FairJourneyBio
THE ANTIBODY COMPANY

AtomicLevel cryo-EM

Fact Sheet

Atomic insight
Engineering decisions you can trust

EPITOPE MAPPING | STRUCTURE-BASED DESIGN | <3.5 Å RESOLUTION | SAN DIEGO HUB

Porto · Cambridge · San Diego

AtomicLevel Cryo-EM is FairJourney Bio's solution package that brings your therapeutic discovery programs into focus through atomic-resolution structural insights

FairJourney Bio recognizes that structure determination supports informed decision-making throughout the therapeutic discovery process, from candidate selection to lead validation. As such, FJBio provides end-to-end cryo-EM solutions that deliver deposition-ready atomic models through integrated sample preparation, data collection, image processing, and model building workflows.

With a state-of-the-art cryo-EM facility in San Diego, featuring two latest-generation electron microscopes and dedicated high-performance computing infrastructure, FJBio delivers high-quality structural data within accelerated timelines. Solved atomic models feed directly into FairJourney Bio's antibody discovery and engineering platforms, enabling focused library design, structure-guided optimization, and epitope-focused discovery.

BACKGROUND

Why partner with FJBio for AtomicLevel cryo-EM

Dedicated San Diego hub

Two 5th generation Titan Krios 300 kV microscopes with automated data collection and a dedicated team of highly experienced cryo-EM experts.

<3.5 Å resolution

With additional data collection and extensive detergent screens, every effort is made to achieve a sub-3.5 Å density map of your (membrane) protein, antibody-target or small molecule-target complex.

<5 weeks turnaround

Integrated and on-the-fly data processing, with dedicated scientists across Europe and the US ensuring continuous analysis and rapid delivery of high-resolution density maps and atomic models.

Deposition-ready output

Expertly reconstructed density maps and high-quality model building, ensuring the validated structural models are accurate and reliable for downstream applications.

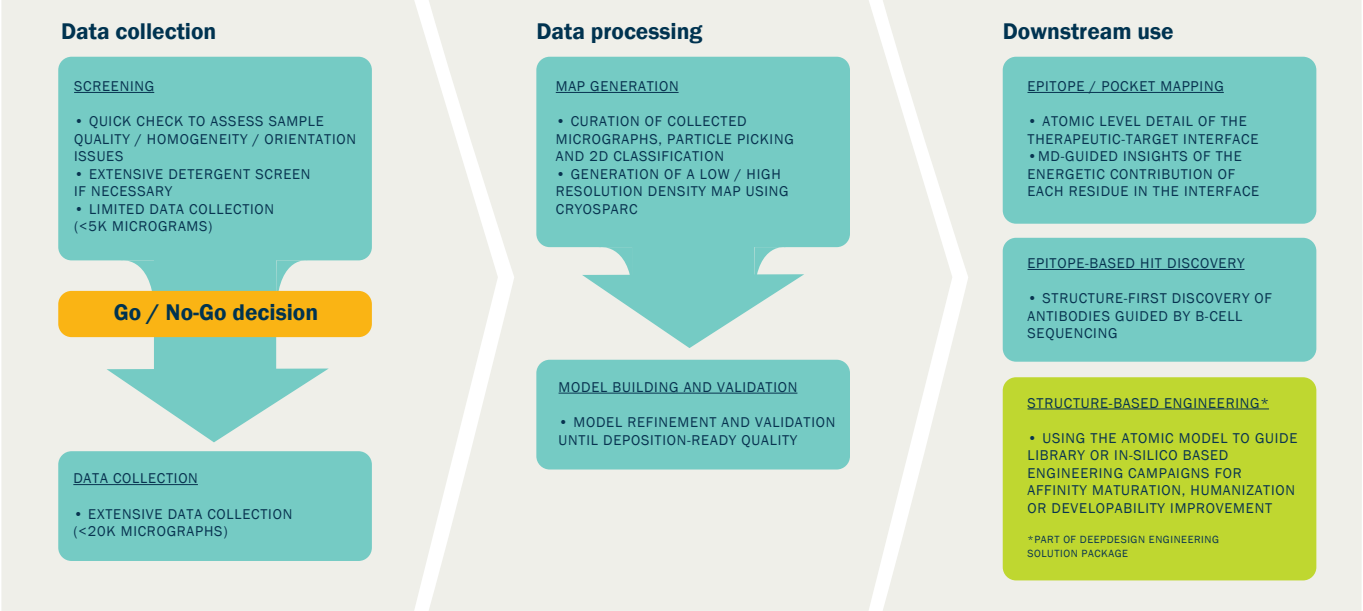
Closed-loop with engineering

Seamless integration with DeepDesign Engineering and discovery platforms at FairJourney Bio, eliminating delays caused by data transfer between teams or partners.

Tailored workflows

Early in-depth consultations with FJBio's production and cryo-EM experts to define a sample preparation workflow optimized for high-resolution structure determination.

WORKFLOW AT A GLANCE



<3.5 Å	**<5 weeks**	**300 kV**	**∞**
DENSITY MAP RESOLUTION	SAMPLE TO ATOMIC MODEL	AUTOMATED CRYO-EM MICROSCOPES	INFINITE MORE INSIGHTS

AtomicLevel Cryo-EM — Capability Detail

Epitope/pocket mapping

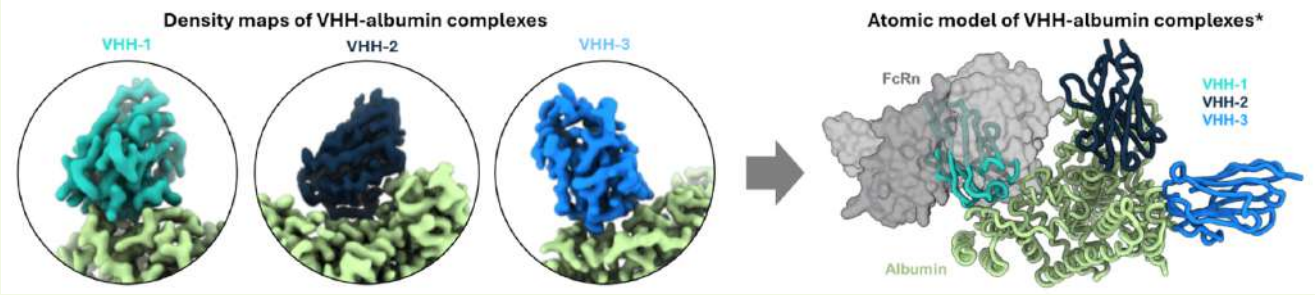
- Cryo-EM structure of antibody-target or small molecule-target complexes
- Reveals functional binding site, key interacting residues, molecular basis of affinity and specificity
- In-depth interpretation of the therapeutic-target interaction through MD-based binding free energy calculations
- <5 weeks turnaround from sample readiness

Epitope-based hit discovery

- Structure-first antibody discovery combining cryo-EM, antigen-specific B-cell sorting and NGS
- Timeline ~12 weeks after terminal bleed
- Direct integration with BCell Navigator workflows
- Suited for rapid discovery of antibodies where epitope-based selection is key

Example of how AtomicLevel Cryo-EM brings you further

Proof in practice — De-risking lead selection by epitope mapping



*Atomic model shown of albumin with three VHHs (cartoon representation) superimposed with FcRn from PDB ID: 4N0F

FairJourney Bio developed a diverse panel of albumin-binding VHHs for half-life extension in multispecific formulations.

A key requirement is that these VHH's do not interfere with albumin's FcRn engagement. Cryo-EM-based epitope mapping of the three top binders revealed three distinct binding epitopes on albumin: VHH-1 overlapped directly with the FcRn interaction surface, corroborated by competition assays; VHH-2 bound in close proximity, raising the possibility of steric interference in vivo; and VHH-3 bound a distal epitope, ensuring preservation of the albumin-FcRn interaction.

As a result, VHH-3 was chosen for downstream development, illustrating how cryo-EM enabled confident, data-driven candidate prioritization.

Next step: using the resulting structures for the generation of highly focused humanization libraries through FairJourney Bio's **DeepDesign Engineering** solution

Atomic resolution. Engineering-ready.
Five weeks, sample to model

Let's talk about your programme

Bring your target, your timeline and your tough questions to a scoping conversation.

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