SPECIFIC TARGETING OF DISEASE

Therapeutic antibodies are widely used in drug development due to their specificity in targeting disease-related molecules like cancer. Their market potential is expected to grow massively in the future.

A TEDIOUS AND TIMELY PROCESS

Discovering therapeutic antibodies is currently time-consuming, expensive, and inefficient. The process also requires advanced skills and equipment and depends on experimental animals.

AN INTEGRATED INNOVATION

At ALADDIN, we develop a platform that replicates the key features of the immune system. We aim to accelerate the discovery of therapeutic antibodies and their preclinical validation for human cancer.

8 PARTNERS

Research centres, universities & SMEs

CSIC · INL · The Hebrew University of Jerusalem · Linköping University · Plan de Formación IIS FJD · Instituto de Salud Carlos III · InCellia · Zirka Innotech

4 YEARS

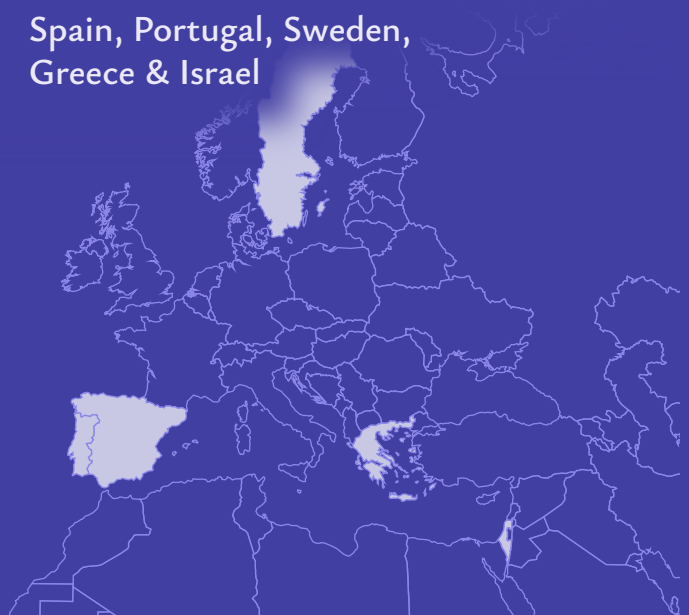
2024–2027

3,3M EUROS

in funding

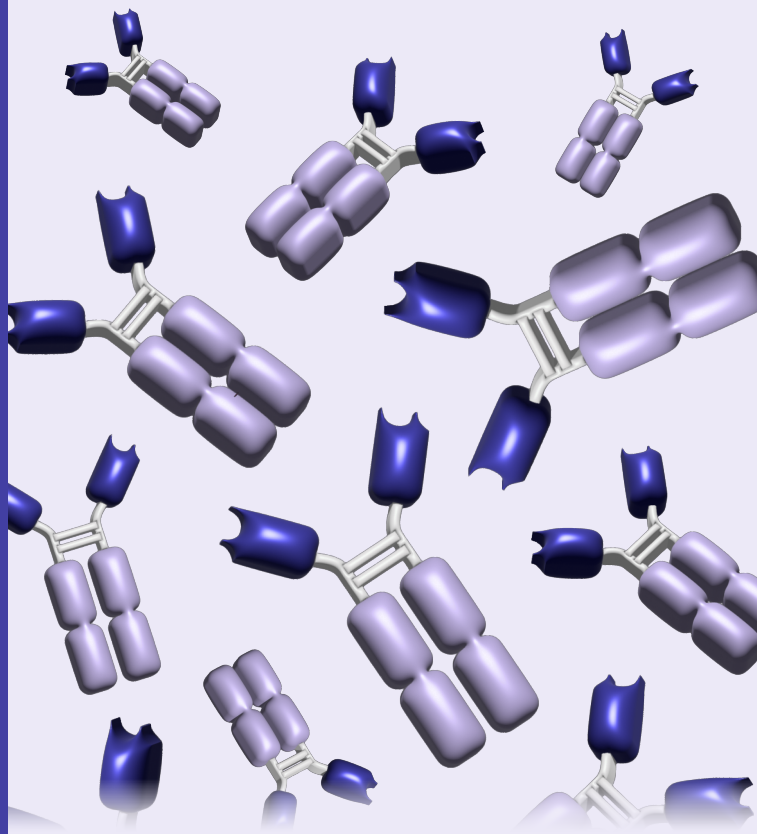
5 COUNTRIES

Spain, Portugal, Sweden, Greece & Israel



ALADDIN

Accelerated Discovery Nanobody Platform



ALADDIN Project · @projectaladdin · @projectaladdin.bsky.social
info@aladdin-project.eu · aladdin-project.eu

THE NEXT LEVEL IN THERAPEUTIC ANTIBODY DISCOVERY

Therapeutic antibodies have proven to be highly effective in targeting cancer cells. **Even more so are nanobodies**, which are fragments of antibodies consisting of a single antibody domain. Discovered in camelids, nanobodies' small size, simple structure, stability, and ability to bind specifically to antigens make them excellent for therapeutic purposes.

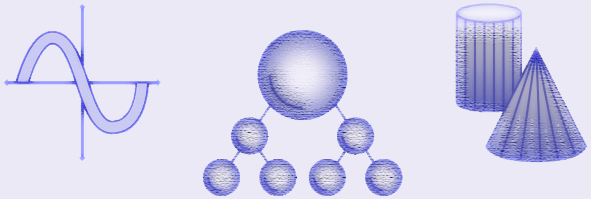
ALADDIN (Accelerated Discovery Nanobody Platform) is a research project funded by the European Innovation Council (EIC) that aims to streamline the discovery of therapeutic antibodies. **ALADDIN will integrate the key functions of the human immune system into a single platform** to make therapeutic antibody discovery faster, more affordable, and more efficient.

Our expert consortium holds expertise in molecular biology, synthetic biology, genome engineering, mathematical modelling, microfluidics, technology transfer, and communication.

THE ALADDIN APPROACH INCLUDES FOUR KEY STEPS:

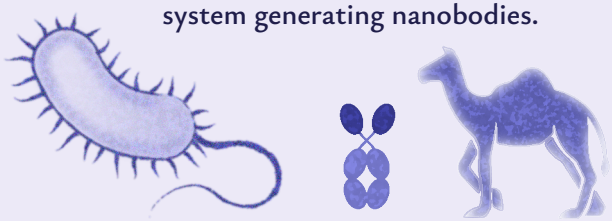
1 TARGET IDENTIFICATION

Using mathematical models and omics, we identify tumour targets from pancreatic and colorectal cancer patient samples.



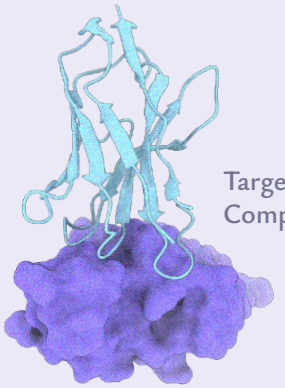
2 NANOBODY DISCOVERY

We introduce both selection and affinity maturation in bacterial cells holding a large nanobody gene collection, which mimics the immune system generating nanobodies.



3 NANOBODY OPTIMISATION

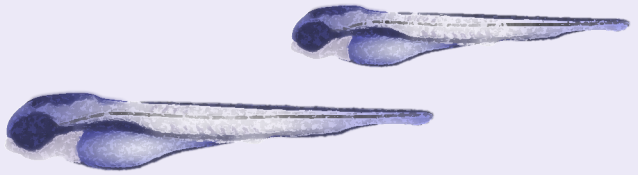
Using AI, we enhance the binding of the antibodies. Also, we develop miniaturised microfluidics devices to select the best antibodies from bacteria.



Target-Nanobody Complex

4 PRECLINICAL VALIDATION

We evaluate the efficacy of the nanobodies against tumours in humanised zebrafish embryos while using in silico approaches to extract clinical and efficacy data for the nanobody candidates.



This project has received funding from the EIC Pathfinder programme 2023 of the European Innovation Council (EIC) under Grant Agreement number 101130574.