



SciLifeLab  
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## SciLifeLab user case: Industry

Drug development

# Development of antibody fragments for brain transport of therapeutics

Start-up company Key2Brain develops small antibody fragments which, when coupled with other proteins or drugs, can cross the blood-brain barrier and reach target molecules inside the brain. The company currently has projects in preclinical phase. The most mature project has successfully validated that the technology can provide optimized targeting of amyloid beta deposits in brain in disease models for Alzheimer's disease, which can be used for diagnostics or therapeutics.



*At NBIS, we want bioinformatics to be as accessible as possible. We offer both long-term and short-term support, which is what Key2Brain needed. I believe it is crucial for SciLifeLab's infrastructure to be well connected internally to direct a user to another unit or platform to complete projects", says Sebastian DiLorenzo, bioinformatician at NBIS.*

Key2Brain was assisted by the Drug Discovery and Development Platform at SciLifeLab in setting up new protocols and characterization of antibody fragment technology, as well as running high throughput analyses of target molecular interaction.

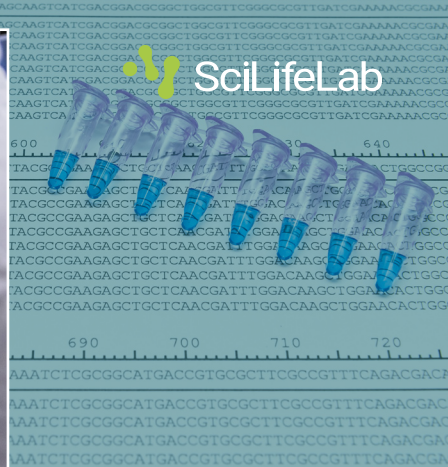
The results enabled expansion of the portfolio of antibody fragments and for this, bioinformatics expertise was needed. Key2Brain was referred to the SciLifeLab Bioinformatics platform, NBIS, which performed custom bioinformatics analyses tailored to Key2Brain's needs and delivered an analyzed dataset.



*To start a lab, purchasing machines and equipment is both expensive and time-consuming. For a semi-virtual company like Key2Brain, the infrastructure that SciLifeLab provides is a prerequisite for our operations", says Elisabet Sjöström, founder and CEO of Key2Brain.*



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The Human Antibody Therapeutics Unit at the DDD platform.

## SciLifeLab infrastructures related to the case

Key2Brain has been helped by combined resources of both the Drug Discovery and Development Platform (Human antibody therapeutics, HAT unit), as well as the National Bioinformatics Infrastructure Sweden (NBIS) at SciLifeLab.

### DDD service areas

The SciLifeLab Drug Discovery and Development (DDD) platform offers industry-standard infrastructure, expertise, and strategic support for technology development or to help advance projects toward a preclinical proof-of-concept. Accepting projects within small molecules, antibody therapeutics, oligonucleotides and new modalities.

#### Units

- ADME of Therapeutics
- Biochemical and Cellular Assay
- Biophysical Screening and Characterization
- Human Antibody Therapeutics
- In Vitro and Systems Pharmacology
- Medicinal Chemistry - Hit2Lead
- Medicinal Chemistry - Lead Identification
- Protein Expression and Characterization
- Target Product Prof. & Drug Safety Ass.
- OligoNova Hub

*The overarching goal of DDD is to provide knowledge and techniques – but also to make our instruments available. These are expensive, advanced instruments, and the more they are used, the better – accessibility is good”, says Anders Olsson (KTH), Head of the DDD unit Protein Expression and Characterization.*

### NBIS service areas

The topics covered by NBIS experts include genome assembly, genome annotation, genetic variation, comparative genomics, phylogenomics, transcriptomics, proteomics, metabolomics, systems biology, single-cell biology, biostatistics and multi-omics integration.

### Get in touch!

[scilifelab.se/units/ddd-platform/](https://scilifelab.se/units/ddd-platform/)  
[scilifelab.se/units/nbis/](https://scilifelab.se/units/nbis/)

SciLifeLab constitutes more than 40 units across Sweden, offering multiple techniques in life science areas such as: Genomics, Proteomics, Metabolomics and exposomics, Spatial biology, Cellular and molecular imaging, Structural biology, Chemical biology and genome engineering, Drug discovery, Bioinformatics. Explore possibilities and find contacts for specific requests on [scilifelab.se/services](https://scilifelab.se/services)