Find the **best** cells

Process and analyze **1000s of live cells**

Beacon®

Optofluidic System

BROCHURE

REV C | APRIL 2022

BERKELEY LIGHTS®

Accelerate your path to live cell function and recovery

Reduce hands-on time and cut costs with cutting-edge technology

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

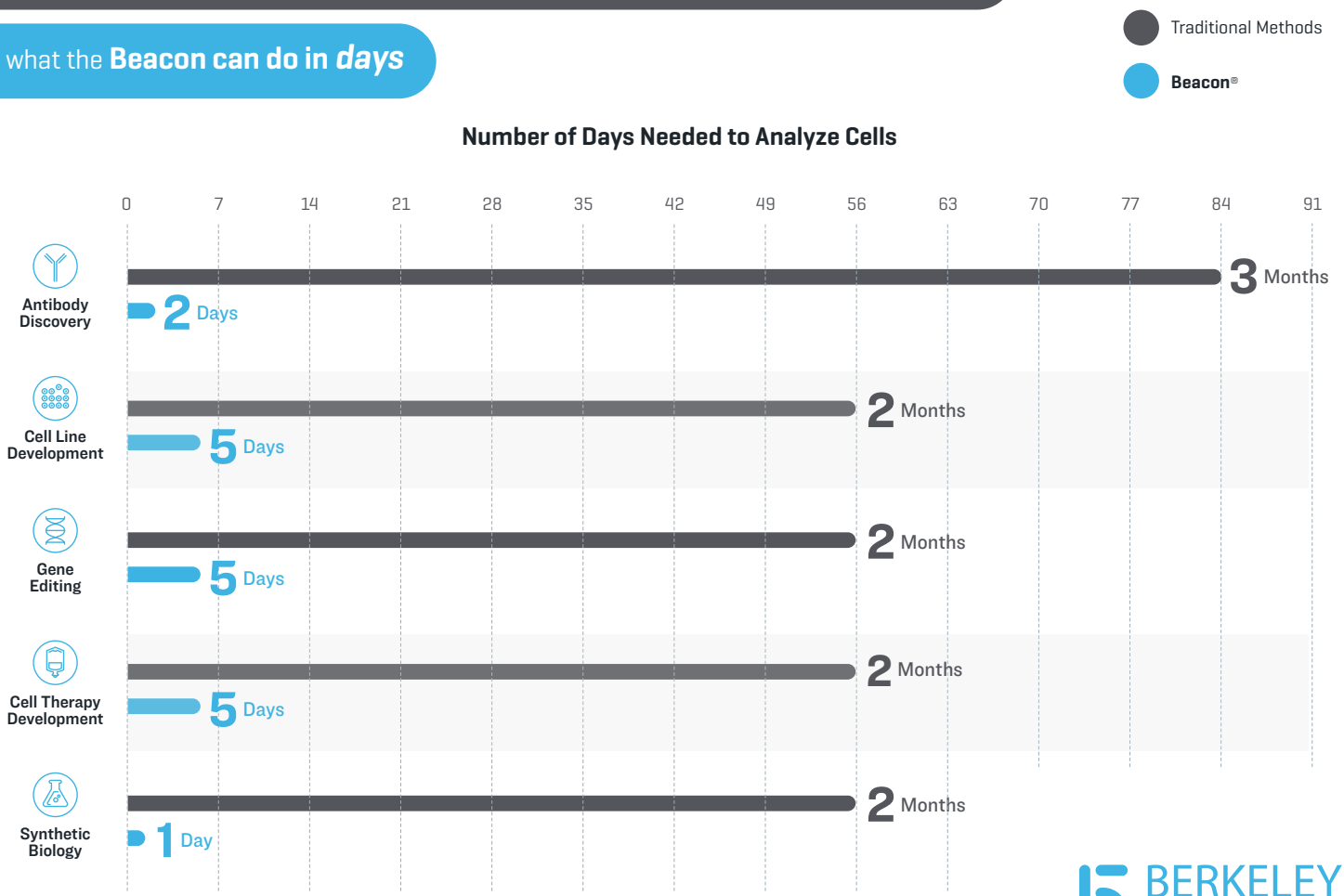
The Beacon® system shortens this selection process to just days and lets you bring the right biologic therapies to clinical testing faster. Identify the cells that matter much sooner. Move your work light-years ahead.

With the Beacon system's workflows, you can...

- Functionally profile individual live cells faster
- Recover live cells for linked function and downstream analysis
- Perform assays earlier and sequentially
- Automate your processes with less equipment and hands-on time
- Analyze interactive data into extensive and timely insights

Traditional methods take ***months*** to accomplish...

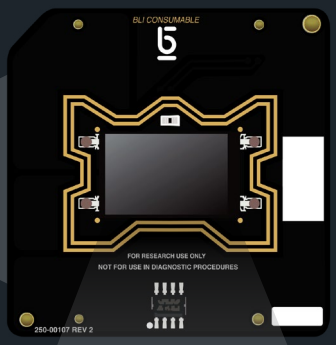
what the **Beacon can do in *days***



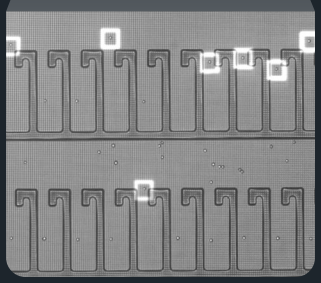
Meet the Beacon® Optofluidic System

Process and analyze cells in a **faster, more insightful way**

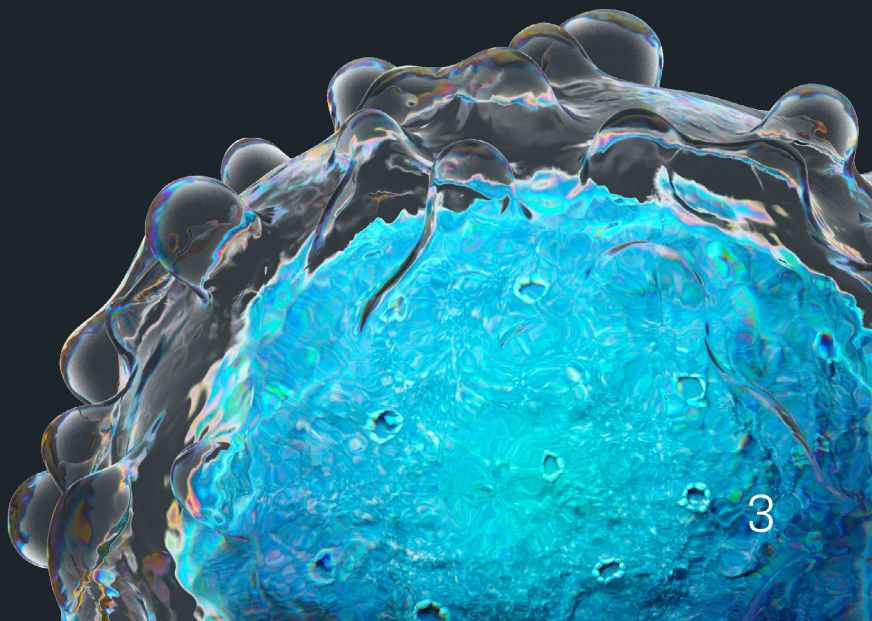
At the core of the Beacon system is a combination of optics and nanofluidics called optofluidics. Light and semiconductor technology combine to move single cells or beads in large numbers so they can be isolated, cultured, assayed, and exported.



OptoSelect® chips use light to automatically move individual cells.



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



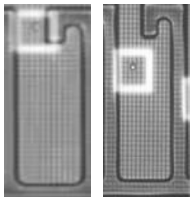
Deep functional profiling in a streamlined workflow

Screen the right cells **easily, automatically and precisely**

1

Load

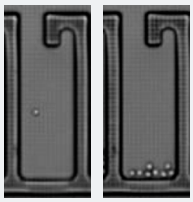
Software automatically identifies single cells and directs them into NanoPen chambers. Chips are loaded with cells in less than 30 minutes.



2

Culture

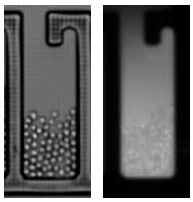
Nutrients diffuse in and waste diffuses out of NanoPen chambers as the software images the chip continuously to count cells and calculate growth rate.



3

Assay

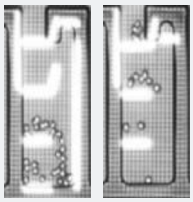
Test individual cells immediately and repeatedly instead of culturing for weeks to reach a minimum number of cells required to assay.



4

Unload

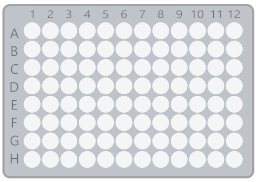
Choose your cells of interest. Then, light patterns move the **live cells** into position for export to a well plate for downstream scale-up or analysis.



5

Enable

Live cell recovery, downstream genomic analysis, bioinformatics and reconfirmation assay for validation.



BERKELEY LIGHTS

Deeper insights from fewer cells

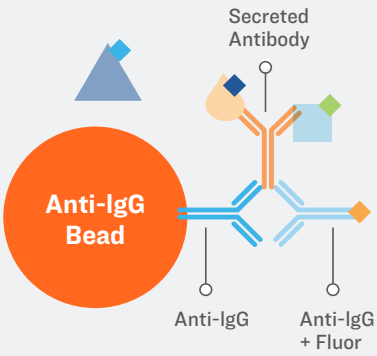
Assay 1000s of cells to **find the single best cell**

NanoPen chambers are 100,000 times smaller in volume than a microwell. That means that 1000s of individual **live cells** can be assayed within minutes or hours. There's no need to wait weeks for a large quantity of cells to assay.

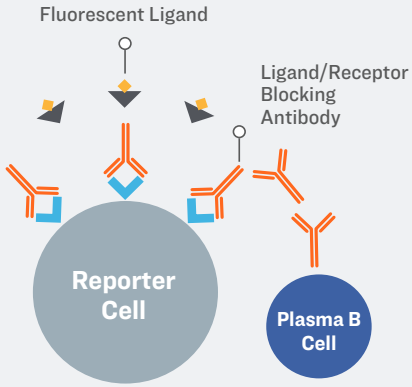
Perform secretion assays with both soluble or membrane-bound targets and run fully-automated assays, sequentially or simultaneously, as frequently as you choose.

SOME TYPICAL BEACON ASSAYS:

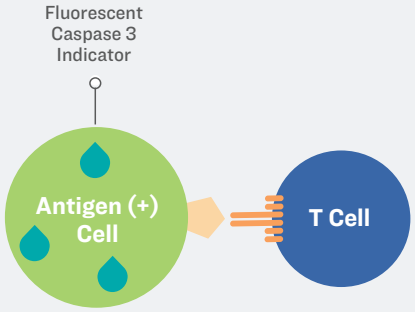
Cross-species Assay



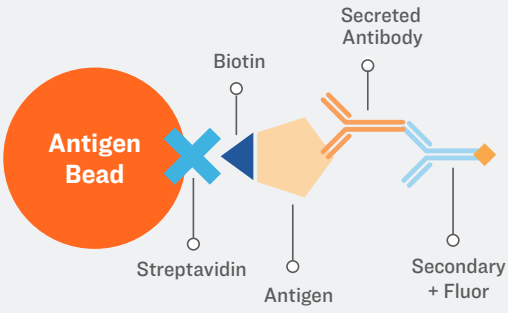
Ligand- / Receptor-blocking Assay

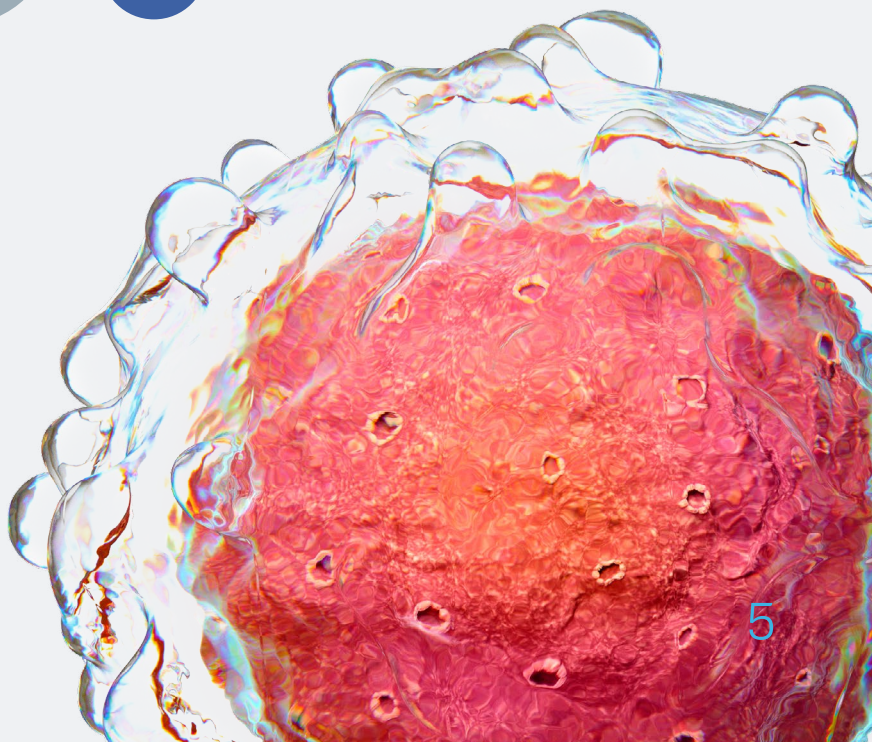


Tumor Cell Killing Assay



Antigen-specific Bead Assay

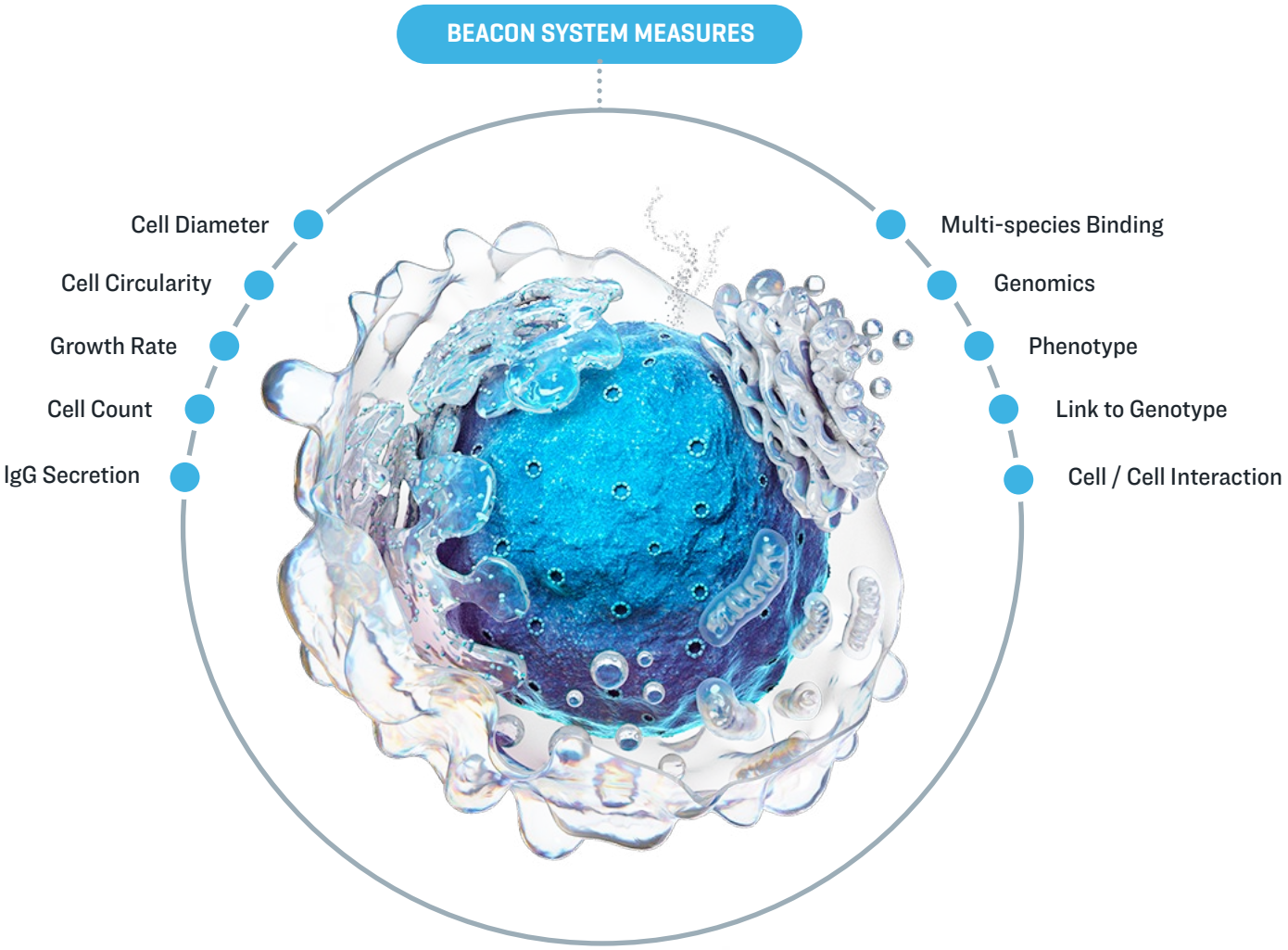




Automatically screen the right cells with precision

100x the insights with rich cell fingerprints

Traditional technologies constrain discovery by providing only limited data. The Beacon system lets you capture brightfield and fluorescence images of each NanoPen chamber at any time. Track and assay the same individual cell across multiple time points using Deep Opto Profiling™ to reveal richly detailed fingerprints of cells and clones that can't be obtained any other way.



BERKELEY LIGHTS

BEACON SPECIFICATIONS:

CAPABILITIES

Applications	• Cell Line Development • Antibody Discovery • TCR Sequencing • OptoSeq® RNAseq • Other R&D Workflows
Assays	• Antigen Specificity • Quantitative Secretion Assay • Multiplexed Fluorescent Assays • Lead Selection Assays • Custom Assay Development
Cell types	CHO, plasma B cells, memory B cells, T cells, hybridoma cells, primary cells, adherent cells, others

FEATURES

Features	• Four 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 Berkeley Lights Software Suite that provide automation and analysis software tools, including Cell Analysis Suite (CAS®) and Assay Analyzer

SPECIFICATIONS

Import	• **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	• Brightfield • Up to 5 colors • Standard configuration: • 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	• 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	• CDA: 20 – 120 psi, 6 mm push-to-connect fitting* • >99% CO2: 20 – 120 psi, 6 mm push-to-connect fitting* ** Other NPT compatible fitting options available*
Sterility	• Integrated BSC Class II, A1 compatible airflow • Dual ULPA filtration. Exceeds Cleanroom Class 100, ISO Class 5
Recommended clearance	• **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	• Temperature: 64 – 79°F (18 – 26°C) • Humidity: 20 – 60% • Altitude: <6,500 ft (2,000 m)

ATTRIBUTES

Dimensions	• **Width:** 46 in/116.8 cm • **Depth:** 34 in/86.4 cm • **Height:** 71.5 in/181.6 cm
Weight	• **Crated for shipment:** 1,700 lb (770 kg) • **Free-standing:** 1,260 lb (571 kg)

SUPPORTING INSTRUMENTS AND COMPONENTS

Name	Description	Part Number
Beacon® Optofluidic System, positive pressure**	6-color, standard nest lid	110-08004
Beacon® Optofluidic System, negative pressure**	6-color, import well lid	110-08014
Culture Station™ instrument	4-culture modules	110-08001

*** Available access options: Capital purchase and Subscription Programs (2, 3, 5 year)*

Chips	Part Number
OptoSelect® 1750 chip	750-00018
OptoSelect® 3500 chip	750-00012
OptoSelect® 11k chip	750-08106
OptoSelect® 20k chip	750-00019

BERKELEY LIGHTS®

Scan to download PDF

Berkeley Lights, Inc.
5858 Horton Street
Suite 320
Emeryville, CA 94608

Tel: +1 510-858-2855
Email: info@berkeleylights.com

SALES
Email: info@berkeleylights.com

SUPPORT
Email: support@berkeleylights.com
Tel: +1 510-858-2855

FOR RESEARCH USE ONLY. Not for use in diagnostic procedures.

0106 Rev C