

Find the **best** cells



Beacon Select™

Optofluidic System

for Cell Line Development

BROCHURE

REV D | SEPTEMBER 2023



Single, integrated system for cell line development (CLD)

Clone, culture, assay and select top clones in a single run on a single platform

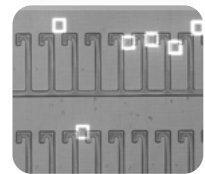
The Beacon Select™ optofluidic system enables high throughput cloning, screening and selection of top-performing CHO cell lines in just days using the Opto® CLD workflow. In addition, the Opto® Assure quality assays enable users to select clones with favorable product quality attributes within 5 days of cloning to reduce overall costs, improve the probability of success, and further shorten timelines by selecting top clones for scale up.

Features and Benefits

- Select clones with higher titers than traditional methods (see [Customer Spotlight: Catalent](#))
- Increase throughput by 2x while reducing cell line development timelines by up to 50% (see [Customer Spotlight: Mycenix](#))
- Achieve cloning efficiencies 5x greater than FACS and 10x greater than limiting dilution, while recovering clones with >99% monoclonality assurance¹ (see [Application Note: FDA Accepted IND](#))



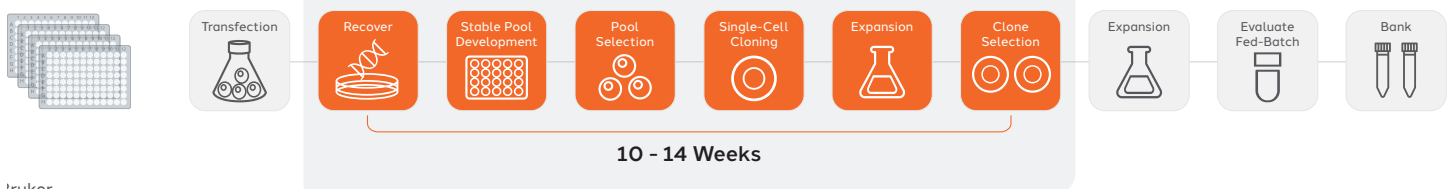
OptoSelect® chips use light to automatically move individual cells.



Cells are cloned and assayed in individual 2 nL **NanoPen®** chambers, which are ~100,000 times smaller than a well in a microwell plate.

Comparison of typical vs. Beacon Select CLD workflows

Typical Cell Line Development



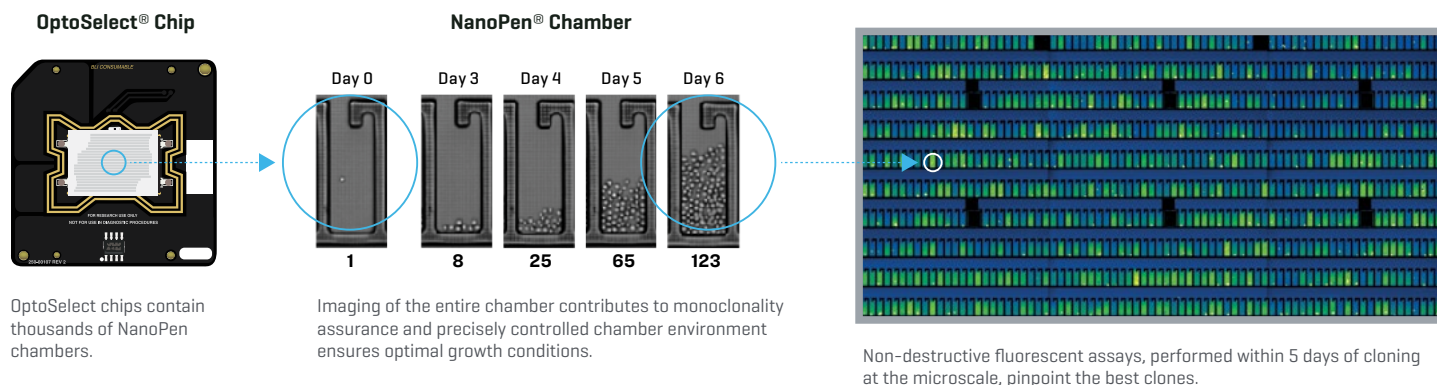
Brüker Opto® Cell Line Development



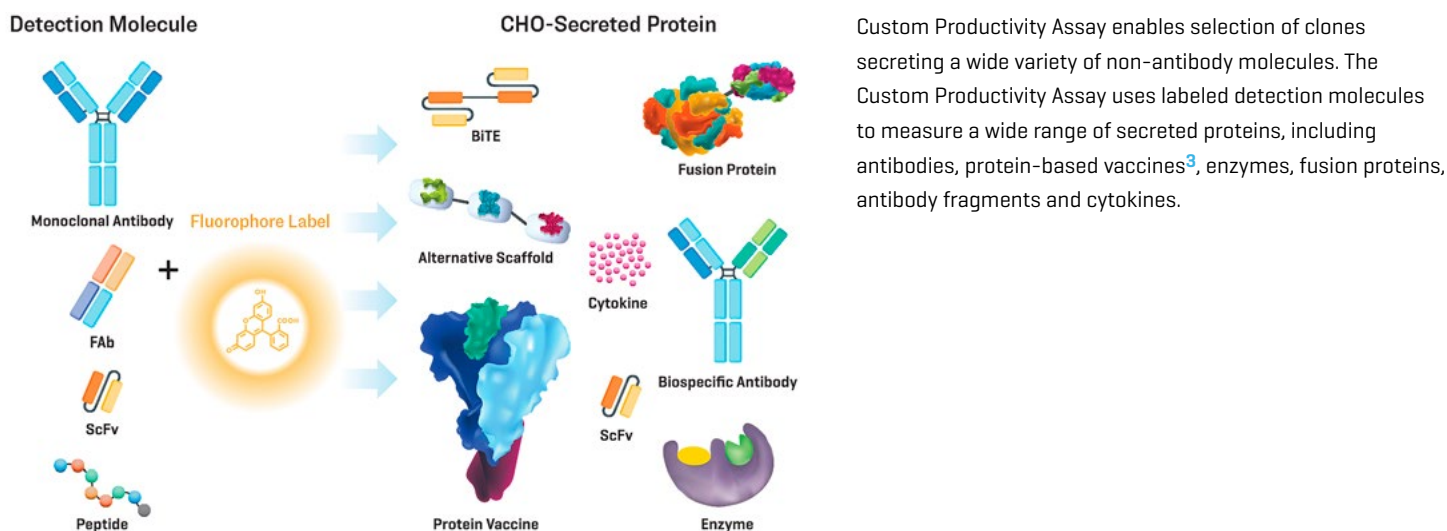
Selective Cell Cloning can be used to reduce CLD timelines, by gently sorting a pool of cells 2.5 weeks post transfection when cell viabilities are as low as 30%.²

Enabling simple, yet powerful CLD workflows

Simultaneous incubation and screening of thousands of clones on a chip

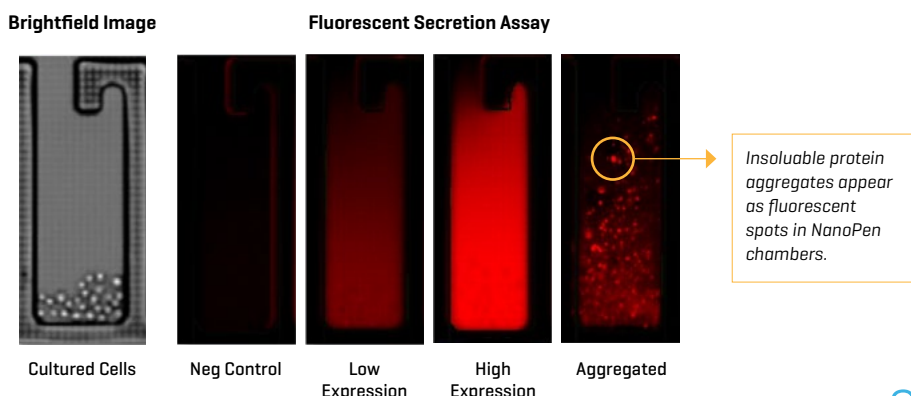


Customize your assays for non-antibody proteins



Selection based on product quality, not just productivity

The Opto® Assure assays minimize the risk of costly late stage failures by identifying top producing clones with desirable product quality attributes early on. The Opto Assure assay for aggregation enables direct detection of insoluble product aggregates within days of single-cell cloning. This lets you confidently identify and select clones that secrete high-quality complex molecules and develop better production cell lines faster.



BEACON SELECT SPECIFICATIONS

CAPABILITIES

Applications	<ul style="list-style-type: none"> Cell Line Development
Assays	<ul style="list-style-type: none"> Quantitative Secretion Assay Custom Assay Development

FEATURES

Features	<ul style="list-style-type: none"> Two optofluidic chip capacity. Supports a variety of OptoSelect chip types Automated sample import/export System-driven, on-board culturing, imaging, assay, and OEP capabilities Six-color channels including brightfield imaging for assay development Patented Bruker software suite that provide automation and analysis software tools, including Cell Analysis Suite [CAS] and Assay Analyzer
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SPECIFICATION

Import	<ul style="list-style-type: none"> Recommended input density: 1e5 – 7e6 cells/mL Formats: 1.5 mL Eppendorf tubes, 0.2 mL PCR tubes Std. height (up to 16 mm) 96-well microtiter plates
Fluorescence capabilities	<ul style="list-style-type: none"> Brightfield Up to 5 colors Standard configuration: <ul style="list-style-type: none"> DAPI: Ex: 370 – 410 nm / Em: 429 – 475 nm FITC: Ex: 450 – 500 nm / Em: 515 – 565 nm PE: Ex: 540 – 557 nm / Em: 576 – 596 nm TxRed: Ex: 542 – 582 nm / Em: 604 – 644 nm Cy5: Ex: 608 – 648 nm / Em: 672 – 712 nm
Culture	<ul style="list-style-type: none"> Customer-defined media Per chip temperature control: 10°C to 40°C

INPUTS

Power	Dedicated 110 – 240 V AC, 50 – 60 Hz, 20A circuit
Gas supply	<ul style="list-style-type: none"> CDA: 20 – 120 psi, 6 mm push-to-connect fitting* >99% CO₂: 20 – 120 psi, 6 mm push-to-connect fitting* <p>* Other NPT compatible fitting options available</p>
Sterility	<ul style="list-style-type: none"> Integrated BSC Class II, A1 compatible airflow Dual ULPA filtration. Exceeds Cleanroom Class 100, ISO Class 5
Recommended clearance	<ul style="list-style-type: none"> Front: 36–48 in [90 – 120 cm] Rear: 24 in [60 cm] Left/Right sides: 24 in [60 cm]
Other connections	Ethernet, USB
Working environment	<ul style="list-style-type: none"> Temperature: 64 – 79°F [18 – 26°C] Humidity: 20 – 60% Altitude: <6,500 ft [2,000 m]

ATTRIBUTES

Dimensions	<ul style="list-style-type: none"> Width: 46 in [116.8 cm] Depth: 34 in [86.4 cm] Height: 71.5 in [181.6 cm]
Weight	<ul style="list-style-type: none"> Crated for shipment: 1,700 lb [770 kg] Free-standing: 1,260 lb [571 kg]

SUPPORTING INSTRUMENTS AND COMPONENTS

Name	Description	Part Number
Beacon Select system, positive pressure**	6-color, standard nest lid	110-08039
Culture Station instrument	2 culture modules	110-08003

** Available access options, Capital purchase, Reagent Rental and Lease [2 year]

Chips	Part Number
OptoSelect 1750b	750-00018

References

- 1 Le, Kim, et al. Assuring clonality on the Beacon® digital cell line development platform. *Biotechnology Journal*. 2020 15.1: 1900247. <https://doi.org/10.1002/biot.201900247>
- 2 Diep, J, Le, H, Le, K, et al. Microfluidic chip-based single-cell cloning to accelerate biologic production timelines. *Biotechnol Progress*. 2021;e3192. <https://doi.org/10.1002/btpr.3192>
- 3 Watterson, D, et al. Preclinical development of a molecular clamp-stabilised subunit vaccine for severe acute respiratory syndrome coronavirus 2. *Clin Transl Immunology*. 2021 5;10(4):e1269. <https://doi.org/10.1002/cti2.1269>

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