

The Beacon Discovery™ at UMC Utrecht Antibody Discovery and Functional Screening in Live Single Cells



Finding Rare Antibodies and the Cell Line to Manufacture Them

Conventional antibody discovery is slow, and like finding a needle in a haystack. Hybridoma workflows can take 12+ weeks and tend to prioritize binding over functional evidence. Cell line development then adds months to the process. Using the Bruker Beacon Discovery™ Optofluidic System at UMC Utrecht, accessible through Oncode Accelerator, antibody discovery and cell line development can be run at high speed and on a single integrated platform that combines single cell selection and export with functional screening.

The Beacon Discovery™ Optofluidic System

Bruker's Beacon Discovery™ platform supports high-resolution screening of plasma B cells, with throughput of up to 100k B cells per sample, via the automated Opto® B Discovery workflow. Within the same platform, users can culture isolated single cells in microchambers and perform sequential functional assays (antigen specificity, cross-reactivity, ligand-blocking, membrane-bound antigen detection) with live imaging and at high-resolution. Optoelectronic tweezers then support the export of live cells that meet functional criteria, making downstream sequencing of the same individual cells possible. The Beacon® platform also supports rapid cloning, screening, and selection of cell lines for manufacturing, and ensures >99% monoclonality.

Access Through a Demonstrator Project

The Oncode Accelerator Biologics Workstream, located at UMC Utrecht, is one of the only parties in Europe to offer access to the Beacon Discovery™ Optofluidic System.

Within Demonstrator Projects, and in collaboration with the experts at UMC Utrecht, you can:

- Run binding and functional assays before export, ensuring that each recovered sequence is linked to functional evidence
- Access human tumor material and matched blood from our Patient Cohorts and Organoids Platforms (subject to patient consent and ethical approval) to test in relevant models
- Use the only and world-leading biomedical Accelerator Mass Spectrometry laboratory for microdosing studies to assess antibody characteristics in phase 0 trials

Get Started

Get started with your application today by contacting our Business Development team at: <https://www.oncodeaccelerator.nl/get-started>

Demonstrator Projects

Demonstrator Projects are collaborative, co-funded preclinical development projects that use our integrated infrastructure. We focus on four therapeutic modalities represented by our Workstreams:

- small molecules,
- biologics,
- cell & gene therapies, and
- therapeutic vaccines.

These preclinical drug development pipelines combine our state-of-the-art drug development capabilities with innovations from our Platforms:

- artificial intelligence (AI),
- organoid models and organ-on-a-chip technology, and
- well-defined data and materials from our patient cohorts.