

A female scientist with blonde hair, wearing safety glasses and a grey lab coat, is focused on her work in a laboratory. She is using a blue pipette to transfer liquid into a clear microplate. She is wearing purple nitrile gloves. The background shows a clean, modern laboratory environment with glass partitions and overhead lighting. The overall tone is professional and scientific.

LifeArc

Antibody engineering

Humanisation expertise for industry -
from the team with proven experience.

lifearc.org

Risk free antibody humanisation

Unlike our competitors, who charge for a fixed number of variants regardless of quality, we continue applying our proven experience until we reach the optimum humanised candidate.

With our approach you only pay for success - we will deliver the best candidate and you don't have to risk wasting time or money.

Technology

We utilise specialised antibody humanisation processes involving a combination of homology modelling, *in silico* design, CDR grafting and framework optimisation.

Adding value

We also offer extensive biophysical characterisation of lead candidates and affinity maturation capabilities to ensure optimal performance.

Typical timeframe

Once a project has been scheduled, it will normally take 12-15 weeks to design the variants, build the constructs and screen for the optimum candidate antibody.

Oncology **Merck**

Keytruda[®]

Ulcerative colitis **Takeda**

Entyvio[®]

Rheumatoid arthritis **Roche**

Actemra[®]

Multiple sclerosis **Biogen IDEC**

Tysabri[®]

Unrivalled experience

Our antibody engineering service has successfully humanised over 60 antibodies including four drugs on the market and four in clinical trials.

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Our engineering process

Sequencing

The mouse heavy and light chain variable antibody genes are extracted from the client's hybridoma cell line using our proprietary amplification primers in a polymerase chain reaction (PCR) and then sequenced.

***In silico* modelling/ Humanisation design**

Humanisation design starts with selecting human antibody gene fragment regions from our extensive, proprietary database. Rodent CDRs are then grafted into the human frameworks.

Synthesis/Chimerisation

We synthesise all of the humanised antibody variants identified in the design process. We also make a chimeric antibody, by combining the mouse antibody variable genes with human antibody constant genes. This acts as a positive control for the humanised variants during screening.

Screening/Selection of candidates

The heavy and light chain humanised antibody candidates are combined in all possible combinations, and screened against the chimeric antibody for retention of antigen binding affinity, specificity, expression and biophysical profile. The strongest candidate(s) is then selected.

Lone and Maud
biotherapeutic scientists
Front cover - Annabel

Centre for Therapeutics Discovery

To keep up to date with our latest news please follow us on twitter

 @lifearc1

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We are the bridge between great science and greater patient impact.

LifeArc is the new name for MRC Technology, a medical research charity with over 25 years experience in helping scientists and organisations turn their research into effective therapeutics and diagnostics.

Our new name reflects our purpose. To be the arc or bridge between research and improving patients' lives.

Our mission is to pioneer new ways to turn great science into greater patient impact.

We are a charity

LifeArc is: registered with the Charity Commission for England and Wales no. 1015243; a charity registered in Scotland with the Office of the Scottish Charity Regulator no. SC037861; a company limited by guarantee no. 2698321 incorporated in England and Wales.

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