ChemPartner
Dedicated to LifeScience

B CELL CLONING
ON THE BEACON® PLATFORM

B Cell Cloning

Through a collaboration with Berkeley Lights (BLI), ChemPartner has expanded our antibody discovery service offering to include B Cell cloning. The Beacon® platform, created by BLI, is capable of screening thousands of plasma B cells from immunized animals, which speeds up a traditionally time-consuming hybridoma process.

Plasma B cells secreting antibodies of interest are selected based on cell or bead-based binding and/or functional assays that are run serially or by multiplex format. Individual plasma B cells of interest are selectively exported for antibody sequencing. Using this platform, plasma B cells can be characterized in less than eight hours thus accelerating the antibody discovery process.

B Cell Cloning on the Beacon® Platform

- Reduce antibody screening time from 8-12 weeks to one day while interrogating more of the immune repertoire
- Potential to immunize WT or transgenic strains of mice
- Identify plasma B cells from immunized mice with target specific binding and functional activity
- Demonstrated functional blocking of receptor/ligand interactions using PD-L1/PD-1 as test case
- Additional assays such as Ca Flux, cytokine secretion and T cell activation are under development
- Good rate of recovery of single VH/VL sequences from successfully exported plasma B cells

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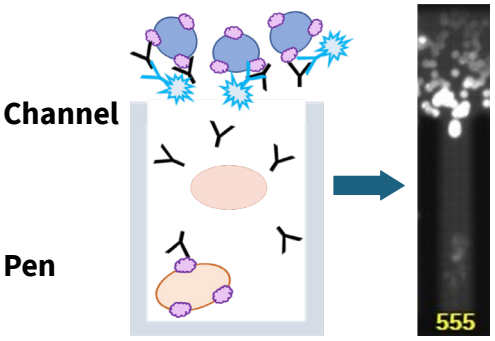
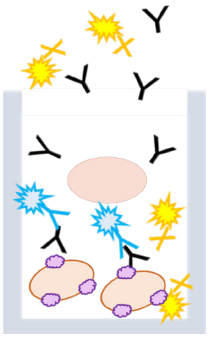
Assays on Beacon®

In-Channel Bead Binding

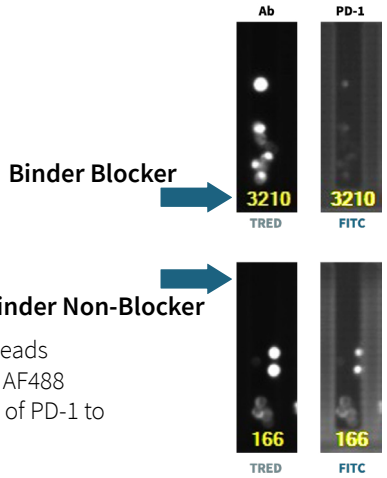


- In-Channel Assay
  - Plasma cell
  - huPD-L1 beads
  - CHOK1-huPD-L1
- Secreted Ab binds to huPD-L1 beads mixed with detection Ab



- Flush out huPD-L1 beads
- Import soluble PD-1 AF488
- Incubate for binding of PD-1 to huPD-L1 on cells

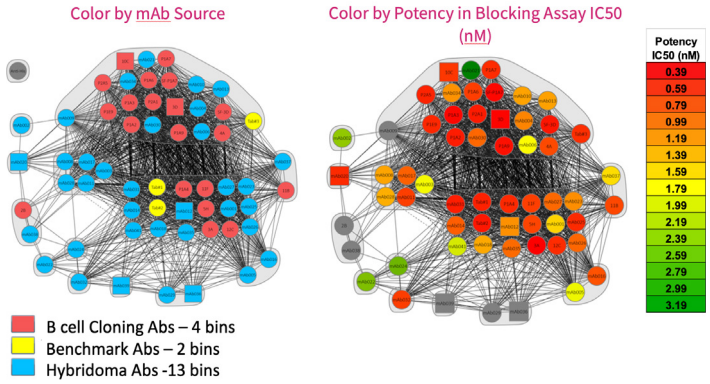
In-Pen Binding



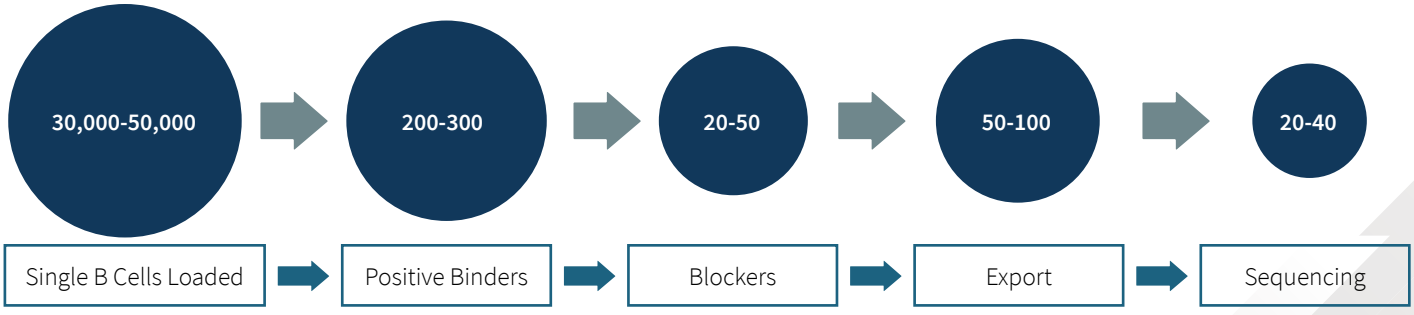
Proof of Concept Study

A POC study was performed using Balb/c mice immunized with recombinant human PD-L1 antigen side by side to compare B cell cloning and hybridoma methods. A majority of PD-L1 blockers identified on the Beacon platform were confirmed in subsequent characterization assays once generated as chimeric IgGs. A majority (58%) of the B cell cloning antibodies had binding and potency similar to or better than benchmark antibodies whereas only 32% of hybridoma antibodies had potency comparable to benchmarks. Thus, B cell cloning enables identification of a greater number of desired hits in a fraction of the time. Antibody candidates with desired properties can be further optimized for manufacturability and developability through ChemPartner's extensive large molecule capabilities.

	B Cell Cloning on Beacon	Hybridoma
Blockers in Primary Screen	35	>51
Single Digit nM Affinity	6	12
Blocking False Positive Rate`	5/24 (21%)	13/41 (32%)
Blocking IC50 ~ Tabs	14/24 (58%)	11/41 (32%)
Blocking IC50 < Tabs	5/24 (21%)	0/41
pM Affinity and Potent Blocking	2/2 (100%)	1/3 (33%)
Epitope Bins	4	13
T Cell Stimulation EC50 ≤ Tabs	9/24 (37.5%)	4/41 (9.7%)



Typical Output for B Cell Cloning Workflow



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