



Phage Display technology

The method enables the identification of specific and high-affinity antigen binders from vast, combined libraries containing up to billions of potentially clinically relevant antibodies. The advantage is that the method is easy and inexpensive to perform and is also predestined to be combined with automated solutions, reducing the manual effort for scientists and speeding up antibody discovery.

The phage display method can be divided into four steps: (1) panning, (2) colony picking, (3) antigen-antibody interactions and (4) functional screening.

Panning defines a repetitive process for the enrichment of phages within a population that, in contrast to other phages, form a high-affinity bond with the target molecule. The phage population must therefore be enriched so that only those antigens with the highest binding affinities are selected and propagated. In the next step, these rinsed bacteriophages are cloned and panned so that each individual protein-binding phage can be isolated. After the selection of phages with high binding affinity from phages with lower binding affinity has taken place during panning, a validation is necessary in addition to this qualitative selection process. This validation is carried out by more quantitative immunoassays, through which the antigen-antibody interaction can be analysed and evaluated. In the final step, functional screening, the molecules are screened for their functional activities, such as virus neutralisation, using cell-based assays.

The technique is used in many industrial applications. However, conventional methods are very labour-intensive and tedious when several selections with different antigens are performed simultaneously. New technologies offer the possibility to speed up the phage display antibody screening process. Among other things, special colony-picking technologies can be used to eliminate bottlenecks and screen large genetic libraries efficiently, quickly and accurately. With the help of user-friendly, intuitive software, the user is guided through the configuration of colony-picking runs, in which precision robots continuously select the predefined, correct colonies. In addition, the technology is able to automate several steps of sample preparation as well as plate handling. The data obtained in the process is automatically recorded and stored in the instrument's database, allowing the user to retrieve a complete audit trail and track the samples if required.

Innovative technological approach

- ◇ **Company:**
Molecular Devices LLC
- ◇ **Product:**
QPix™-System
- ◇ **Fields of application:**
Phage Display
DNA Sequencing
Protein Evolution
Monoklonal Antibodies (mAbs)
Blue/White Screening
- ◇ **Advantages:**
Automatic recording of the data in the unit
Automated processes
Traceability of the samples possible
Fast, precise and efficient microbial screening
- ◇ **Website:**
<https://de.molecular-devices.com/>

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