CellCelector

FULLY AUTOMATED CELL PICKING SYSTEM

HT-NIC: HIGH-THROUGHPUT NANOWELL-BASED IMAGE-VERIFIED CLONING METHOD

fast cell line development
integrated **monoclonality proof**
important **time and cost savings**

The ALS CellCelector single cell and colony picking platform can now be used for high-throughput single cell cloning allowing fast generation of clonal production cell lines with one cloning round while providing in-process image-verified monoclonality proof. With integrated monoclonality and clone viability assessment as well as high outgrowth rate after clone transfer to 96 well plates, the CellCelector HT-NIC technology represents an advantageous alternative to limiting dilution or FACS single cell sorting techniques. The method has been developed in collaboration with ProBioGen AG.

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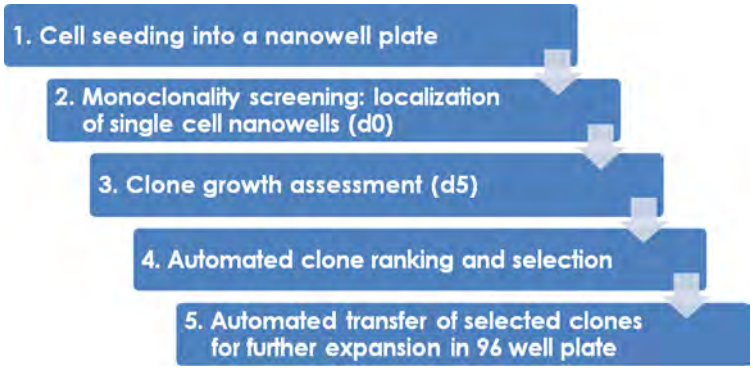
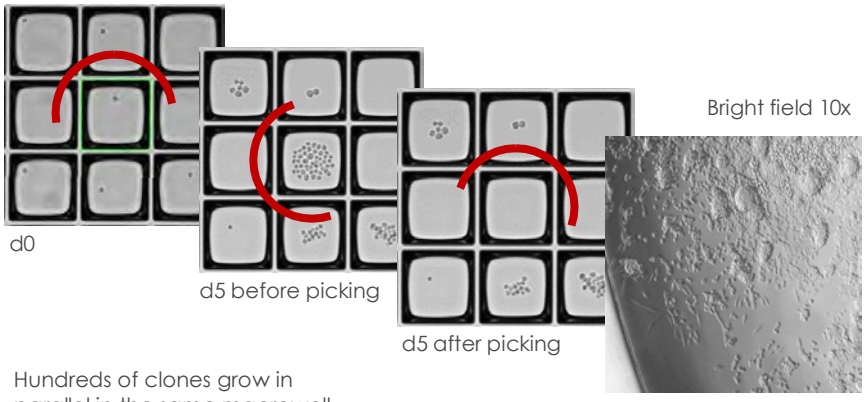
Nanowell-Based Single Cell Cloning Workflow

The method uses standard-format 24 well CellCelector Nanowell plates (available from ALS) with thousands of tiny nanowells on the bottom of each well. Bright field scanning of seeded wells followed by the automated identification of all single cell nanowells provides a robust and documented image-based monoclonality proof. After such monoclonality scan cells are let to grow several days in an incubator. As early as on Day 4 after seeding the nanowell plate is scanned again and the viable clones resulting from single cells are automatically selected and transferred into 96 or 384 well plates for further growth and productivity assessment.





Hundreds of clones grow in parallel in the same macrowell of standard format 24 well plate

10 days after transfer into 96 well plate

ALS CellCelector installed in ALS FlowBox Incubator with temperature, humidity, and CO_2 control. The system can also be placed within a standard biosafety cabinet.

Monoclonality Proof

Cells are clearly visible within 4 nL nanowells and can be reliably detected.

Single cell | Empty | > 1cell

Benefits and Key Features

- Faster CLD times (by 5 to 9 weeks)
- Integrated image-verified monoclonality proof
- High image quality for robust automated label-free single cell detection
- Selection of clones by outgrowth and/or by fluorescence
- 100% selective clone recovery without cross contamination
- High outgrowth efficiency of transferred clones
- Significant cost savings on consumables, media and incubator storage space. **Just one plate per cloning experiment**
- Easy-to-change disposable single-use capillaries
- No routine maintenance necessary

Other Applications

ALS CellCelector is an open platform which can be used for multiple applications:

- Single cell isolation
- scRNA-Seq
- CRISPR/CAS9
- Rare cell detection
- Stem cells
- Semi-solid media cloning (additional module)

For More Information
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