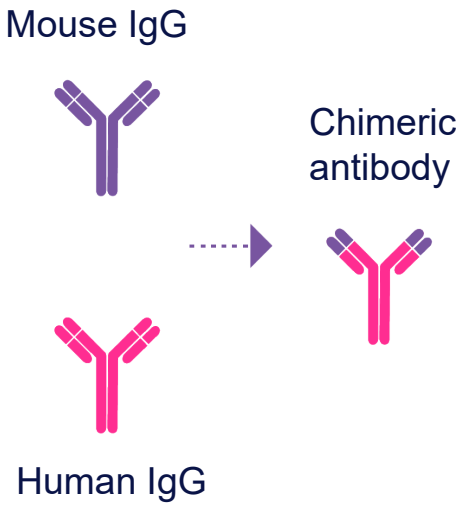
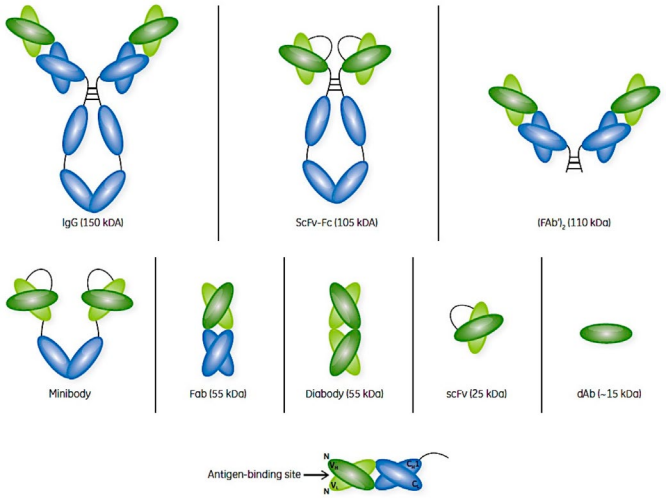
Antibody engineering for IVD applications

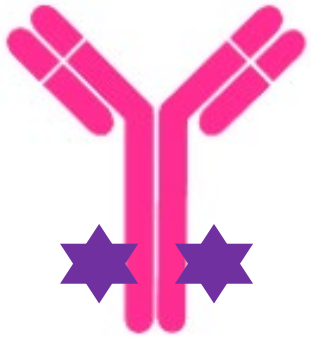


- ✓ Chimeric antibodies to reduce HAMA effect and others interferences in IVD assays



https://doi.org/10.3390/antib4030259

- ✓ Smaller size enable high-density binding and improved accessibility



- ✓ Add-on functionalities for purification and site directed conjugation

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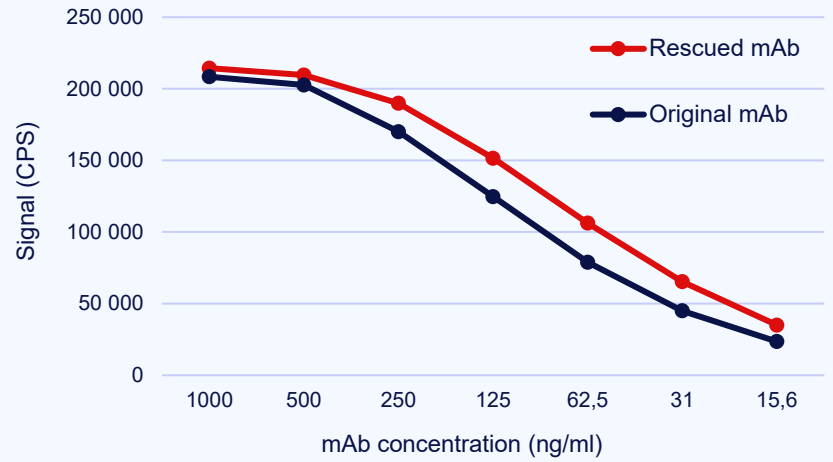
Case Example 1 - **Antibody rescue** for non-viable hybridomas

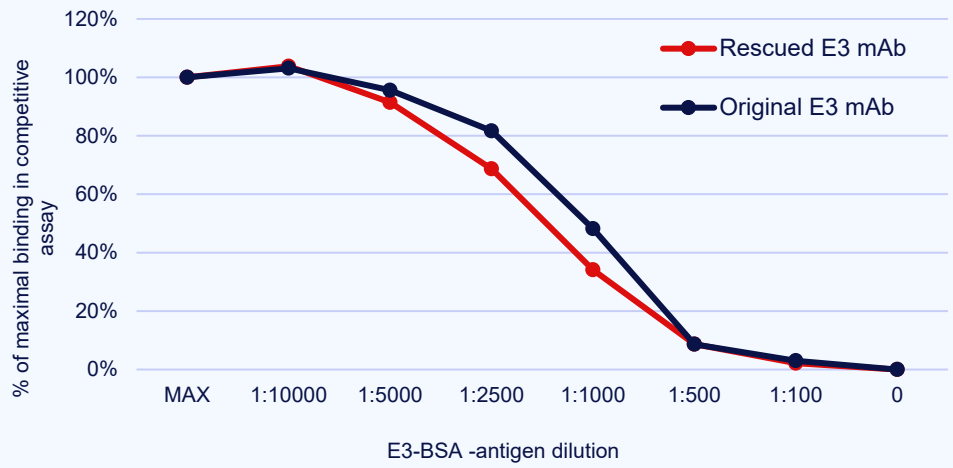
Drugs of Abuse: LSD antibody rescued and expressed in mouse IgG_1 framework

- ✓ Secured the supply for a high-performing mAb with minimal changes



Womens' Health: E3 antibody rescued and re-engineered into human IgG_1 framework

- ✓ Secured the supply, and provided a new mAb version with reduced HAMA effect risk



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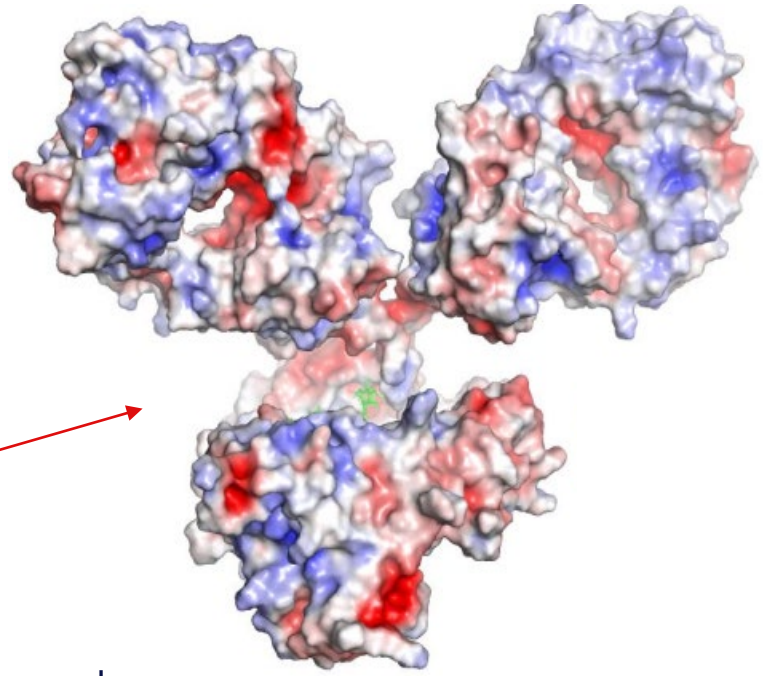
Case Example 2 - **Targeted antibody engineering** for aggregation prone mAb



Framework switch

- Recombinant variants with varying constant regions
- Reduced aggregation tendency observed

Point mutations in aggregation-prone regions

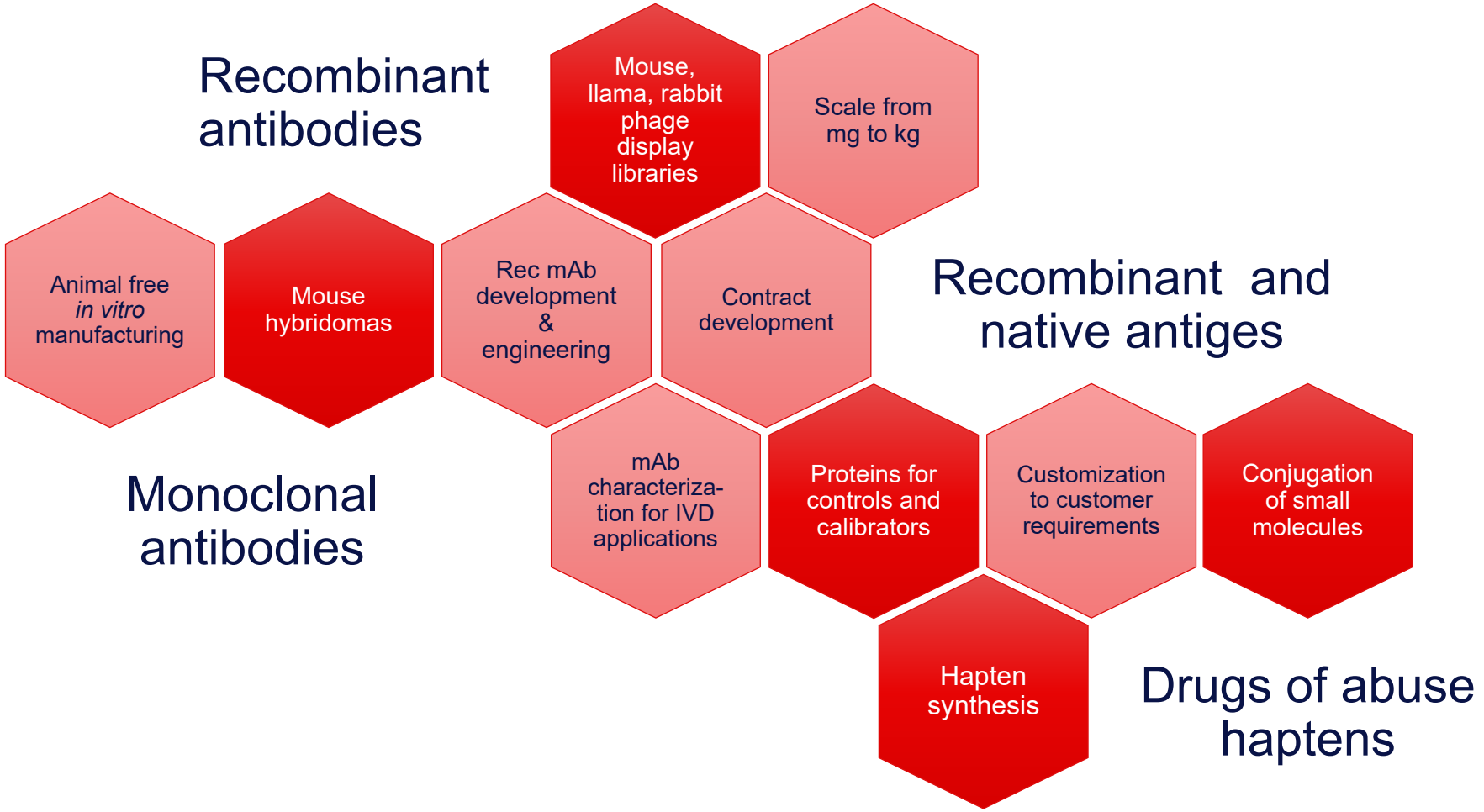
- Computational modelling for several mAbs with varying solubility properties
- Aggregation-prone regions identified for the aggregating mAb
- Suggested point mutations currently studied

Historically, antibody discovery limited by the immune response repertoire of animals – mostly mice.

In the future, novel mAbs can be discovered computationally and any mAb can be optimized.

How can the IVD industry leverage this technology disruption?

Our R&D capabilities



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R&D innovations that
keep pace with yours?

We I.V.DO that™

Thank you for your time

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