Antibodies Against 100+ Impossible Protein Targets

High-quality MAbs for previously intractable GPCRs, ion channels, & transporters

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Integral Molecular, Philadelphia, PA

Solutions for the Most Challenging Antibody Programs

We specialize in membrane proteins, some of the most important targets in drug discovery but some of the hardest to work with. Together, our platforms support the path from discovery through IND.

ANTIBODY DISCOVERY

Unlocking access to difficult membrane protein targets. MAbs against GPCRs, ion channels, and transporters for target validation and licensing.

Cell Surface Bio®

FEATURED ON THIS POSTER
CSB, our antibody discovery subsidiary

SPECIFICITY TESTING

Off-target screening against 6,000 native human membrane proteins. Enables confident lead selection and IND submission.

Membrane Proteome Array™

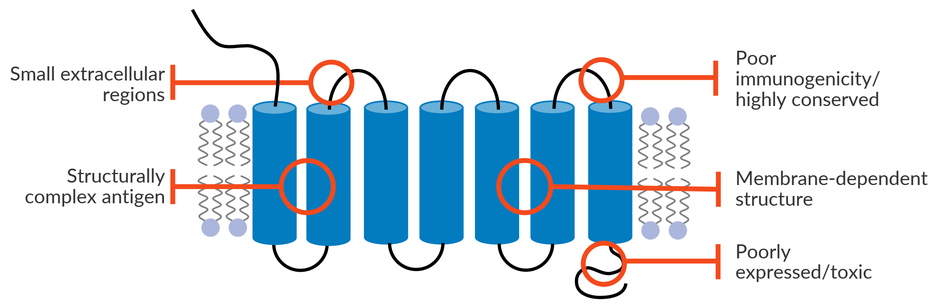
LEAD OPTIMIZATION

A complete map of permissible CDR substitutions, measured and tested. Enables multiparametric engineering and broader patent claims.

Paratope-PLUS®

Access Untapped Targets

Multipass Membrane Proteins Are Difficult Targets

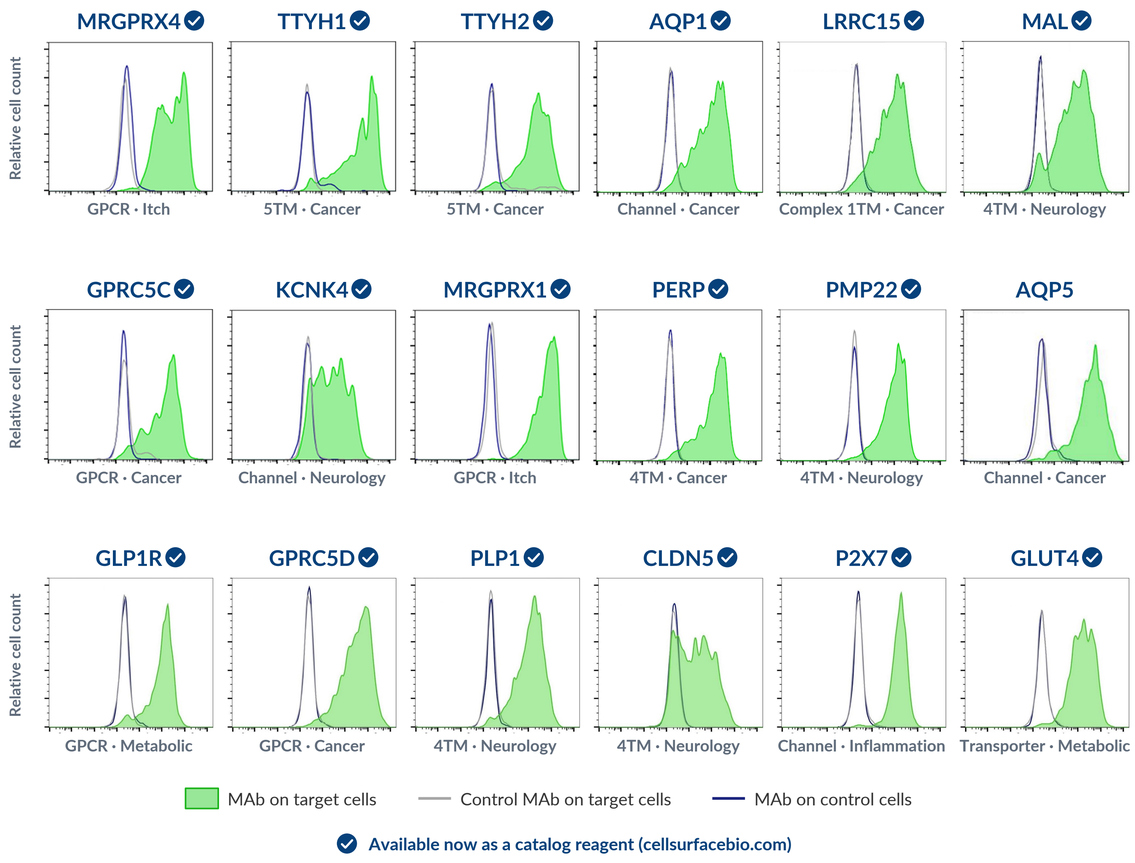


Most GPCRs, ion channels, and transporters lack high-quality antibodies

We Selected the Top 100 Impossible Targets



We Are Isolating MAbs That No One Else Has



Available now as a catalog reagent (cellsurfacebio.com)

Access Validated Antibodies

How We Unlock Impossible Targets

Engineered antigens
25 years expressing membrane proteins in native conformation

mRNA-driven expression
Antigen expressed in vivo in its native membrane context

VLP antigen boost
Membrane proteins displayed at high density in native form

Chicken immunization
Evolutionary distance + long HCDR3 reaches conserved epitopes

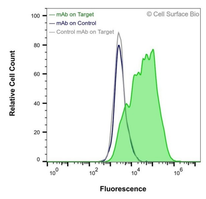
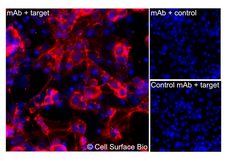
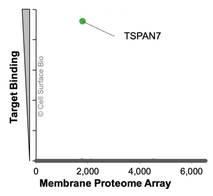
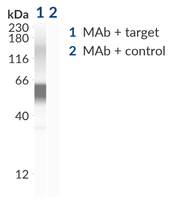
Validated Antibodies for Promising Drug Targets

MAb characterization Our MAb validation pipeline includes flow cytometry, IF, ICC, MPA, and western blotting

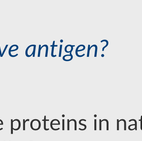


AlphaFold P41732

TSPAN7
Tetraspanin-7 (CD231)
4TM tetraspanin
Autoantigen in type 1 diabetes

Flow cytometry	IF and ICC	MPA specificity	Western blot
			
Binding to native target vs. control cells	Staining of non-permeabilized target-expressing cells	No off-target binding across 6,000 membrane proteins	Band in target sample, none in control sample

Reformatted for therapeutic modalities Humanized leads as TCEs, ADCs, and degraders



Humanized lead MAbs

Humanize	Reformat	Preclinical testing
	T-cell engager (TCE)	→ T-cell–dependent killing (TDCC)
	Antibody–drug conjugate (ADC)	→ Internalization to acidic compartments
	Bispecific degrader	→ Target internalization and degradation

Preclinical testing Leads against 13 targets in TCE- and ADC-relevant assays

T-cell–dependent killing (TCE)
34 unique BsAbs across 13 targets direct activated T cells to kill target-expressing cells

Methods Each point represents a distinct BsAb. BsAbs with a CD3 arm were tested at 20 nM (~2.5 µg/mL) for 24 h in cocultures of activated T cells and transiently transfected, target-expressing cells (10:1 T cell:target cell ratio). Cytotoxicity was assessed using a luciferase readout. Targets are anonymized.

Internalization to acidic compartments (ADC)
Select MAbs show strong uptake into acidic compartments, supporting their potential for ADC payload delivery.

Methods Each point represents a distinct MAb. MAbs conjugated to a pH-sensitive fluorophore were incubated at 1 µg/mL for 2 h with transiently transfected, target-expressing cells. Fluorescence was reported as a signal-to-background ratio. Targets are anonymized.

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from Ross Chambers (contact below)

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Integral Molecular is the industry leader in antibody discovery, specificity testing, and optimization of antibodies against challenging targets such as complex membrane proteins, backed by 25 years of experience, 600+ customers, and 500+ manuscripts using our technologies.

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