Abveris on Antibody Discovery

MEET YOUR PEER

Colby A. Souders, PhD is the Chief Scientific Officer at Abveris, an antibody discovery company in Boston. Colby provides scientific leadership for the team to guide decisions and develop innovative strategies for successful delivery of each unique project. Before Abveris, he graduated with a PhD in Cell and Molecular Biology from Texas A&M and directed antibody discovery and engineering programs at both KanyosBio and MassBiologics of the University of Massachusetts Medical School.
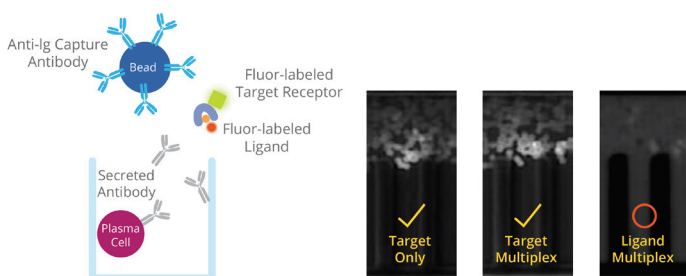
RAPID END-TO-END ANTIBODY DISCOVERY

Abveris is an antibody discovery partner with a focus on challenging therapeutic targets. They provide comprehensive gene-to-antibody discovery services by applying advanced immunization methods combined with B cell screening and hybridoma-based antibody discovery technologies. In order to reduce their timelines and discover antibodies against difficult targets, Abveris adopted the Beacon® optofluidic system.

HIGHER SCREENING RESOLUTION

In the webinar "Accelerating Antibody Discovery in the Modern Therapeutic Landscape", Colby explains how the Berkeley Lights Platform enables a function-forward approach in which multiple assays are performed for early down-selection of lead antibody candidates. In the webinar, he highlights the various assays Abveris runs on the Beacon system to measure single cell secretion and identify antibodies that target both soluble and cell surface membrane antigens. As an example, the figure below depicts an assay to identify anti-idiotypic antibodies that block binding to the receptor ligand.

"The main reason why we employ the Beacon system here at Abveris is to enable deep characterization of single B cells in multiple sequential assays. Its design allows for precise control over the movement of cells, leaving you with the ultimate flexibility in assay design and, as a result, higher screening resolution.

— Colby A. Souders, PhD
Chief Scientific Officer, Abveris

Competitive multiplex target and ligand blocking assay.

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FINDING HIGH-AFFINITY RARE ANTIBODIES

Abveris scientists used the Opto™ Plasma B Discovery workflow on the Beacon system to look for antibody candidates with exquisite specificity to the target antigen over homologous non-native off-target proteins. Previous attempts using phage display resulted in inadequate candidates with either poor specificity or poor affinity. The Abveris team was able to screen a highly diverse plasma B cell repertoire using their proprietary genetically-engineered hyperimmune mouse model, the DiversimAb™ Platform, to identify a rare antibody without any off-target cross-reactivity. The ability to perform sequential assays on the same cells allowed them to identify rare, highly specific antibodies and export cells for sequencing and further analysis. For more detail on how Abveris is selecting lead antibody candidates on the Beacon system, you can also read our application note.

Monomer Binding Assay   Tetramer Binding Assay

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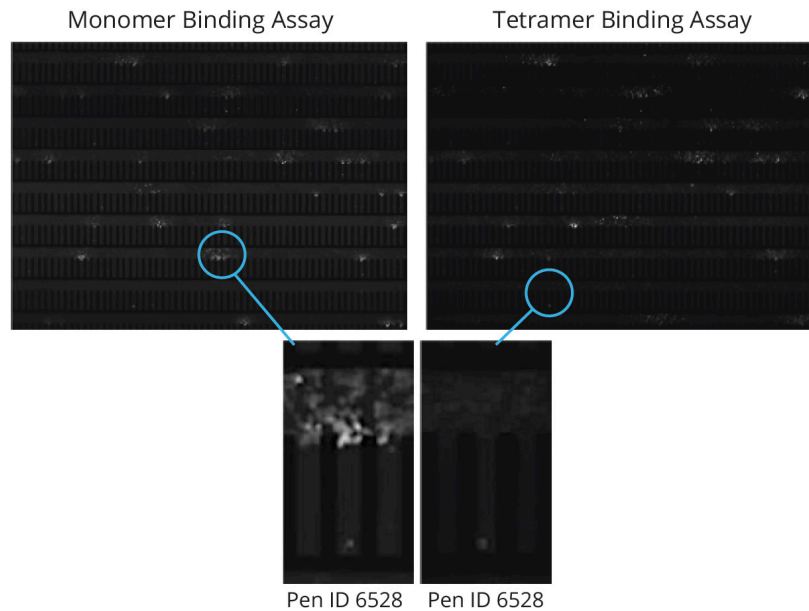
Identification of rare antibodies with specificity to the monomeric form of a serum protein over its completely-homologous tetrameric form. Single plasma B cells were screened to identify candidates that recognized the target monomer without cross-reactivity to the completely homologous tetramer.

FOR MORE INFORMATION, VISIT

berkeleylights.com/workflows/antibody-discovery/

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