



# THE BEACON<sup>®</sup> OPTOFLUIDIC PLATFORM

1000s of cells  
100X the insights  
10X faster  
1/X total cost

BERKELEY LIGHTS.  
DIGITAL CELL BIOLOGY AT LIGHT SPEED.



# FINDING THE MOST IMPORTANT INDIVIDUAL CELLS REQUIRES THE MOST **TIME, MONEY, AND EFFORT.**

Antibody Discovery. Cell Line Development. Gene Editing. TCR Discovery. Synthetic Biology. In these and other fields that depend on finding the right cell or clone, selecting from hundreds of thousands of cells to the handful that are most important can take 2 to 3 months or more of intensive, expensive, manual manipulation.

Imagine how much further you can take your science with a cell workflow that shortens the selection process to just days. Bring the right biologic therapies into clinical testing faster. Identify the cells that matter much sooner. Move any field light-years ahead.

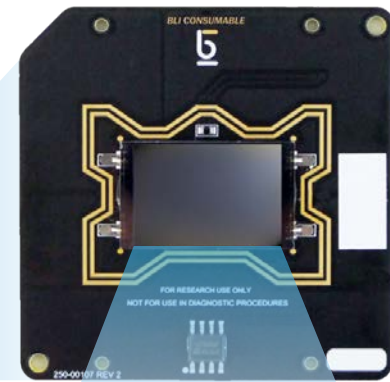
# NOW, THE BEACON PLATFORM REDUCES TIMELINES FROM MONTHS **TO DAYS, SAVING TIME AND MONEY.**

With the Beacon platform's light-speed workflows, you'll gain insights, iterate and innovate as fast as your inspiration.

- Replace a roomful of equipment with the compact Beacon platform
- Work with individual cells radically faster than other technologies
- Perform assays at any time, as often as you need
- Track phenotype and genotype of single cells or clones
- Automate and scale workflows far beyond manual, time-intensive analysis
- Update workflows via software instantly, based on a day's or hour's data
- Generate greater insights through deep profiling of each cell or clone

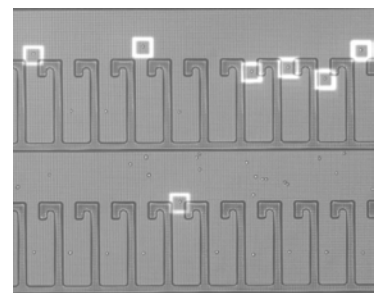


# THE BEACON PLATFORM IS A **FASTER, MORE INSIGHTFUL WAY** TO PROCESS AND ANALYZE CELLS.



**OptoSelect™** chips use light to automatically move individual cells.

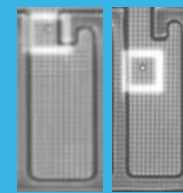
[ CHIP SHOWN ACTUAL SIZE ]



Cells are cloned and assayed in individual 500 pL or 1 nL **NanoPens™**. Each pen is ~100,000 times smaller than a microwell.

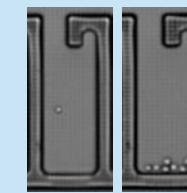
# THE BEACON WORKFLOW MAKES SCREENING FOR THE RIGHT CELLS **EASY, AUTOMATIC, AND PRECISE.**

## 1. LOAD



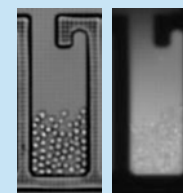
Each cell or clone is imaged and monitored separately, allowing **rich, robust visual data**.

## 2. CULTURE



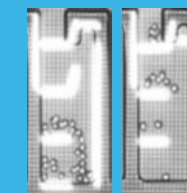
**Continuous data** is generated from each cell so that you can gain much more information about populations and subpopulations than any other method can provide.

## 3. ASSAY



**Assay individual cells immediately** in our NanoPens, instead of culturing for weeks to reach a minimum number of cells for assay.

## 4. EXPORT



Export the clones that meet your specifications into a 96-well plate. The Beacon platform generates a **complete visual record** with greater than 99% clonality.

At the core of the Beacon platform is a combination of optics and nanofluidics called optofluidics. Light and semiconductor technology combine to move single cells or beads in large numbers so they can be isolated, cultured, assayed, and exported.



# FOR THE FIRST TIME, ASSAYS CAN BE PERFORMED WITH AS LITTLE AS **A SINGLE CELL.**

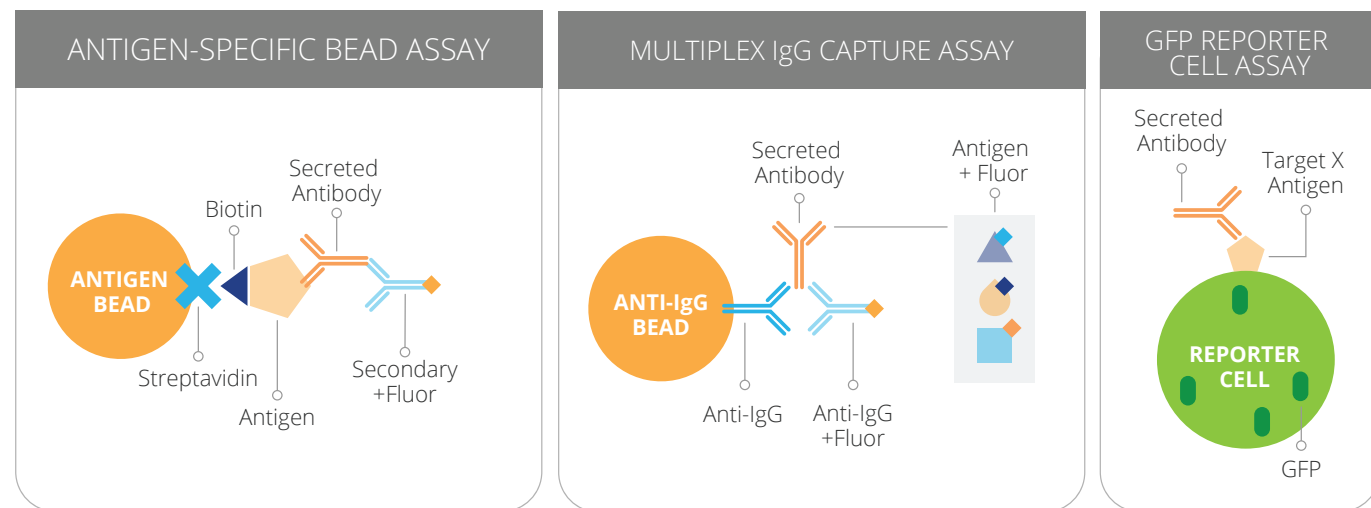
## BEACON PLATFORM ASSAY TYPES

- Real time IgG Secretion
- Multiple Species Binding
- Growth Rate
- Surface Markers
- Phenotypic Assays
- Live/Dead Assays
- Multiplex Assays
- Affinity Assays
- Multiple Antigen Screening
- Reporter Cell Assays
- Cell/Cell Interaction
- Other Functional Assays

NanoPens are **100,000 times smaller** in volume than a microwell. That means a single cell can be isolated and assayed in its own discrete chamber. There's no need to wait weeks for a large quantity of cells to assay.

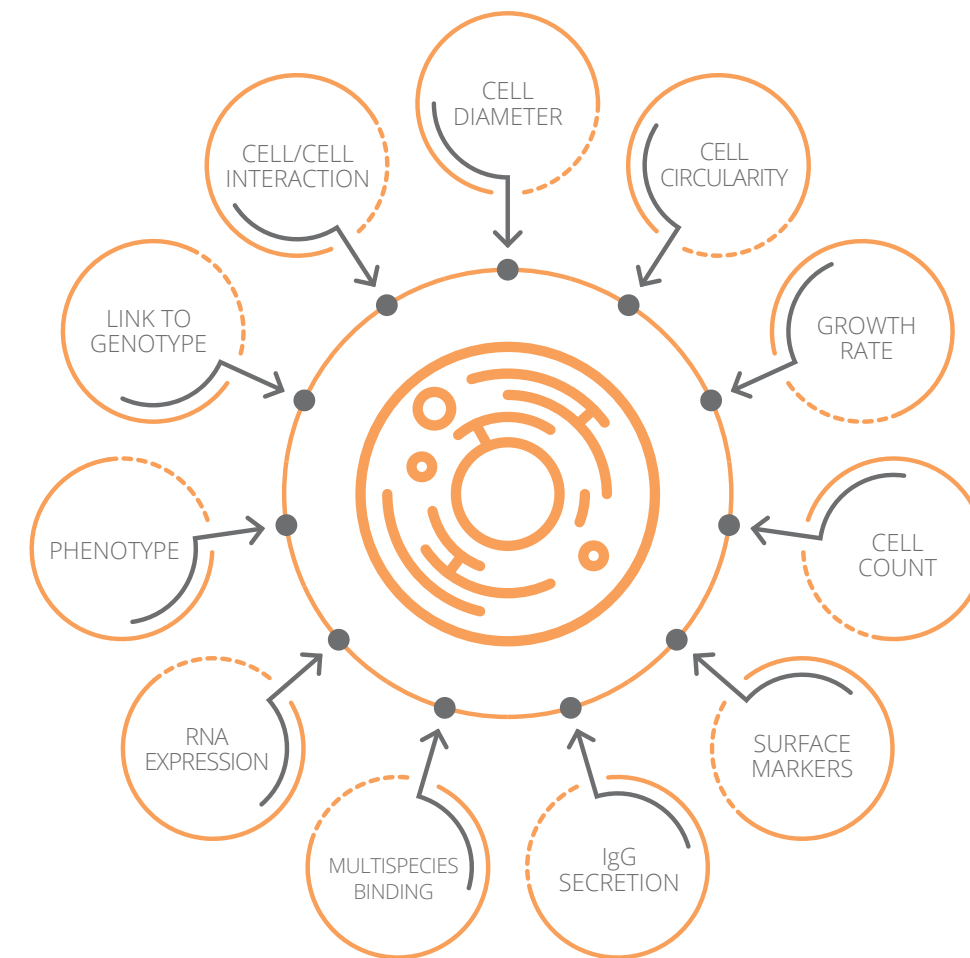
Perform secretion assays with both soluble or membrane-bound targets within hours of cloning. You have **complete flexibility** to run fully-automated assays, sequentially or simultaneously, as frequently as you choose.

### SOME TYPICAL BEACON ASSAYS



# THE BEACON PLATFORM'S DEEP PROFILING ILLUMINATES NEW INSIGHTS WITH RICH "FINGERPRINTS" OF CELLS AT EVERY STAGE.

### BEACON PLATFORM MEASURES:



Older technologies limit cellular discoveries with limited data. But now, with the Beacon platform, you can capture bright field and fluorescence images of each NanoPen™ at any time.

As you compare results through multiple chips and runs over time, **deep profiling** captures richly detailed "**fingerprints**" of your cells and clones that reveal valuable insights you can't get any other way.

BERKELEY LIGHTS. **LIGHT-YEARS AHEAD. TODAY.**



## BEACON® PLATFORM SPECIFICATIONS

IMPORT	Recommended input density: 1e5 - 5e6 cells/mL Formats: 1.5mL Eppendorf tubes, 0.2mL PCR tubes Std. height (up to 16mm) 96 well microtiter plates
CLONING WORKFLOW	Up to 80 cell lines per week with 2-3 secretion assays
CELL LINE DEVELOPMENT WORKFLOW	Screen up to 5000 clones for growth rate, IgG titer & relative Qp in < 1 week
RARE CELL WORKFLOW	Surface based sort up to 25,000 cells/hour. Hit rates from >0.02% to <1%
SECRETION BASED ASSAYS	IgG production measurement for 1 to 32 cells Ag-specific binding assays. Other fluorescent binding assays Typical duration 30 - 60 mins
FLUORESCENCE CAPABILITIES	Up to 5 colors Standard configuration: DAPI: Ex: 370 – 410nm / Em: 429 – 475nm FITC: Ex 450 – 500nm / Em: 515 – 565nm TxRed: Ex: 542 – 582nm / Em: 604 – 644nm Cy5: Ex: 608 – 648nm / Em: 672 – 712nm
CULTURE	Customer defined media Per chip temperature control: 10°C to 40°C Up to 2 weeks on-chip growth Real-time monitoring of growth rates
CELL TYPES	Hybridoma, CHO, primary cells, & many others
EXPORT	Format: 96 well microtiter plate Well plate temp control 10°C to 40°C Typical >99% purity monoclonal export Typical >70% outgrowth after export Typical Single-Cell Paired V <sub>H</sub> & V <sub>L</sub> recovery >65% Single-cell and multi-cell (clonal) export modes

WORKING ENVIRONMENT	Temperature: 64-79° F (18-26° C) Humidity: 20-80% Altitude: <6,500 ft (2,000 m)
STERILITY	Integrated BSC Class II, A1 compatible airflow Dual ULPA filtration. Exceeds Cleanroom Class 100, ISO Class 5
RECOMMENDED CLEARANCE	36 in (91 cm) aisle in front of workstation 3 in (7.6 cm) rear 12 in (30 cm) left & right sides
GAS SUPPLY	CDA: 20-120psi, 6mm push-to-connect fitting* >99% CO <sub>2</sub> : 20-120psi, 6mm push-to-connect fitting* *Other NPT compatible fitting options available
OTHER CONNECTIONS	Ethernet
COMPUTER	Windows 10, i7 processor, 8GB Memory, 2TB RAID1 data drive Data Capacity: 250 experiments or 6-12 months
POWER	Dedicated 110 -240 V AC, 50Hz-60Hz, 20A circuit
DIMENSIONS	Width: 46 in/116.8 cm Depth: 34 in/86.4 cm Height: 71.5 in/181.6 cm
WEIGHT	Crated for shipment: 1700 lb/770 kg Free-standing: 1260 lb/571 kg

Email Berkeley Lights Business Development:  
[busdev@berkeleylights.com](mailto:busdev@berkeleylights.com)

Call Berkeley Lights: **510-858-2855**

[berkeleylights.com](http://berkeleylights.com)



Twitter: @berkeley\_lights

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5858 Horton Street | Suite 320 | Emeryville, CA 94608

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