

# AI-Guided Design of Functional Antibodies with Tailored Properties Against Challenging Targets



Ben Holland, Michael Mahdavi, Isa Murrell, and Gherici Hassaine

Sbarc | Spark 5th Floor, Maindy Rd, Cardiff, United Kingdom, CF24 4HQ · info@antiverse.io · www.antiverse.io

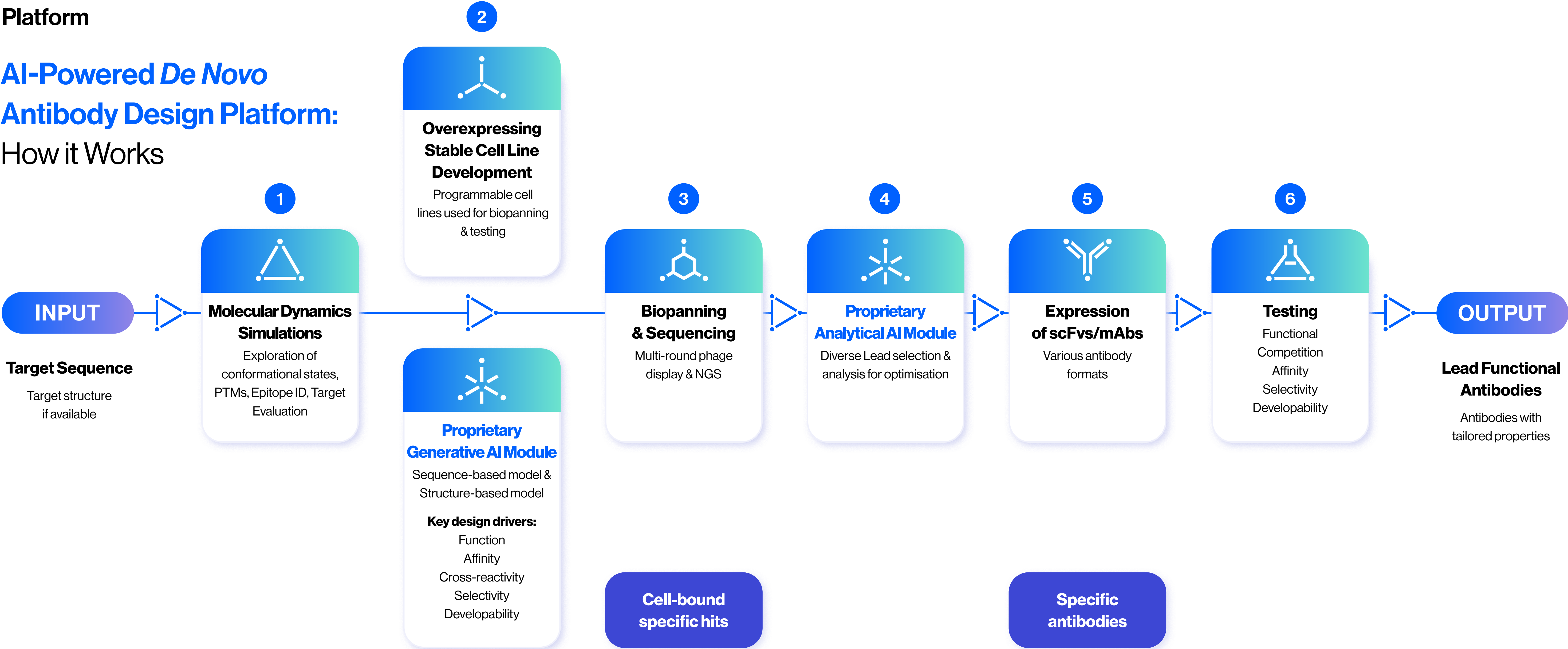
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## Overview

Antiverse's AI-powered de novo antibody design platform combines proprietary generative AI models with a lab-in-the-loop workflow to design functional antibodies with tailored properties against challenging targets. The platform enables applications such as domain- and epitope-specific design, agonist design, and developability-guided design across multiple antibody formats.

## Platform

### AI-Powered De Novo Antibody Design Platform: How it Works



## Lab in a Loop

### Design

We generate target specific antibody sequences using multiple SOTA generative design methods

1

### Build

We develop cells that hyper-express the target receptor in order to test antibody candidates

2

4-WEEK LEARNING LOOP

### Learn

We add experimental results back into the database to train our next generation ML models

4

### Experiment

We validate target specific antibodies in the wet-lab to test their binding affinity against target receptors

3

## Platform Highlights

140+

Overexpressing stable cell line catalogue

10pM  $K_D$

Best-in-class affinity achieved

4 months

Full campaign (design → lead)

Multiple antibody formats

Including scFv, VHH and full-length IgG

Novel agonist design

Epitope-specific design

Domain/epitope specificity • Developability-first design • Cross-reactivity • VHH • mAb

## Case Studies

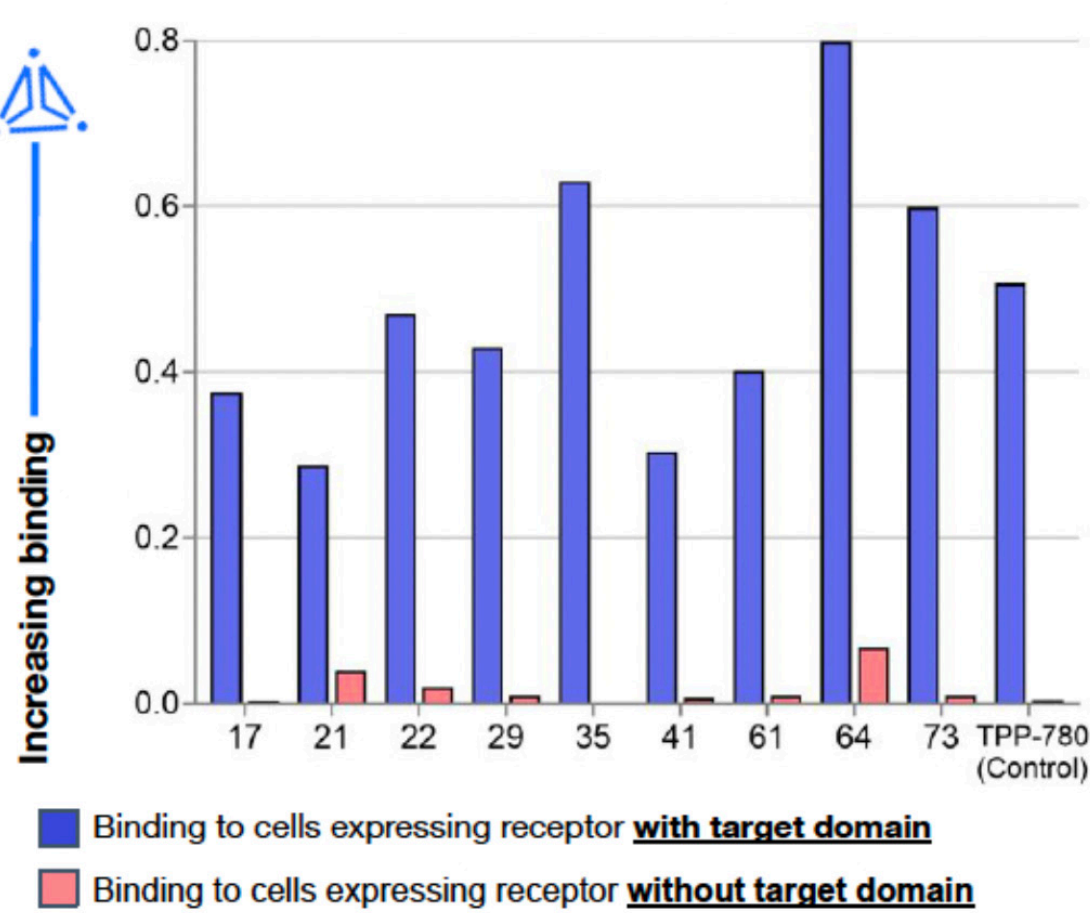
### 1 De Novo Design

#### De Novo Design of Domain-Specific Antibodies Against a Difficult Transmembrane Protein in Four Months

- AI-guided, heavily-constrained design plus phage display selection produced high-affinity, domain-specific antibodies to the receptor and the target domain
- Funnel summary:  $>10^8$  CDR-H3 designs 360k selected 77 mAbs 14 receptor binders (KD to 10 pM) 9 domain-specific binders

Partnered with top 15 Pharma

#### Domain-specific antibodies



### 2 Agonist Design

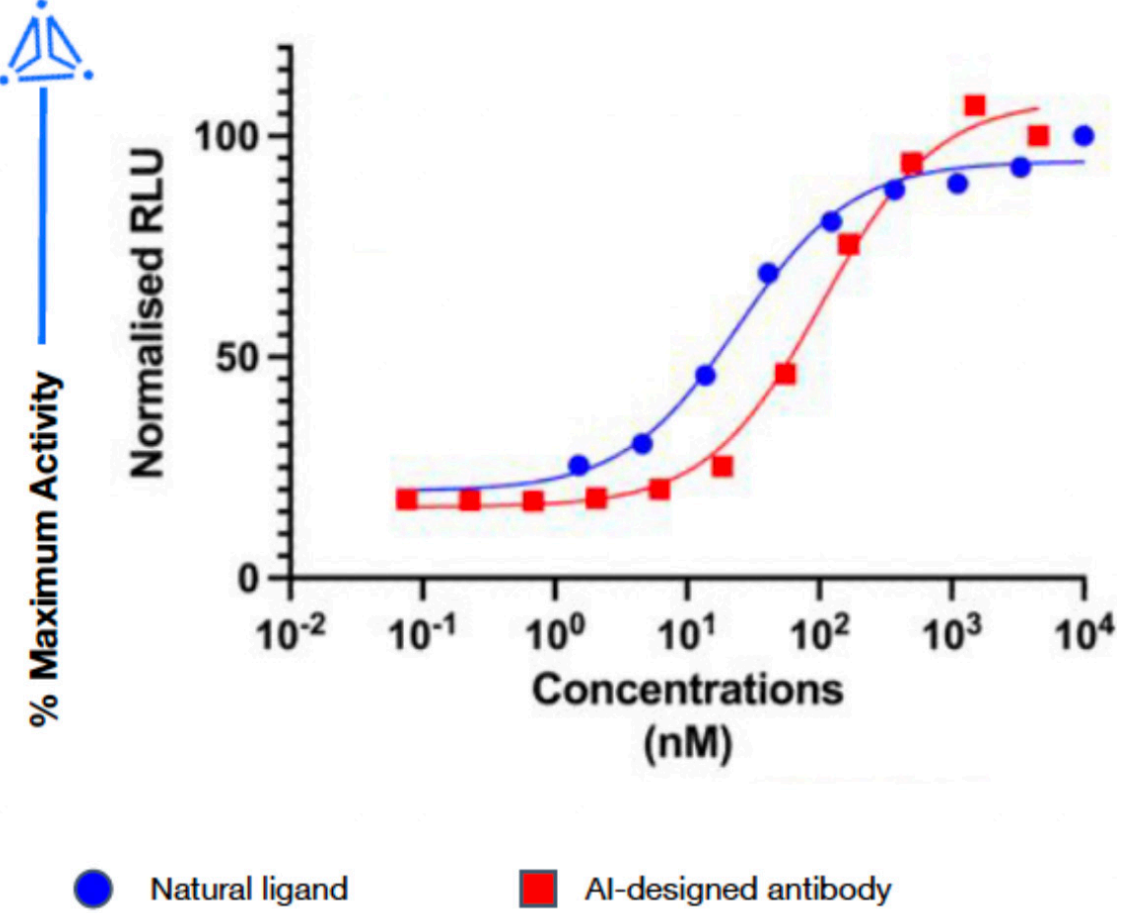
#### 100+ Functional Agonist VHHs Against a Difficult GPCR

- Sequential multi-library approach allowed for design of diverse and functional antibodies
- Out of 520 binders identified, 103 (20%) were functional

| Name        | CP774_G_C11 | CP765_C_C05 | CP762_C_H04 | CP768_B_A06 | Positive control |
|-------------|-------------|-------------|-------------|-------------|------------------|
| E.C.50 (nM) | 0.66        | 0.86        | 0.89        | 0.91        | 1.75             |

Partnered with leading Pharma

#### Potency of AI-designed antibody compared to natural ligand



### 3 Developability

#### Diverse PD1 Antibodies Developed by Partner for Oncology

- 9 of 13 antibodies from our library demonstrated enhanced binding to PD1 and enhanced PD1-PDL1 blockade
- Currently in non-human primate toxicology studies aimed at supporting a clinical development programme



Antibodies currently in late stage preclinical development

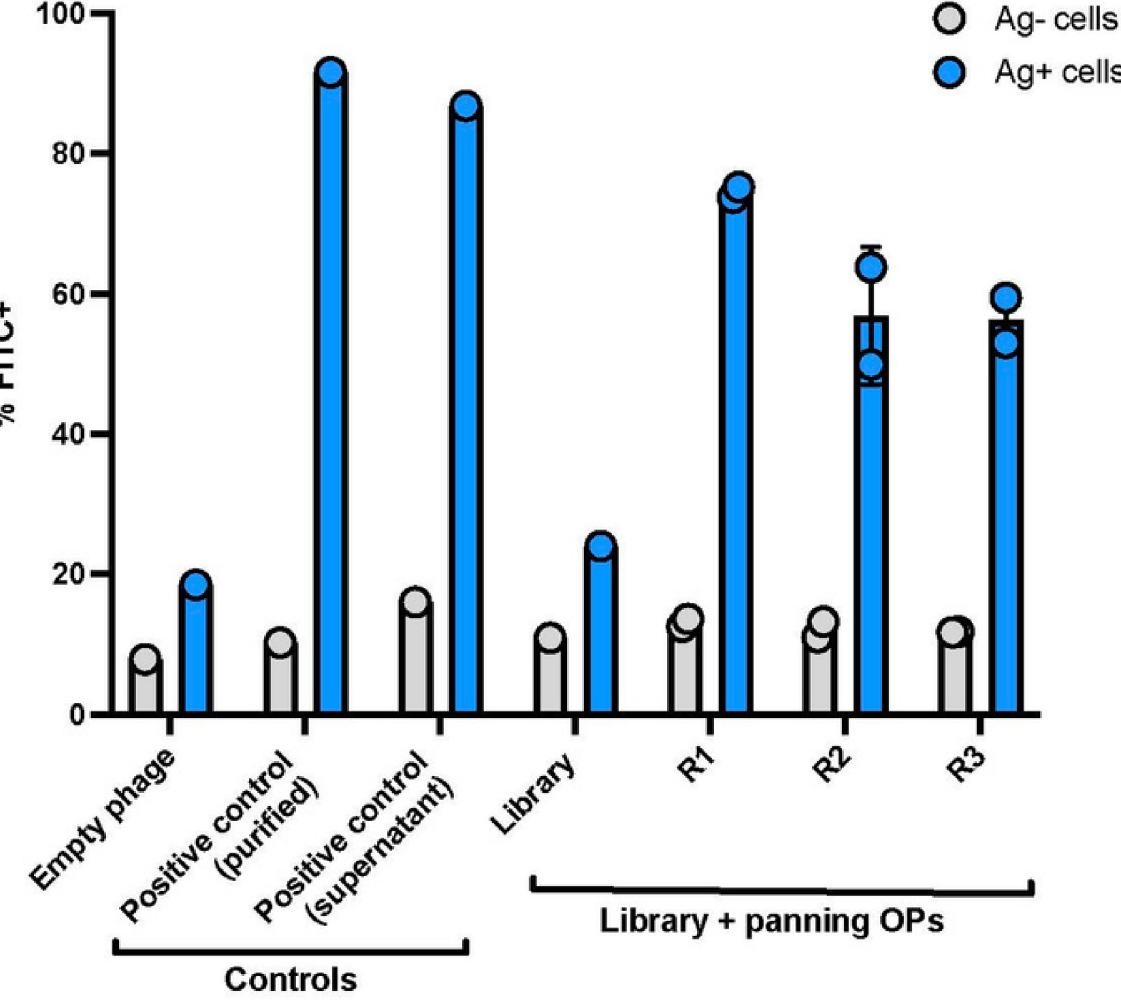
### 4 Epitope-Specific Design

#### De Novo Design of Nanobodies Specific for Hard-to-Access GPCR ECL Epitopes

- Structure-informed library design focused sequence diversity toward exposed GPCR ECL regions, enabling selection of nanobodies with domain- and epitope-specific binding profiles.
- Pool phage output coming from panning on purified GPCR validated on stable cell lines over expressing the target

Partnered with top 15 Pharma

#### Polyclonal FCM



Contact us

See our deck





|                                                              |                                                              |                                                              |                                                             |                                                             |                                                             |
|--------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------|-------------------------------------------------------------|-------------------------------------------------------------|-------------------------------------------------------------|
| <div>HEX<br/>CMYK</div> <div>#0061ff<br/>100, 40, 0, 0</div> | <div>HEX<br/>CMYK</div> <div>#0080ff<br/>100, 25, 0, 0</div> | <div>HEX<br/>CMYK</div> <div>#3094ec<br/>100, 10, 0, 0</div> | <div>HEX<br/>CMYK</div> <div>#42aaed<br/>80, 10, 0, 0</div> | <div>HEX<br/>CMYK</div> <div>#52bfef<br/>65, 5 0, 0</div>   | <div>HEX<br/>CMYK</div> <div>#b9e9ee<br/>35, 0, 10, 0</div> |
| <div>HEX<br/>CMYK</div> <div>#3d47d4<br/>95, 80, 0, 0</div>  | <div>HEX<br/>CMYK</div> <div>#626be3<br/>75, 60, 0, 0</div>  | <div>HEX<br/>CMYK</div> <div>#9284e6<br/>60, 55, 0, 0</div>  | <div>HEX<br/>CMYK</div> <div>#a183e7<br/>50, 50, 0, 0</div> | <div>HEX<br/>CMYK</div> <div>#ba9be3<br/>35, 45, 0, 0</div> | <div>HEX<br/>CMYK</div> <div>#e8c3f2<br/>17, 33, 0, 0</div> |

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|-------------------------------------------------------------|-------------------------------------------------------------|------------------------------------------------------------|-------------------------------------------------------------|
| <div>HEX<br/>CMYK</div> <div>#6ce4cd<br/>55, 0, 35, 0</div> | <div>HEX<br/>CMYK</div> <div>#eea3d6<br/>15, 50, 0, 0</div> | <div>HEX<br/>CMYK</div> <div>#ebebeb<br/>10, 7, 7, 0</div> | <div>HEX<br/>CMYK</div> <div>#000000<br/>0, 0, 0, 100</div> |
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