

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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Ecosystem

Antibody Sequence Generation

Ab Engineering and

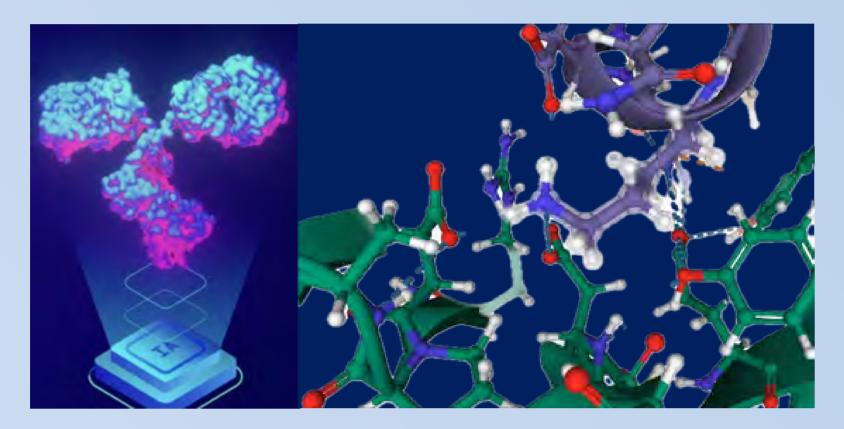
PCC Evaluation

Cell Line Development

Media Development

IND Filing

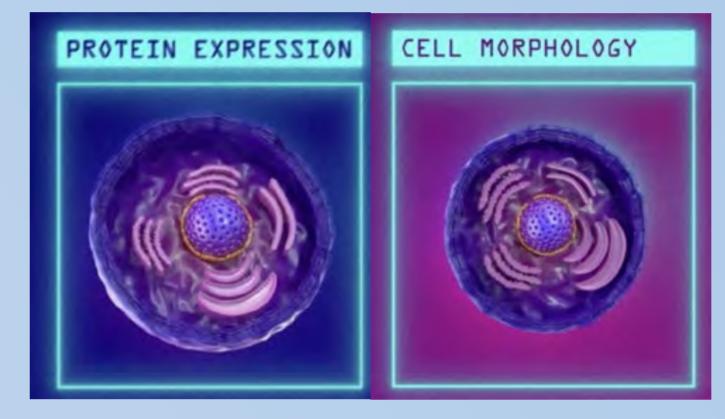
ΛlfaD AfaBod



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).



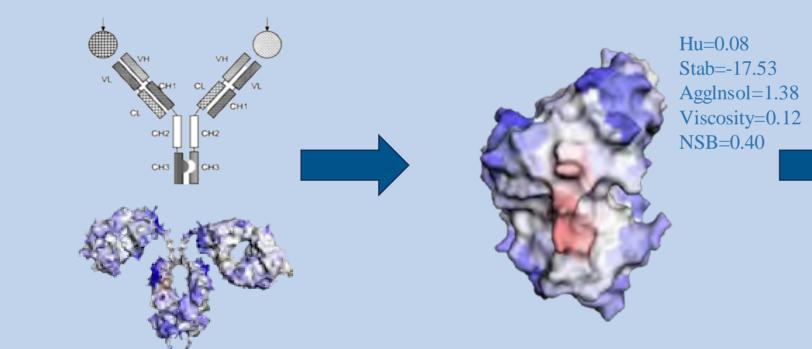
ΛlfaDAX AlfaBodi



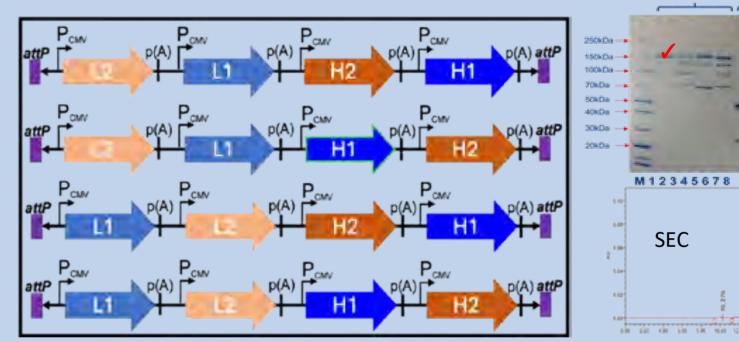




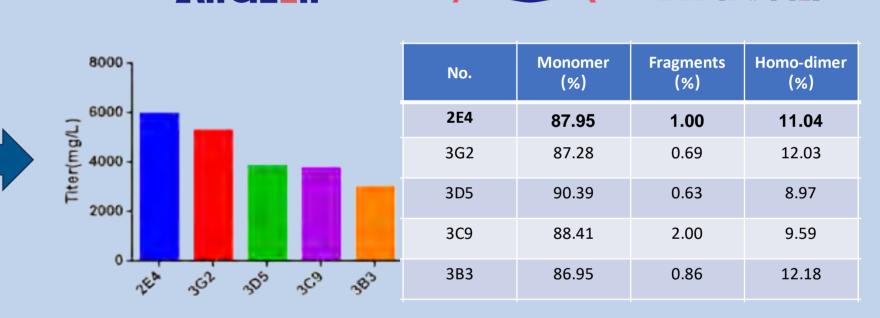




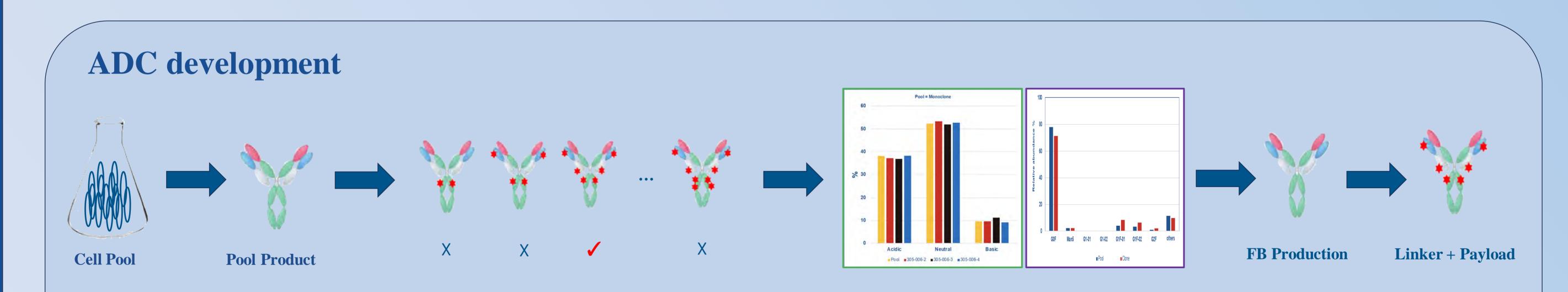
1 Molecular simulation and optimization based on the structure using AlfaDAX platform in days.



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.



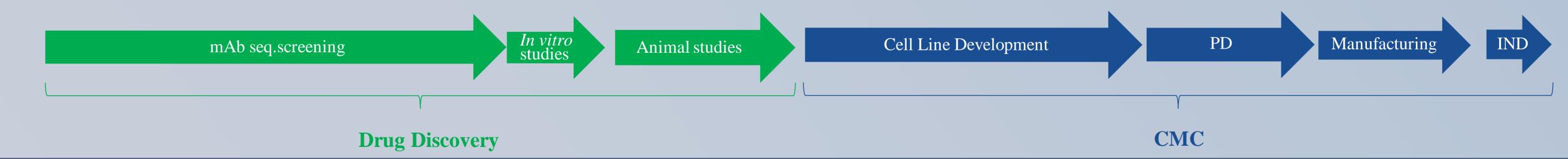
1 Using site-specific integration cell line AlfaCell to develop homogeneous cell pool in 6 weeks.

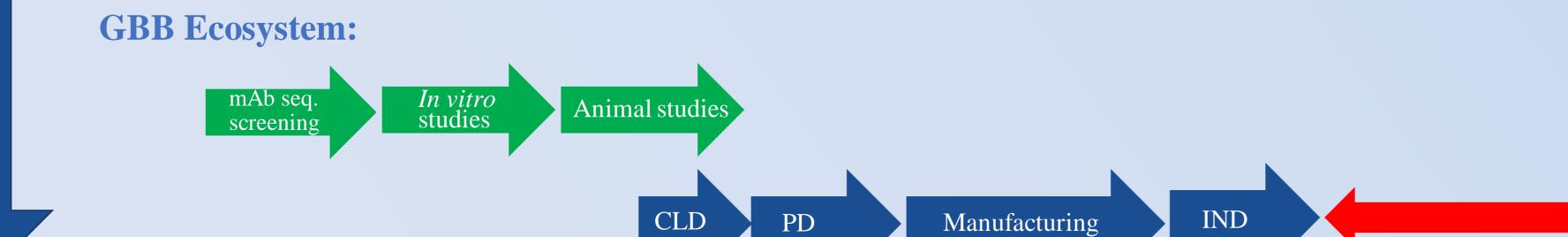
2 The antibodies from different cell pools were used for conjugation and quality assessment ahead of schedule.

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