

## **Application of an AI-Ecosystem for Faster and Better Antibody Development**

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### Introduction

- > AI ecosystem: Accelerate the **Drug discovery** and **CMC** process of **antibody** development
- > AI molecular design and optimization: structure simulation, assessment and optimization
- > AI-enabling site-specific integration: Bridge the discovery and production
- > Tailored media development: AI media library and optimization feed recommendation

#### **Drug Discovery**

**Optimization** 

CMC

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Pr

A

Ecosystem

**Antibody Sequence** Generation

**Ab Engineering and** 

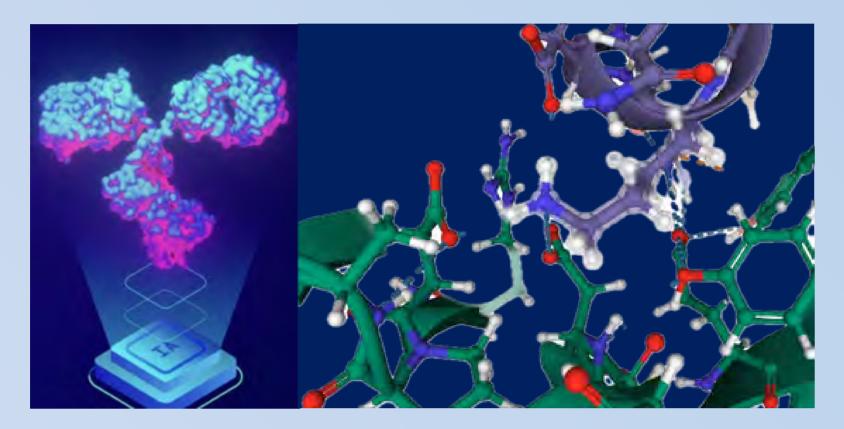
**PCC Evaluation** 

Cell Line Development

Media Development

**IND** Filing

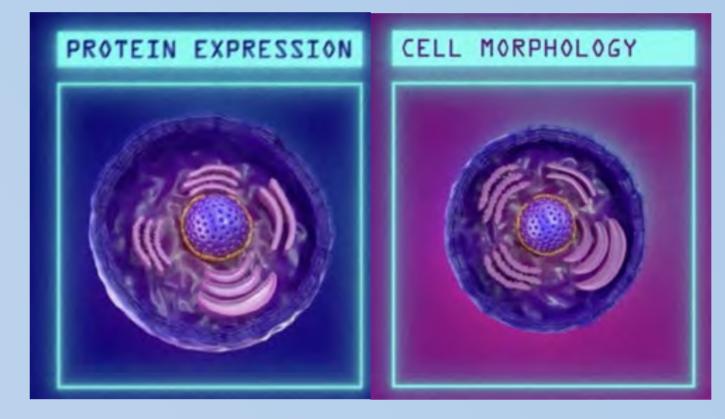
**ΛlfaD** AfaBod



The antibody sequence was processed with the AI platform for structure and docking modeling (based on 200,000 PDB and inhouse data).







The hot spot in CHO cell for Site-Specific Integration was selected using Visual Recognition (based on 40TB in-house cell image database).

The best component concentration in media was tailored by Transferring learning (based on 12,000+in-house media formulation database).



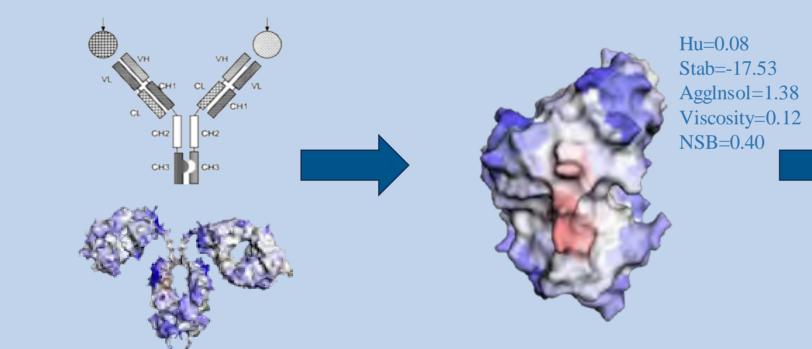
ΛlfaDAX AlfaBodi



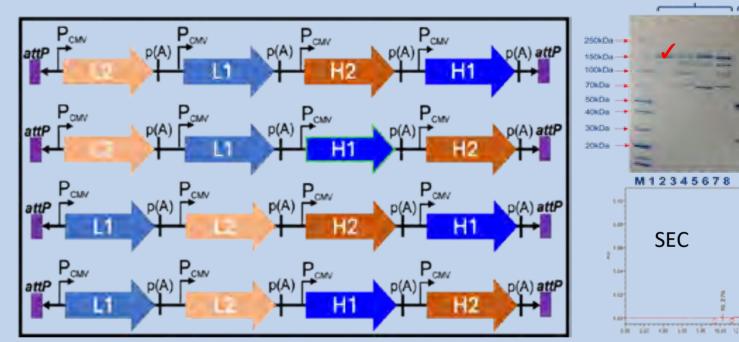




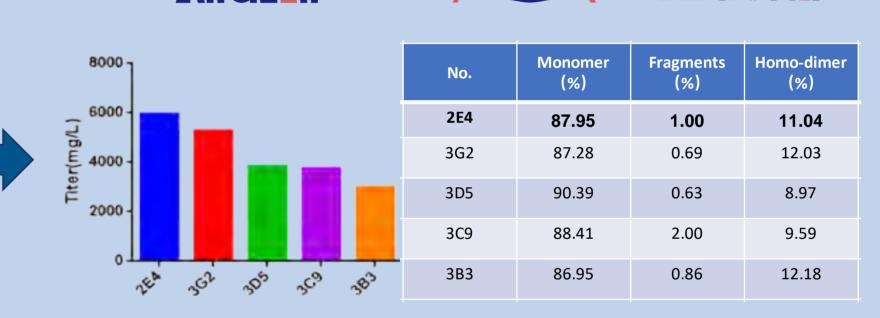




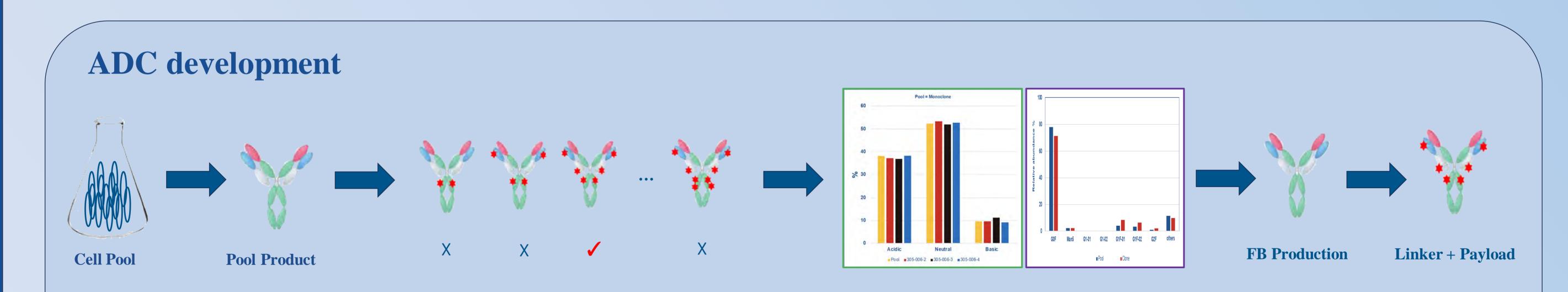
1 Molecular simulation and optimization based on the structure using AlfaDAX platform in days.



2 Test and select different vector design using **site-specific integration** cell line platform AlfaCell in **6 weeks**.



cell line and tailored media 3 Monoclonal development using AlfaCell, AlfaMedX, and AlfaOPA totally in 8 weeks.



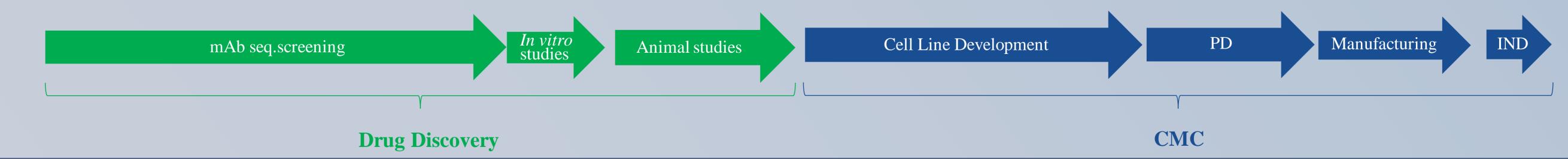
1 Using site-specific integration cell line AlfaCell to develop homogeneous cell pool in 6 weeks.

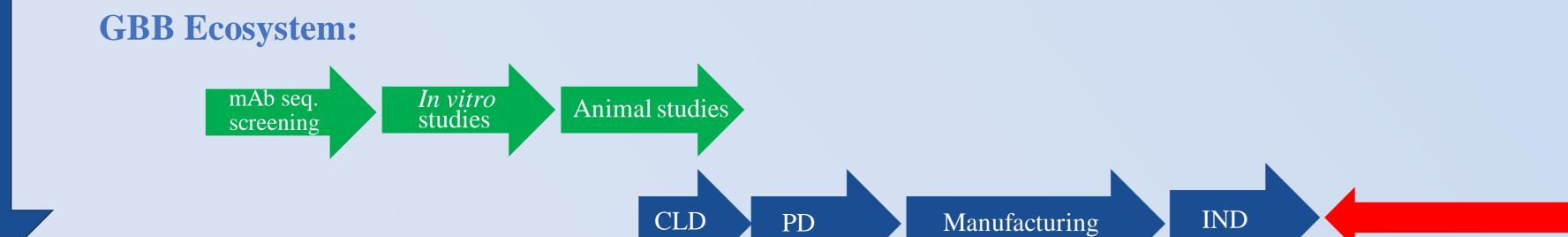
2 The antibodies from different cell pools were used for conjugation and quality assessment ahead of schedule.

3 The antibody qualities were same in the SSI cell pool and monoclonal cell, thus the monoclonal cell was selected from the **best cell pool** for further works in less than 3 weeks.

### Months 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26

#### **Traditional Process:**





#### **13 Months Saved**

# Benefits