integral molecular

Case Study:

How Lipoparticles rescued a CX3CR1 discovery program to enable MAb progression to the clinic

THE NEED

Boehringer Ingelheim

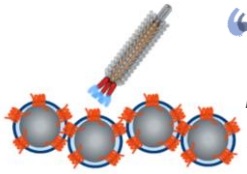
Boehringer Ingelheim and Ablynx sought to discover first-in-class inhibitory MAbs against the GPCR chemokine receptor CX3CR1 by using an immune phage library. Panning on cells did not yield the antibodies needed for success, and a new phage panning strategy was required to identify inhibitory antibodies.

THE SOLUTION

Lipoparticle Phage Panning

A Lipoparticle-based phage panning rescued the CX3CR1 MAb discovery program.

"The higher density of CX3CR1 on the VLPs allowed the identification of a diverse set of VHH with different profiles with respect to cross-reactivity and potency."



"Panning with CX3CR1-expressing VLP led to the identification of Family 101 showing all the desired functionalities with potent binding and blocking to both human and cynomolgus CX3CR1."

Low et al., 2020, mAbs

THE IMPACT

Discovery of a Lead Antibody

Antibodies isolated through Lipoparticle panning provided the basis of BI 655088, a potent CX3CR1 antagonist with therapeutic potential.

First in Human Clinical Trial

Lipoparticles enabled BI 65088 to enter Phase 1 clinical development for the treatment of chronic kidney disease (NCT02696616), representing the first clinical trial of a MAb targeting CX3CR1.

Panning Strategy	Successful MAbs	MAb Development
Cells	X	**Failure:** No cross reactivity with cynomolgus
Cells	X	**Failure:** Incomplete inhibition
Cells	X	**Failure:** Weak affinity for human and cynomolgus CX3CR1
Lipoparticles	✓	**Success:** Strong inhibition and binding to human and cynomolgus CX3CR1. Lead development and progression to Phase I clinical trial.

Looking for more information? Contact us:

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