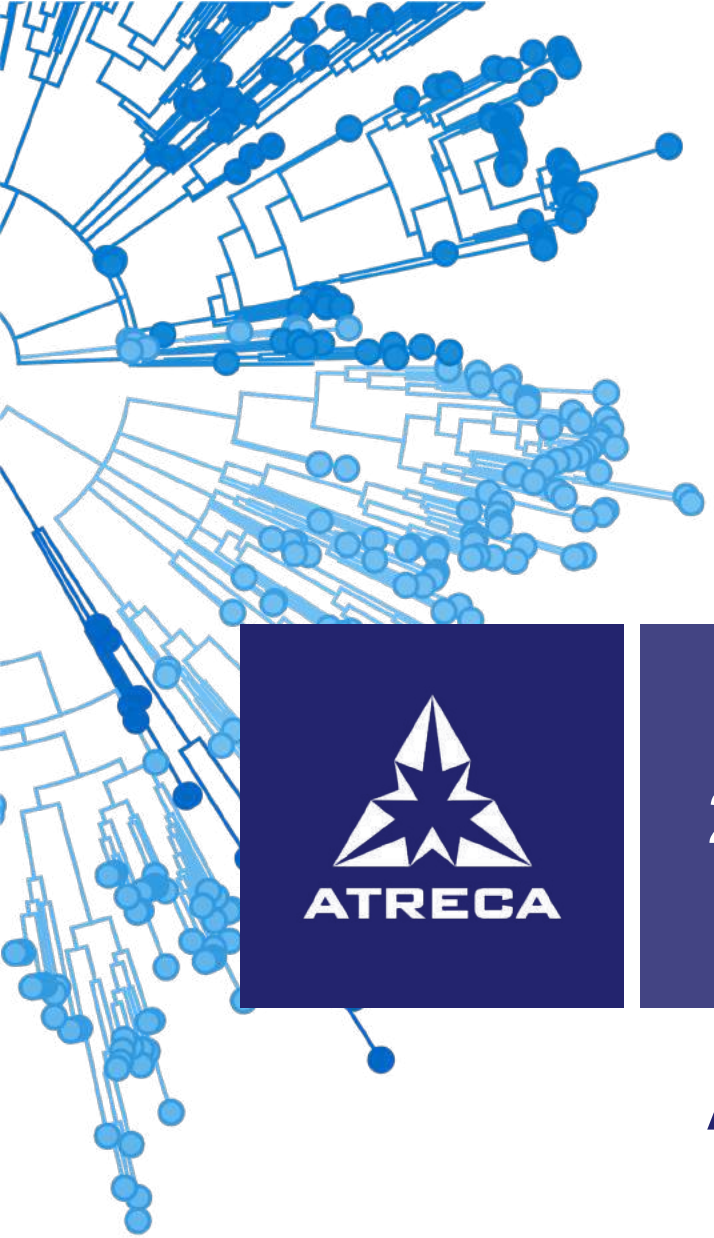


ATRECA

2022 R&D Day

April 5, 2022

Legal Disclaimer

This presentation and the accompanying oral commentary contain forward-looking statements about us and our industry that involve substantial risks and uncertainties. All statements other than statements of historical facts contained in this presentation and the accompanying oral commentary, including statements regarding our future results of operations or financial condition, business strategy and plans and objectives of management for future operations, are forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. In some cases, you can identify forward-looking statements because they contain words such as "potential," "believe," "target," will," "demonstrate," "expect," ''anticipate,'' ''continue,'' "may," "plan," "predict," "present," "aim," "goal" or the negative of these words or other similar terms or expressions, although not all forward-looking statements contain these words. These forward-looking statements include, but are not limited to, statements concerning the following: the initiation, timing, progress and results of our research and development programs, preclinical studies, and clinical trials; our strategy and future plans, including our Phase 1b trial of ATRC-101 and statements regarding the development of ATRC-101 and our preclinical, clinical, and regulatory plans, and the timing thereof; the availability and timing of data from monotherapy dose expansion cohorts in our Phase 1b trial of ATRC-101 and from combination cohorts evaluating ATRC-101 with pembrolizumab and with and other data readouts; plans to begin participant selection based on target expression; our ability to identify potentially valuable therapeutic antibodies through our discovery platform and collaborations with third-parties; our ability to weaponize or otherwise optimize our lead antibodies; our plans for utilizing ZymeLinkTM technology with the agreement with Zymeworks; our plans to utilize the ZymeLinkTM platform in connection with ATRC-301; the development of ATRC-301 and our preclinical and clinical plans, specifically, plans to present results of IND-enabling studies for ATRC-301 in the second half of 2022 and our ability to submit an IND application for ATRC-301 in the second half of 2023, including the timing thereof; our plans regarding a first in human study of ATRC-301 in the first half of 2024; the safety and potential efficacy of our clinical candidates, including ATRC-301, ATRC-101 and our anti-SARS-CoV-2 antibody discoveries; our ongoing evaluation, optimization and expansion of our pipeline of oncology programs, including ADC leads APN-497444 and APN-959038, CD3-engager lead APN-346958, and IL-15 SA conjugate lead APN-541885, and the productivity of such programs; our ability to continue to develop new clinical candidates for IND applications and our ability to submit one such application per year; plans to present new information on our EphA2 program and other pipeline antibodies; plans regarding the evaluation of clinical data; our enrollment objectives; our ability to obtain sufficient clinical enrollment; reports of clinical enrollment updates; our ability to fund current operations and develop and commercialize our current or potential future product candidates; our ability to identify and develop product candidates for treatment of additional disease indications; our expectations regarding the achievement and timing of research, development, clinical, regulatory and other corporate milestones; our anticipated milestones and the implementation of our business model and strategic plans for our business, technologies, and current or potential future product candidates; and the ability to obtain intellectual property rights for our current and potential future product candidates. You should not rely on forward-looking statements as predictions of future events. We have based the forward-looking statements contained in this presentation and the accompanying oral commentary primarily on our current expectations and projections about future events and trends that we believe may affect our business, financial condition and operating results. The outcome of the events described in these forward-looking statements is subject to risks, uncertainties and other factors described in greater detail in our filings with the Securities and Exchange Commission (SEC) and available on the SEC's website at www.sec.gov, including in the "Risk Factors" and "Management's Discussion and Analysis of Financial Condition and Results of Operations" sections of our most recently filed Annual Report on Form 10-K, and may cause our actual results, performance or achievement to differ materially and adversely from those anticipated or implied by our forward-looking statements. The forward-looking statements made in this presentation and the accompanying oral commentary relate only to events as of the date on which the statements are made, and while we believe such information forms a reasonable basis for such statements, such information may be limited or incomplete, and our statements should not be read to indicate that we have conducted an exhaustive inquiry into, or review of, all potentially available relevant information. These statements are inherently uncertain, and investors are cautioned not to unduly rely on these statements. Moreover, we operate in a very competitive and rapidly changing environment. New risks and uncertainties emerge from time to time, and it is not possible for us to predict all risks and uncertainties that could have an impact on the forward-looking statements contained in this presentation and the accompanying oral commentary. The plans, expectations, results, events and circumstances reflected in the forward-looking statements may not be achieved or occur, and actual results, events or circumstances could differ materially from those described in the forward-looking statements. We undertake no obligation to update any forward-looking statements made in this presentation and the accompanying oral commentary to reflect events or circumstances after the date of this presentation and the accompanying oral commentary or to reflect new information or the occurrence of unanticipated events, except as required by law. Our forward-looking statements do not reflect the potential impact of any future acquisitions, mergers, dispositions, joint ventures or investments. We qualify all our forward-looking statements by these cautionary statements.

This presentation discusses our current and potential future product candidates that are under clinical investigation and which have not yet been approved for marketing by the U.S. Food and Drug Administration. No representation is made as to the safety or effectiveness of these current or potential future product candidates for the use for which such product candidates are being studied.

Today's speakers

John Orwin
President and CEO

Tito Serafini, PhD
Chief Strategy Officer

Daniel Emerling, PhD
SVP, Research

Amy Manning-Bog, PhD
VP, Translational Sciences

Shaun Lippow, PhD
VP, Protein Engineering

Alexander Scholz, PhD
Senior Director, *In Vitro* Pharmacology

Available for questions

Jonathan Benjamin, MD PhD
SVP, Clinical Research

Herb Cross
Chief Financial Officer

Agenda

- **Introduction** – Tito Serafini, PhD
- **Discovery Platform** – Daniel Emerling, PhD
- **Anti-EphA2 Program and Clinical Candidate**
  - *Amy Manning-Bog, PhD / Shaun Lippow, PhD / Alexander Scholz, PhD*
- **Lead-Stage Programs**
  - *ADCs and the Atreca ADC Engine – Alexander Scholz, PhD*
  - *Tumor-targeting CD3 T Cell Engager – Shaun Lippow, PhD*
  - *Tumor-targeting IL-15SA Fusion – Amy Manning-Bog, PhD*
- **Summary and Upcoming Milestones** – John Orwin
- **Q&A**

Executive Summary

Platform

- Atreca's drug discovery approach and platform validated by ATRC-101 clinical data
- Atreca platform continues to evolve and is delivering a robust pipeline

ATRC-301

- Antibody Drug Conjugate (ADC) targeting EphA2 declared as clinical candidate
- Enabled by newly announced licensing agreement with Zymeworks
- Demonstrates potent anti-tumor activity *in vivo*
- Differentiated from previous and current clinical-stage programs

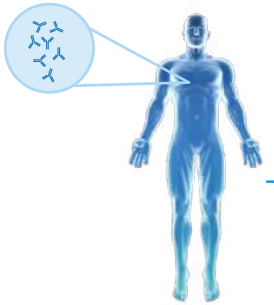
Pipeline

- Four additional lead-stage oncology programs advancing
- Lead antibodies bind novel tumor targets that vary in molecular class
- All programs have positive *in vivo* data

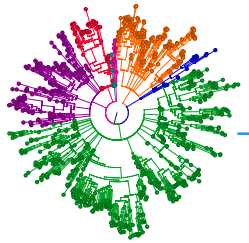
ADC, antibody–drug conjugate; EphA2, erythropoietin-producing hepatocellular receptor A2.

Our Novel Approach Inverts the Discovery Paradigm

The **HUMAN IMMUNE SYSTEM** tells us what is important



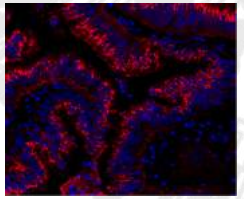
Patient with anti-tumor immune response



Interrogation of the active B cell response at the **single-cell** level

Identification of novel antibody–target pairs

Selection & Screening

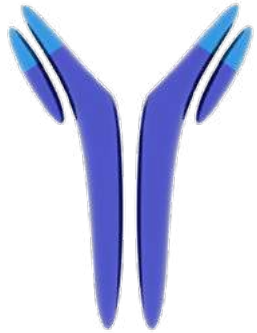


Currently **>2,000 "hit"** antibodies against non-autologous "public" **targets**

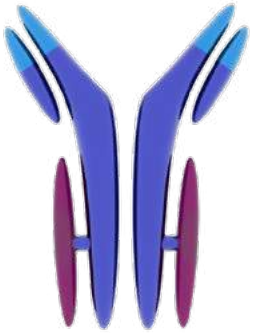
Hit Antibodies

Weaponization

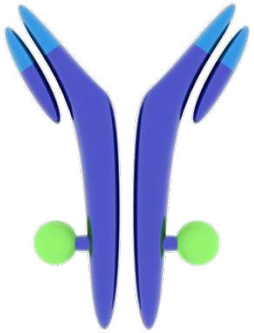
Leads



Activating Fc



Fc + binding domain (*e.g.*, T cell engager)

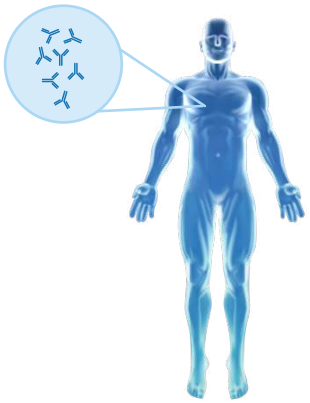


Fc + small molecule (*e.g.*, ADC)

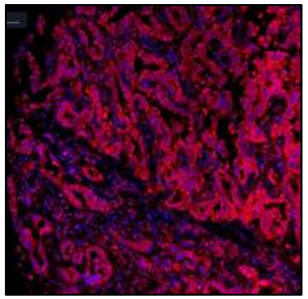
ADC, antibody–drug conjugate; Fc, fragment crystallizable; Fv, variable fragment.

ATRC-101 Represents the Potential of the Atreca Approach

Engineered version of a patient antibody discovered via the Atreca platform



Lung adenocarcinoma patient undergoing treatment with nivolumab



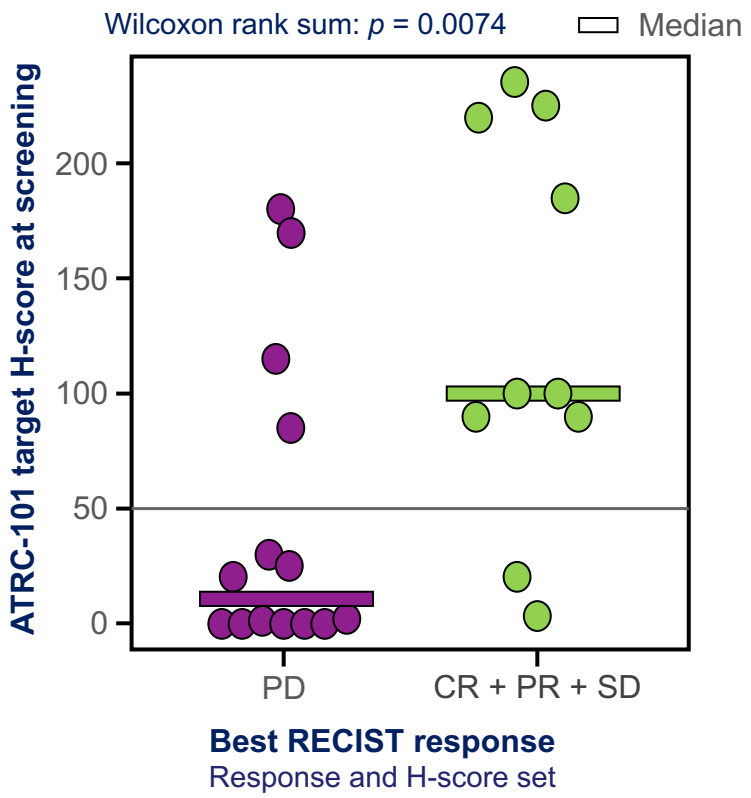
ATRC-101 binds an RNP complex present on multiple tumor types across patients

- **First-in-class** program
  - Novel target
  - Novel MOA
- **Phase 1b trial** in select solid tumors is ongoing, enrolling participants in Q2W and Q3W monotherapy cohorts and in combination cohort with pembrolizumab
- **Well-tolerated** in monotherapy and combination cohorts at all dose levels evaluated

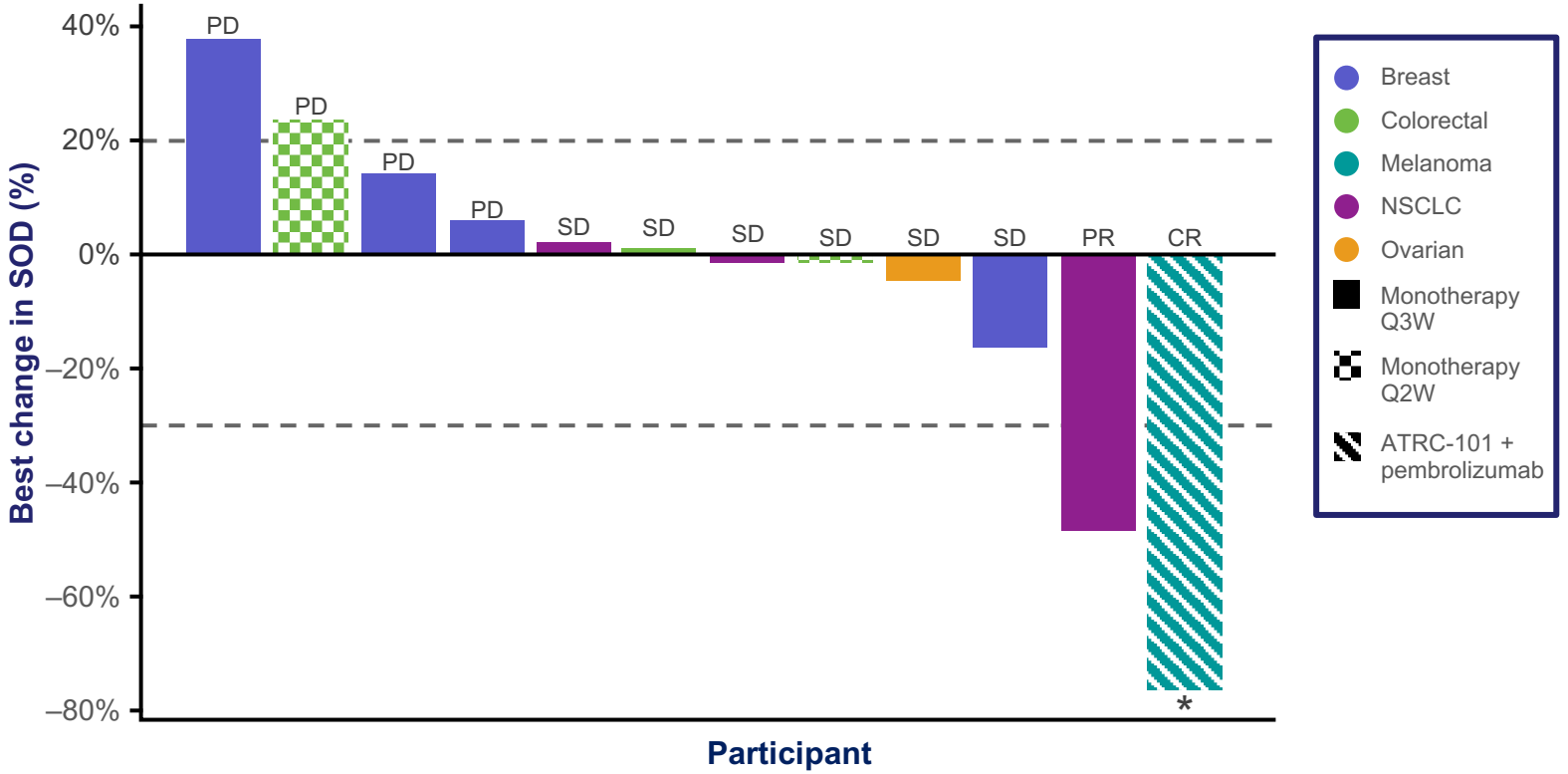
MOA, mechanism of action; Q2/3W, once every 2/3 weeks; RNP, ribonucleoprotein.

Clinical Activity of ATRC-101 Validates Atreca's Discovery Approach and Platform

Higher target expression associates with activity



Anti-tumor activity seen in multiple tumor types in participants with high target expression



*Lymph nodes deemed non-pathologic (<10 mm) and considered a CR.
CR, complete response; NSCLC, non-small cell lung cancer; PD, progressive disease; PR, partial response; RECIST, Response Evaluation Criteria in Solid Tumours; SD, stable disease; SOD, sum of diameters.

Atreca's Platform Has Generated a Robust Pipeline

Candidate / Lead	Target	Format / MOA	Lead	Candidate / Preclinical	Phase 1	Phase 2	Weaponization Tech
ONCOLOGY							
ATRC-101	Novel RNP Complex	IgG Antibody w/ Driver Antigen Engagement					
ATRC-301	EphA2 (novel epitope)	ADC (Cytotoxic)					zymeworks
APN-122597		T Cell Engagement (via CD3)					
APN-497444	Glycan (tumor-specific)	ADC (Cytotoxic)					zymeworks
APN-959038	Transmembrane protein (novel epitope)	ADC (Cytotoxic)					zymeworks
APN-346958	RNA-binding protein	T Cell Engagement (via CD3)					Xencor
APN-541885	Oncofetal protein	NK & T Cell Engagement (via IL-15SA)					
INFECTIOUS DISEASES							
ATRC-501 / MAM01 (Malaria)	*P. falciparum* Circumsporozoite Protein	IgG antibody					
APN-850271 / APN-906072 (COVID-19)	SARS-CoV-2 Spike Protein	IgG antibody					

ADC, antibody–drug conjugate; EphA2, erythropoietin-producing hepatocellular receptor A2; IgG, immunoglobulin G; IL, interleukin; MOA, mechanism of action; NK, natural killer; RNA, ribonucleic acid; RNP, ribonucleoprotein; SA, superagonist; SARS-CoV-2, severe acute respiratory syndrome coronavirus 2.

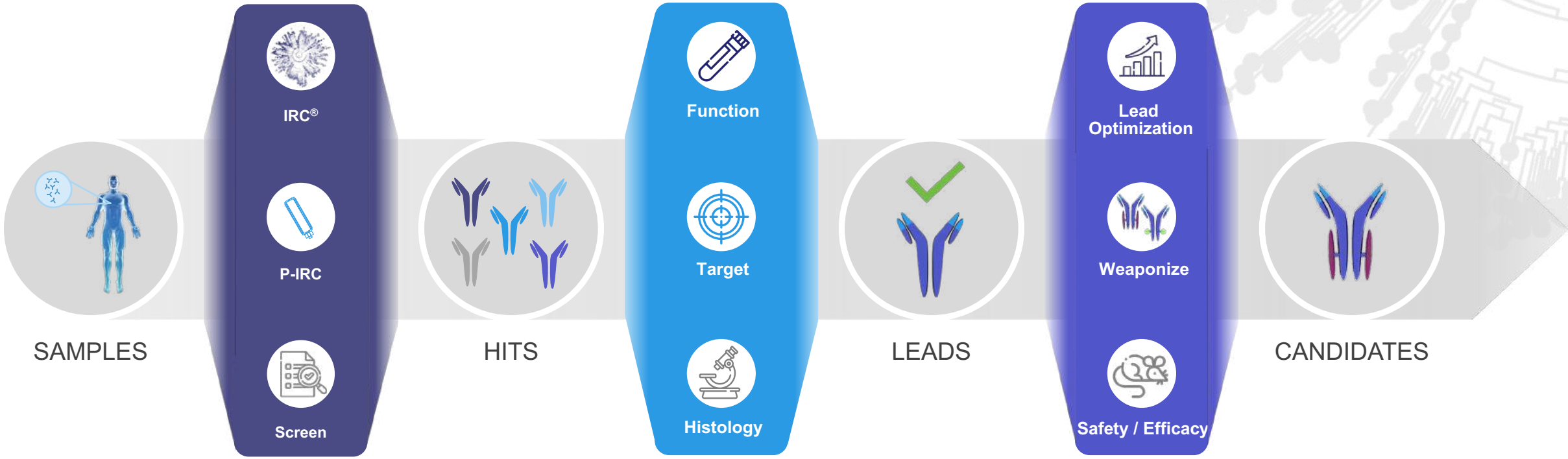
The Atreca Discovery Platform

Daniel Emerling, PhD

SVP, Research

Atreca's Drug Discovery Platform

From patient anti-tumor immune responses to clinical candidates



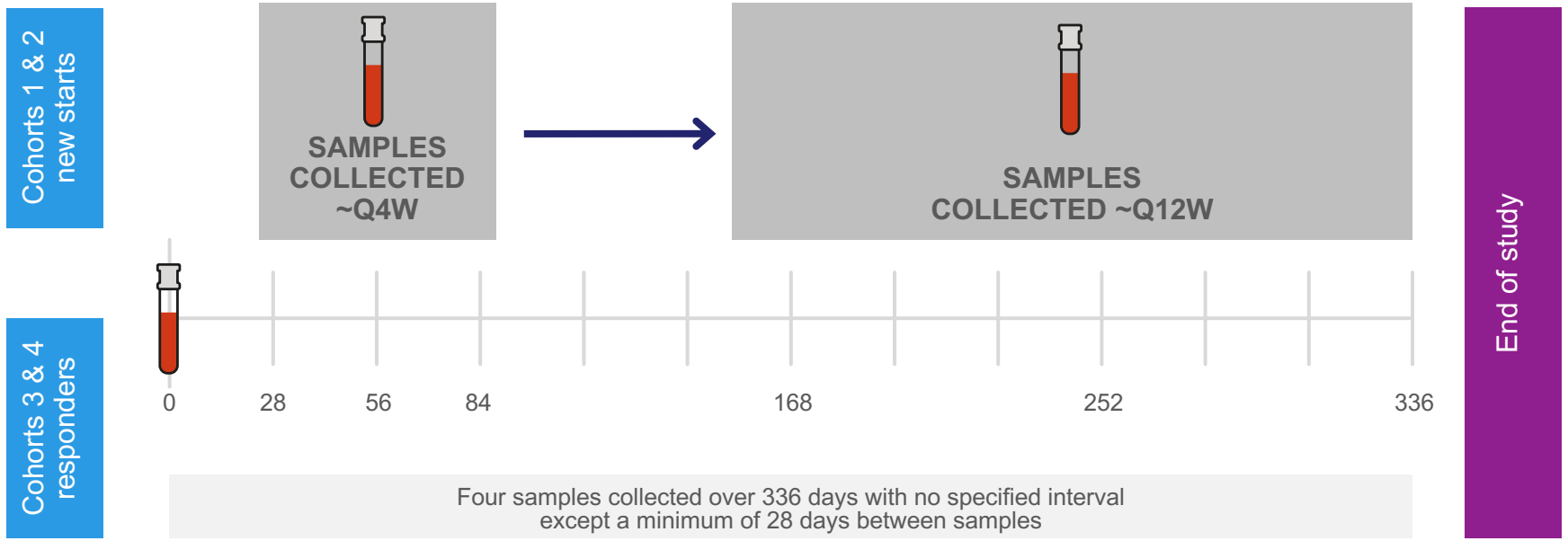
Platform delivers candidates with potent anti-tumor activity binding novel targets and epitopes

IRC, Immune Repertoire Capture; P-IRC, Phage-Immune Repertoire Capture.

Sample Acquisition and Repository

Sample acquisition study design

New starts: immunotherapy (Cohort 1) & tumor-targeting antibody (Cohort 2)



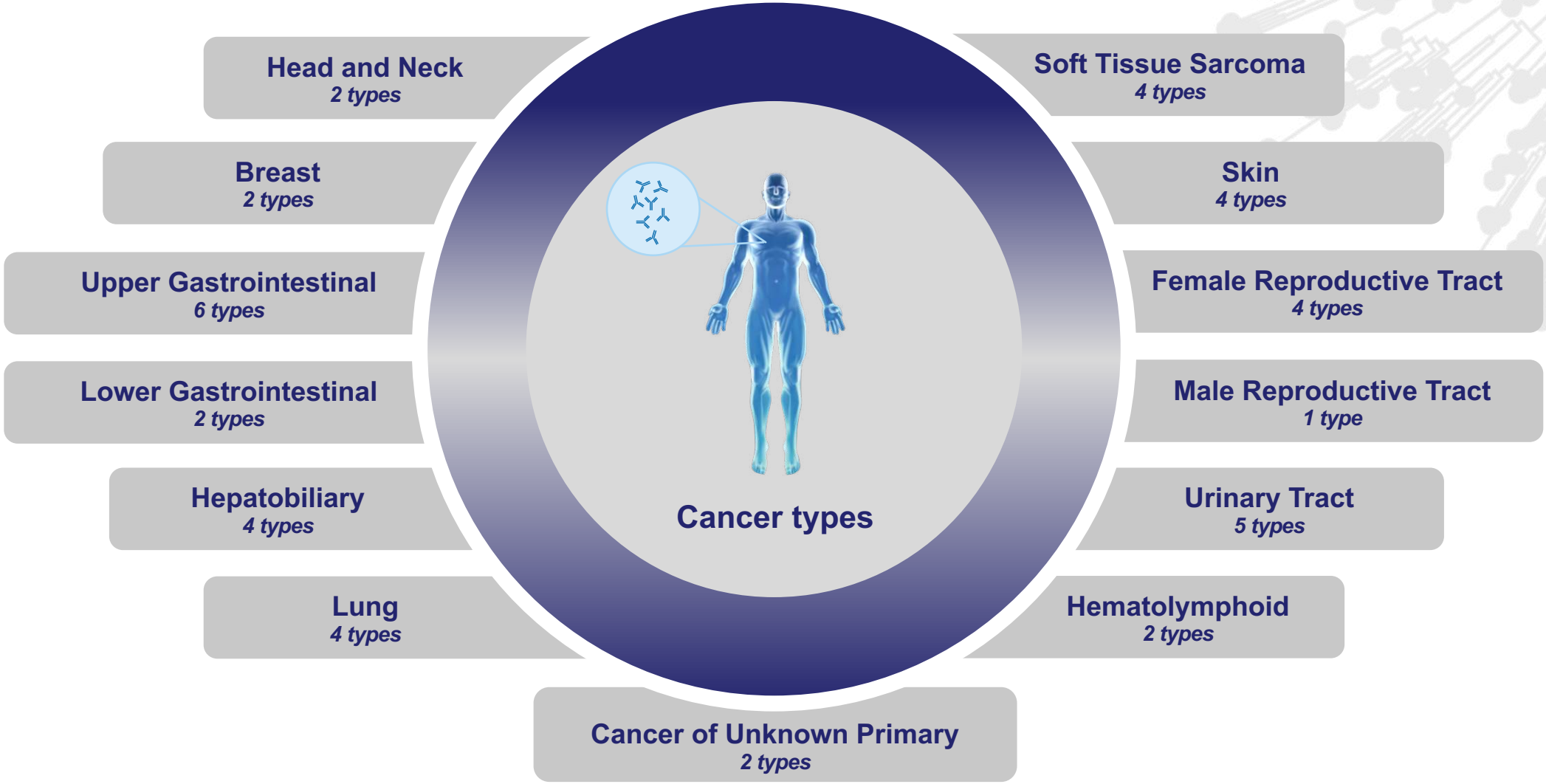
Responders: immunotherapy (Cohort 3) & exceptional non-immunotherapy (Cohort 4)

Atreca sample repository

- **Samples: >1700**
- **Patient donors: >500**
- **Solid tumor types: >35**

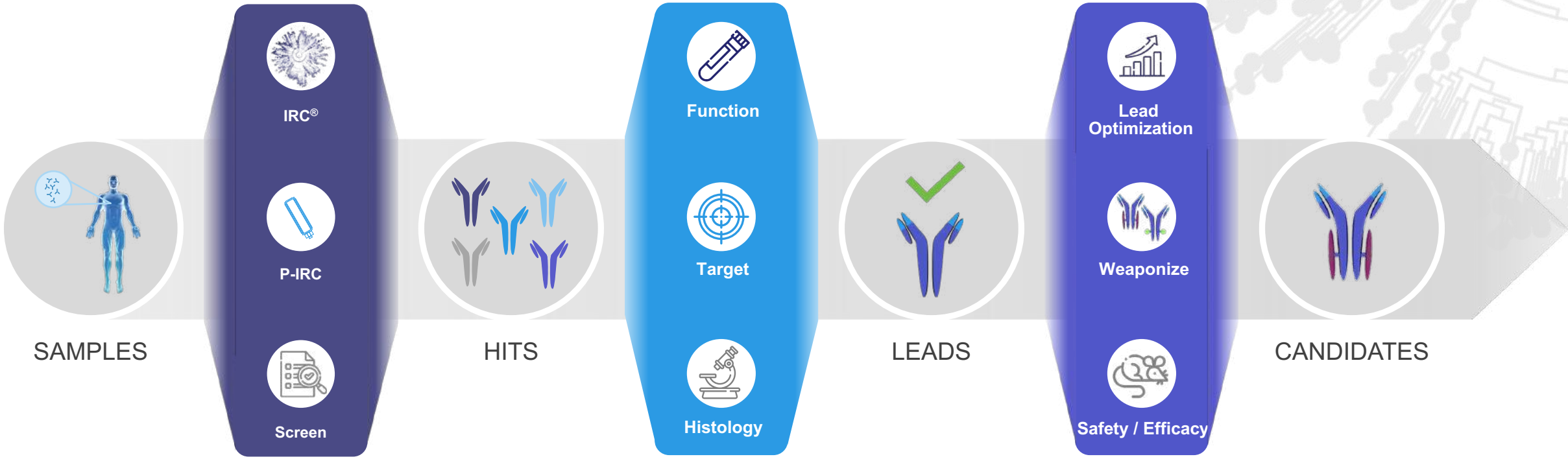
Q4W, every 4 weeks; Q12W, every 12 weeks.

Cancer Types Represented in the Atreca Sample Repository



Atreca's Drug Discovery Platform

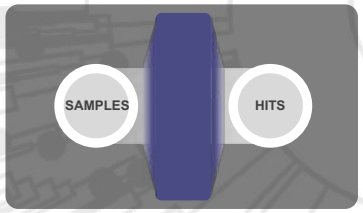
From patient anti-tumor immune responses to clinical candidates



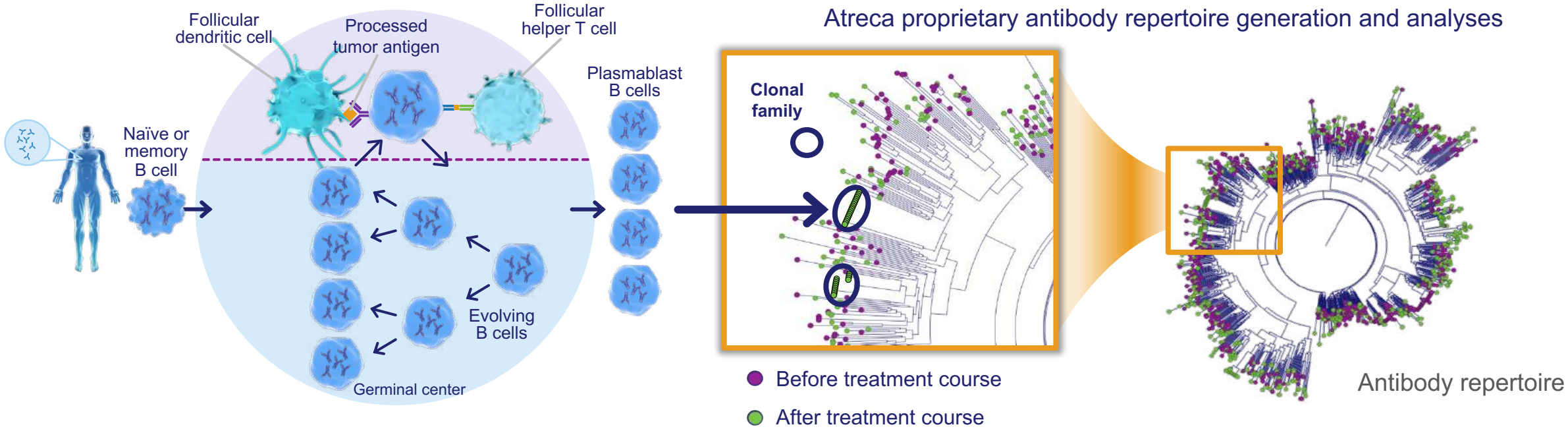
Platform delivers candidates with potent anti-tumor activity binding novel targets and epitopes

IRC, Immune Repertoire Capture; P-IRC, Phage-Immune Repertoire Capture.

Atreca's Platform Leverages B Cell Biology for Discovery



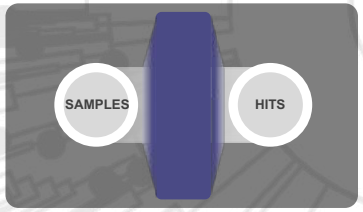
Cancer patients have an antigen-driven B cell response similar to those driven by antigens in infectious disease or autoimmunity[1]

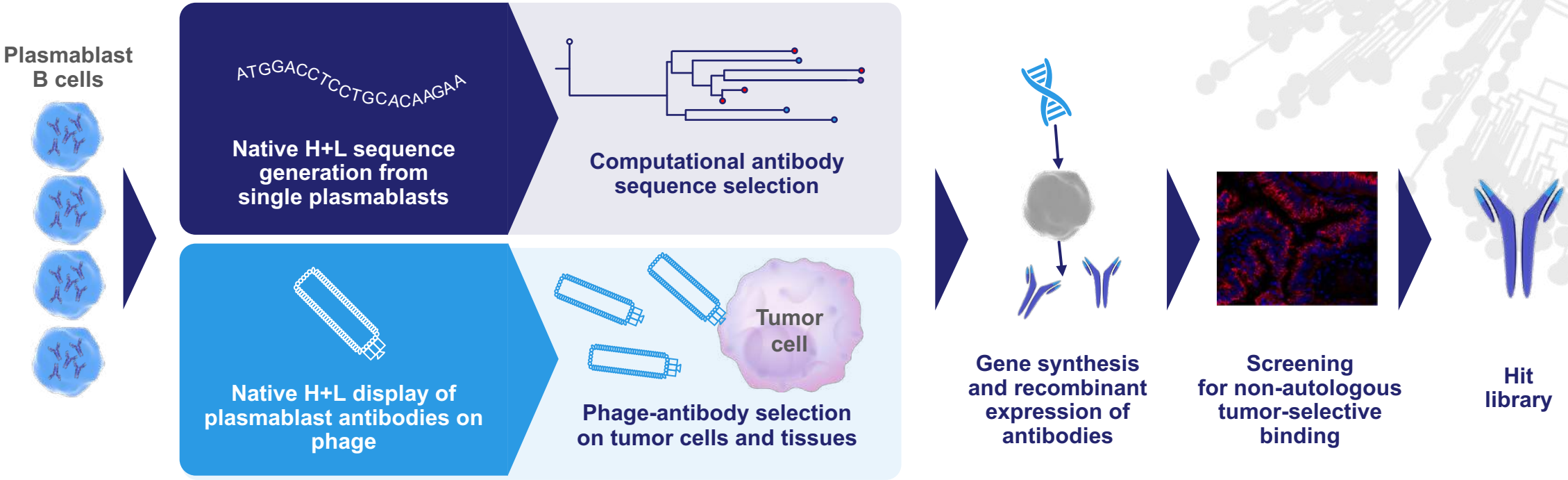


- Plasmablasts express antibodies targeting antigens being processed by the active immune response
- Clonal families of plasmablast antibodies are generated in germinal centers during an adaptive immune response

1. DeFalco J, et al. *Clin Immunol*. 2018;187:37–45.

Atreca Identifies Tumor-Selective “Hit Antibodies” from the Plasmablast Repertoires of Cancer Patients



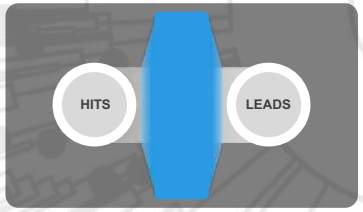


*Foundational patents granted in multiple jurisdictions feature **composition of matter** claims directed to polynucleotide libraries of native pairs of antibody heavy and light chain sequences generated from plasmablasts using nucleotide barcoding at the single-cell level*

Our phage-based approach is also supported by a growing patent portfolio

H, heavy chain; L, light chain.

Atreca's Hit-to-Lead Path



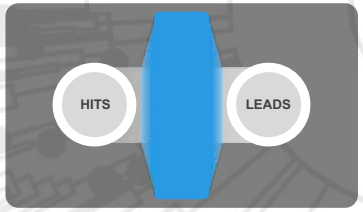
Leads are selected based on:

Functional properties as characterized in assays and models

Understanding the target and epitope of a hit antibody

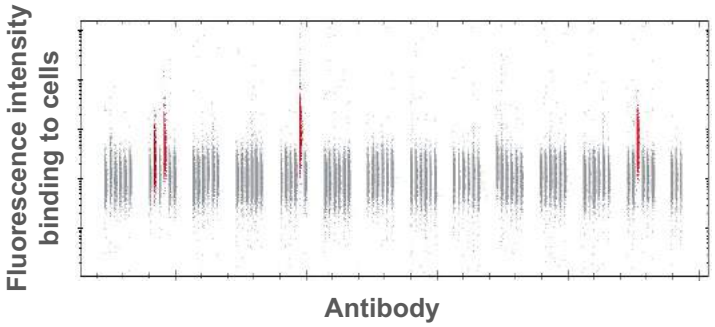
Histology to assess potential indications and normal tissue binding

Tumor Cell Lines that Bind Hit Antibodies Enable *in Vitro* and *in Vivo* Functional Assessments



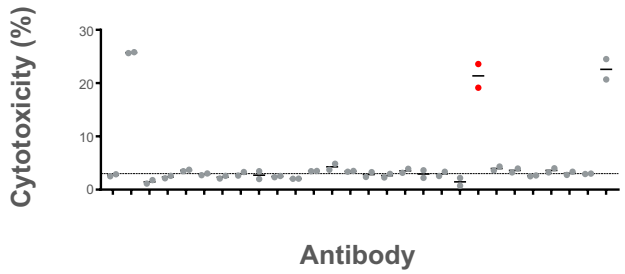
Functional assessments performed in parallel help define early leads

Flow cytometry binding screens



Screens identify tumor cell lines useful for functional characterization of hit antibodies in absence of target info

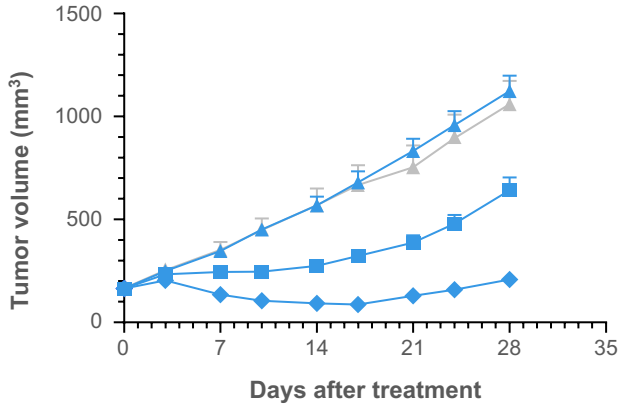
Functional *in vitro* screens



Tumor cell killing assessed using

- Effector cells to assay for potential in bispecific immune-engager formats
- Toxin conjugates to assess potential as ADC

In vivo tumor models

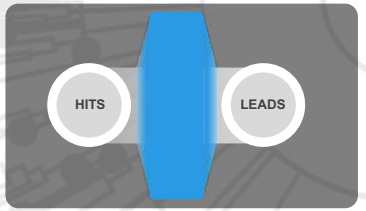


Activity *in vivo* assessed using CDX models

- Comparison of various feasible weaponizations of early leads
- Syngeneic and xenograft models

ADC, antibody–drug conjugate; CDX, cell line-derived xenograft.

Multiple Technologies Enable Identification of the Novel Targets and Epitopes of Tumor-Binding Hit Antibodies



Initial assessments

- Polyspecificity
- Glycan binding

De-orphanization

- Protein arrays
- Peptide display
- Overexpression libraries
- Functional genomics
- Immunoprecipitation-MS
- Western-MS
- Crosslinking-MS
- Custom methods

Target confirmations

- Purified protein western/ELISA
- *In vitro* overexpression + immunofluorescence
- Knockout in cancer cell lines

Epitope identification

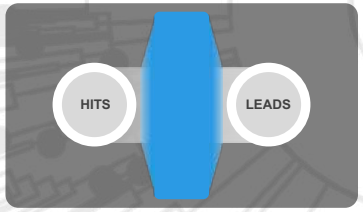
- Epitope binning (by Octet)
- Residue mapping by yeast display of target
- Co-crystal structure with Fab
- Peptide arrays
- XL-MS
- HDX
- CryoEM

Targets come from a wide range of biomolecular classes

Diversity of target classes necessitates multiple strategies and technologies to identify targets

ELISA, enzyme-linked immunosorbent assay; EM, electron microscopy; Fab, fragment antigen-binding; HDX, hydrogen/deuterium exchange; MS, mass spectrometry; XL, cross-linking.

Industrial Scale Histological Screening Possible Because Hit Antibodies Are Active as Histological Reagents



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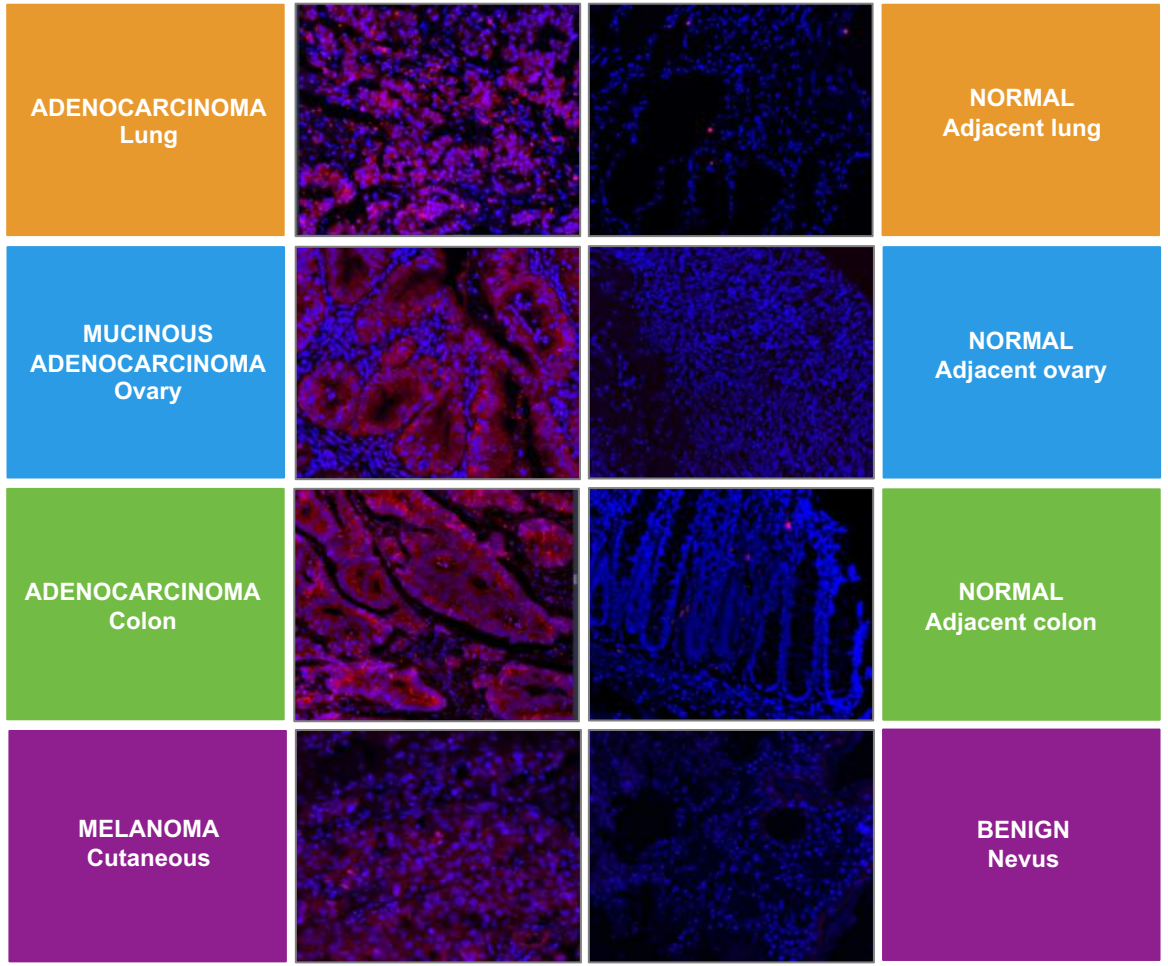
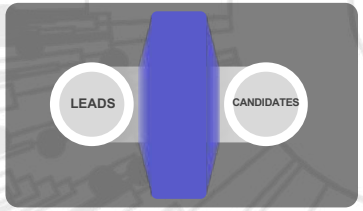


Staining against panels of human tumor and normal tissues reveals

- Relevant indications and prevalence
- Normal tissue binding
- Cellular and subcellular localization of epitopes relevant to weaponization strategy



Atreca's Lead-to-Candidate Path

Optimizing human-derived antibodies for therapeutic development

Sequence optimization by design and display methods

- Increasing binding potency
- Improving developability

Weaponization confirmation and optimization

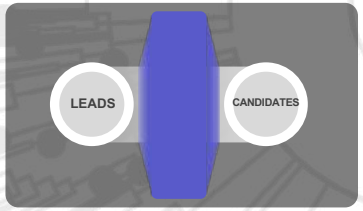
- Immune-engager format
- ADC toxin and linker
- IgG subclass and Fc-receptor competence of constant region

Therapeutic window assessment *in vivo*

- Efficacy dose-range finding in rodent tumor models
- Non-GLP safety assessments in rodent and non-human primate

ADC, antibody–drug conjugate; Fc, fragment crystallizable; GLP, good laboratory practices; IgG, immunoglobulin G.

Antibody Lead Optimization by Design and Display Methods Improves Patient Derived Antibodies



Reduce development liabilities

Remove sequence motifs that create risk

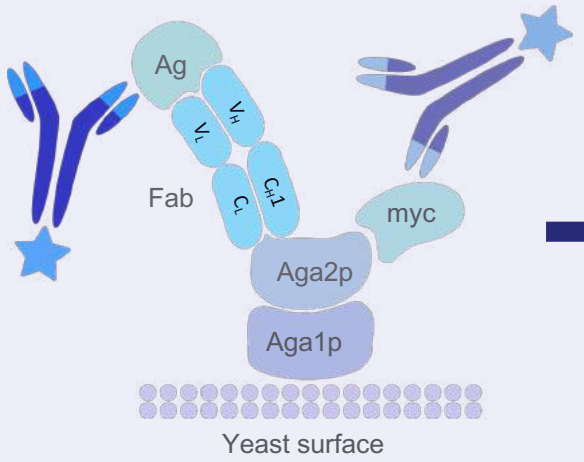
Reduce immunogenicity risk

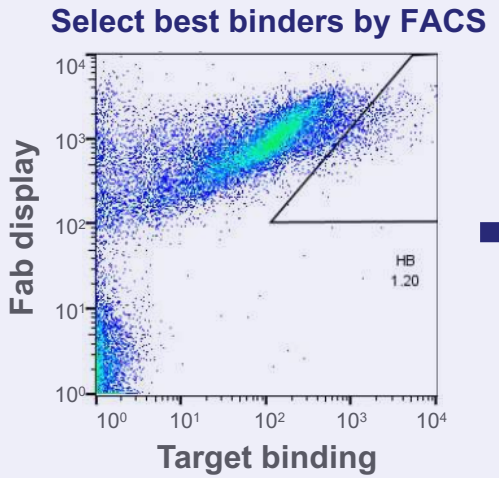
Mutate to closest germline sequence

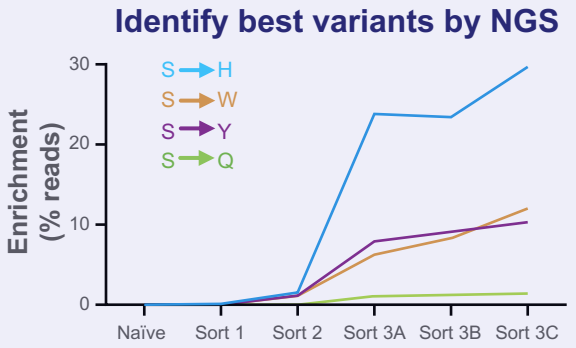
Improve function

Discover novel variants via design and selection

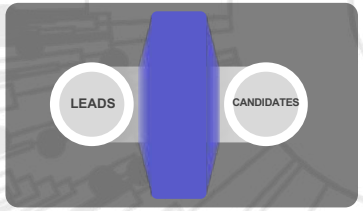
Yeast display identifies improved variants







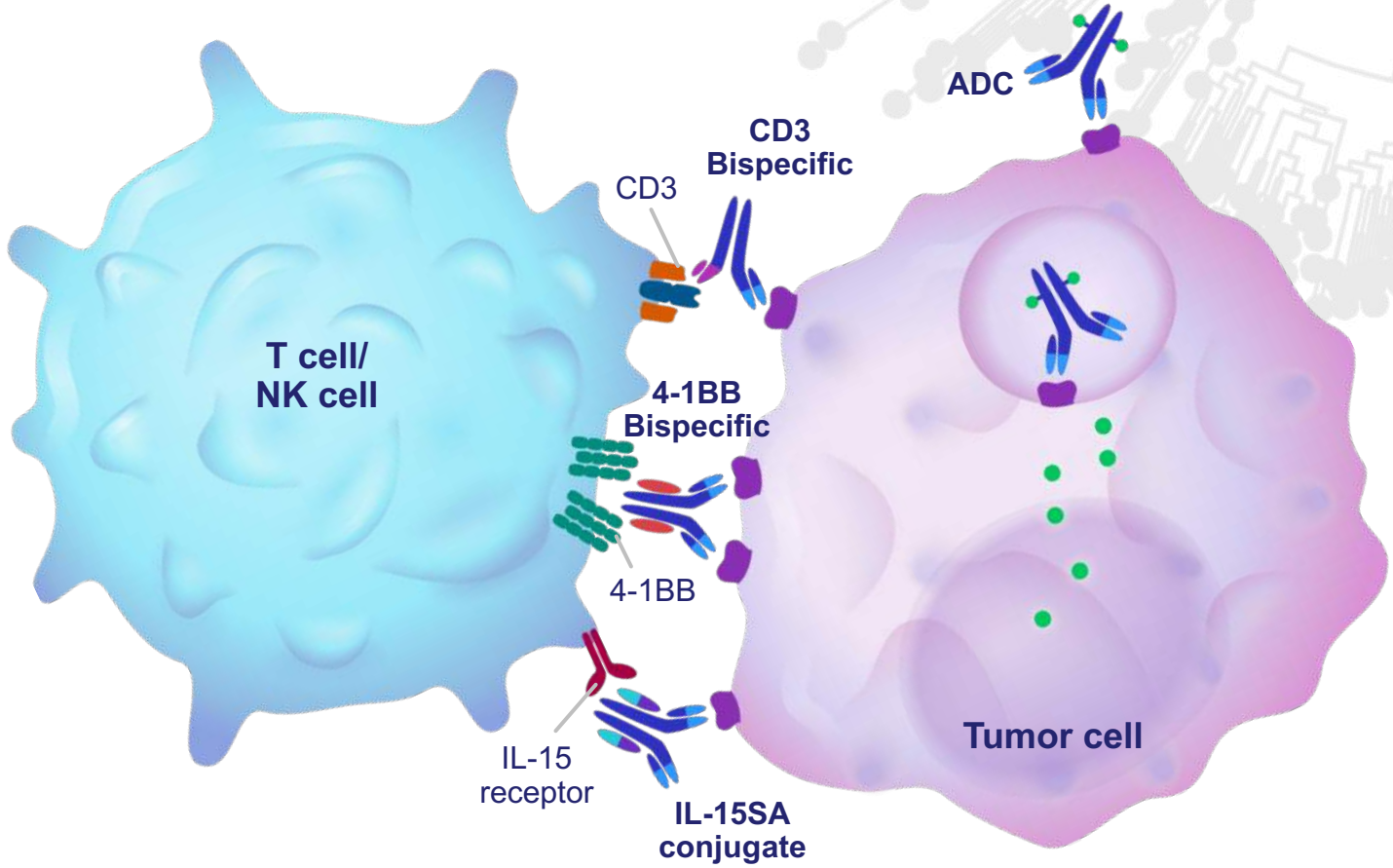
C, constant; Fab, fragment antigen-binding; FACS, fluorescence-activated cell sorting; NGS, next-generation sequencing; V, variable.



Antibody Weaponization Delivers Potent Tumor Killing

Weaponization

- Antibody-drug conjugates (ADC)
- T cell engagers (CD3)
- T & NK cell engagers (4-1BB)
- IL-15 superagonist fusion



IL, interleukin; NK, natural killer, SA, superagonist.

Atreca's Pipeline

Candidate / Lead	Target	Format / MOA	Lead	Candidate / Preclinical	Phase 1	Phase 2	Weaponization Tech
ONCOLOGY							
ATRC-101	Novel RNP Complex	IgG Antibody w/ Driver Antigen Engagement					
ATRC-301	EphA2 (novel epitope)	ADC (Cytotoxic)					zymeworks
APN-122597		T Cell Engagement (via CD3)					
APN-497444	Glycan (tumor-specific)	ADC (Cytotoxic)					zymeworks
APN-959038	Transmembrane protein (novel epitope)	ADC (Cytotoxic)					zymeworks
APN-346958	RNA-binding protein	T Cell Engagement (via CD3)					Xencor
APN-541885	Oncofetal protein	NK & T Cell Engagement (via IL-15SA)					
INFECTIOUS DISEASES							
ATRC-501 / MAM01 (Malaria)	*P. falciparum* Circumsporozoite Protein	IgG antibody					
APN-850271 / APN-906072 (COVID-19)	SARS-CoV-2 Spike Protein	IgG antibody					

ADC, antibody–drug conjugate; EphA2, erythropoietin-producing hepatocellular receptor A2; IgG, immunoglobulin G; IL, interleukin; MOA, mechanism of action; NK, natural killer; RNA, ribonucleic acid; RNP, ribonucleoprotein; SA, superagonist; SARS-CoV-2, severe acute respiratory syndrome coronavirus 2.

Atreca's Anti-EphA2 Program:
ATRC-301 (Clinical Candidate)
APN-122597 (Lead)

Amy Manning-Bog, PhD
VP, Translational Sciences

Shaun Lippow, PhD
VP, Protein Engineering

Alexander Scholz, PhD
Senior Director, *In Vitro* Pharmacology

Executive Summary

- Our antibodies recognize a novel, membrane-proximal epitope on EphA2
- >50% epitope prevalence in patient samples from 12 different cancer indications
- No impactful staining observed on normal human tissue in non-GLP studies

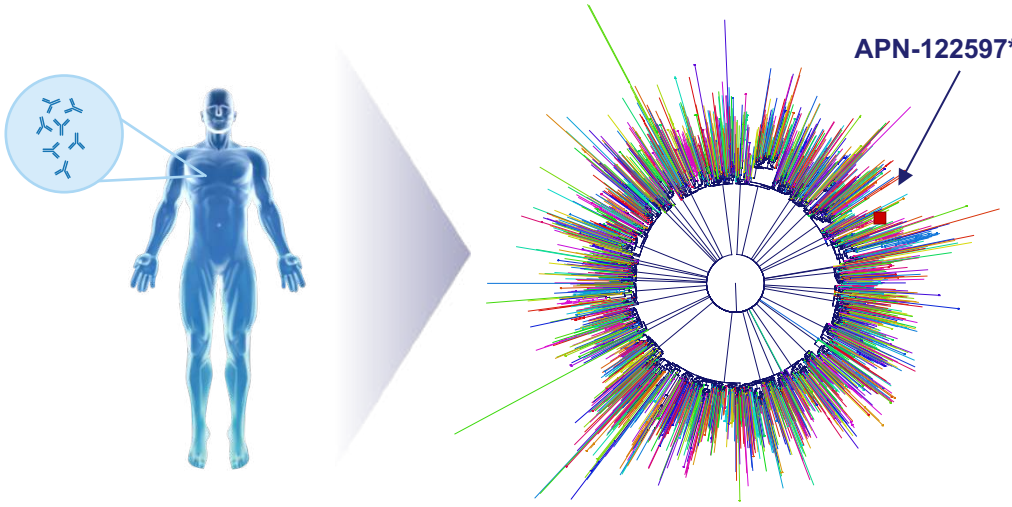
- Optimization significantly improved lead antibody potency and developability
- Potent activity in ADC, CD3-engager, and 4-1BB agonist bispecific formats
- Significant reduction in tumor volume using multiple formats *in vivo* with no significant toxicity signals yet observed

- Minimal to no effect on downstream EphA2 signaling
- Atreca's anti-EphA2 program clearly differentiated from other former or current clinical programs targeting EphA2

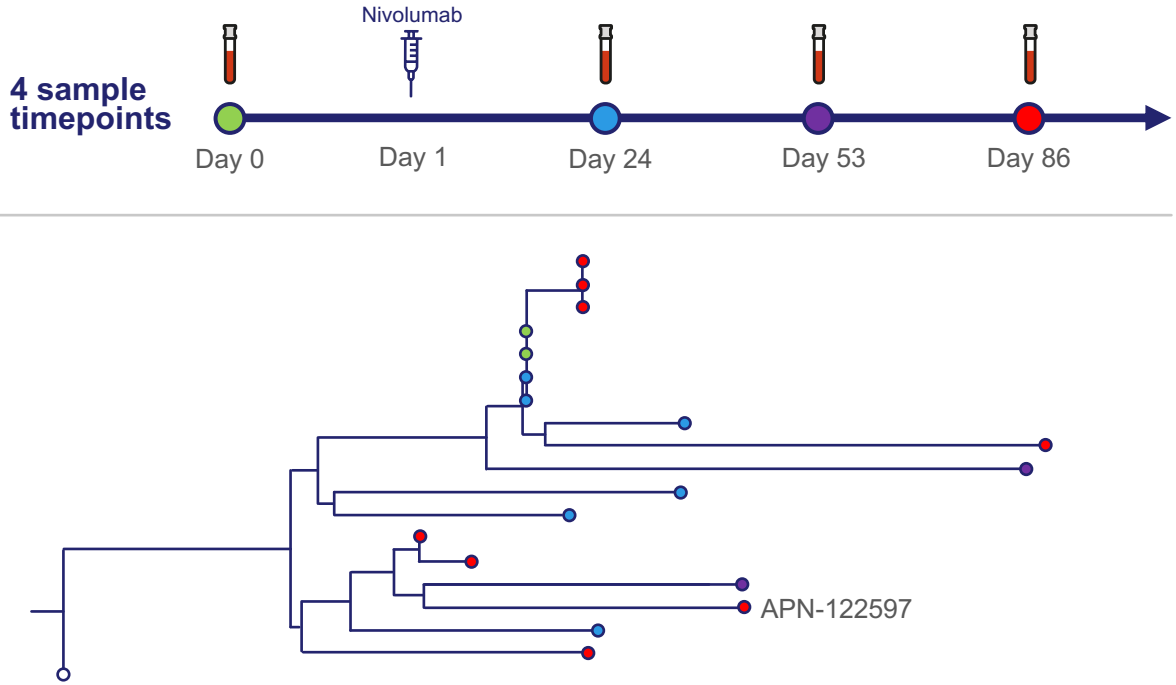
ADC, antibody–drug conjugate; EphA2, erythropoietin-producing hepatocellular receptor A2; GLP, good laboratory practices.

EphA2 Reactive B Cell Lineage Identified in Plasmablasts of a Lung Cancer Patient

Lead antibody APN-122597 discovered via the Atreca platform



Lung adenocarcinoma patient undergoing treatment with nivolumab



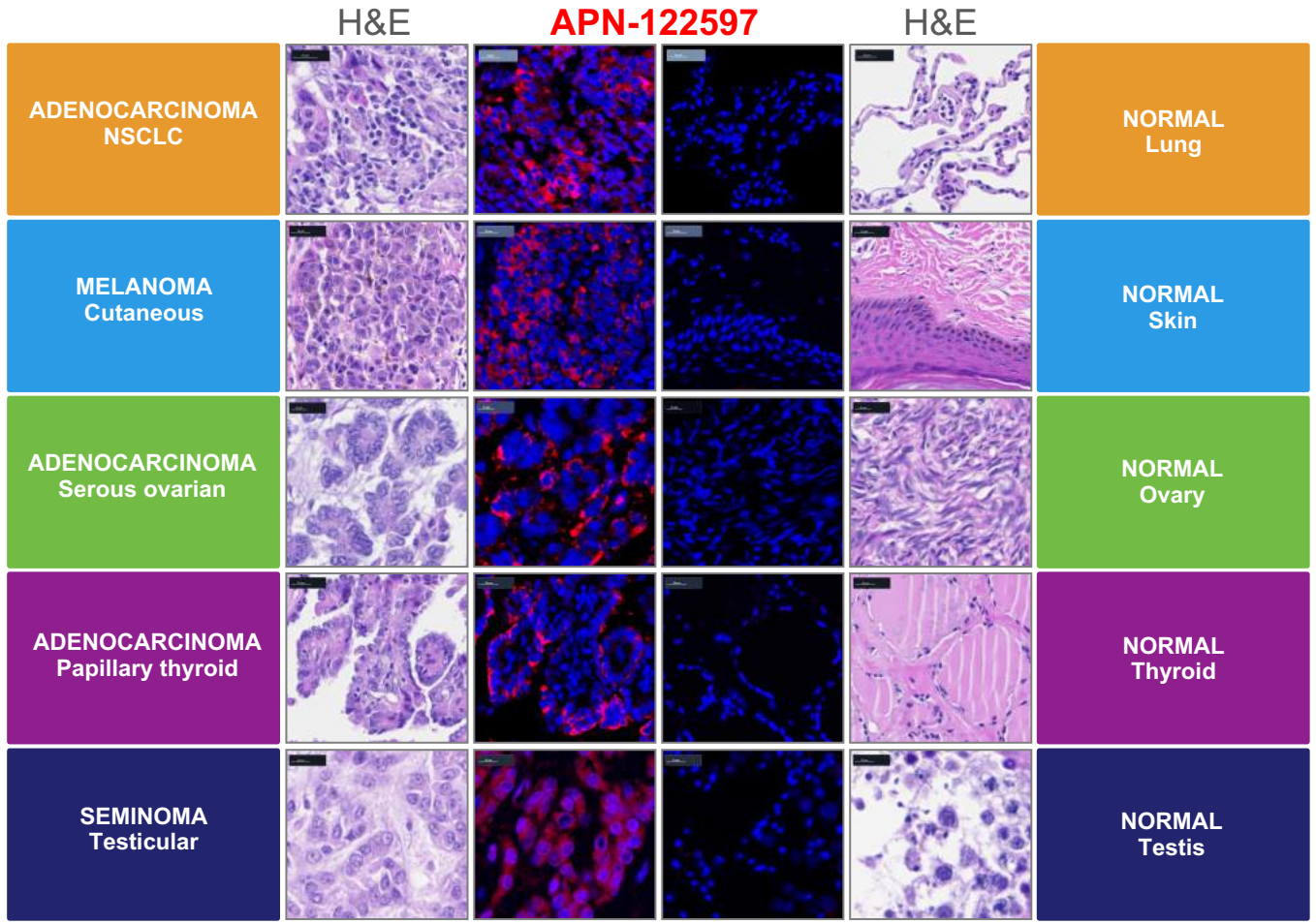
Eighteen plasmablasts from 4 timepoints with 13 unique antibody clones

- Lineage is present from the first timepoint and expands following nivolumab
- APN-122597 is observed in fourth sample

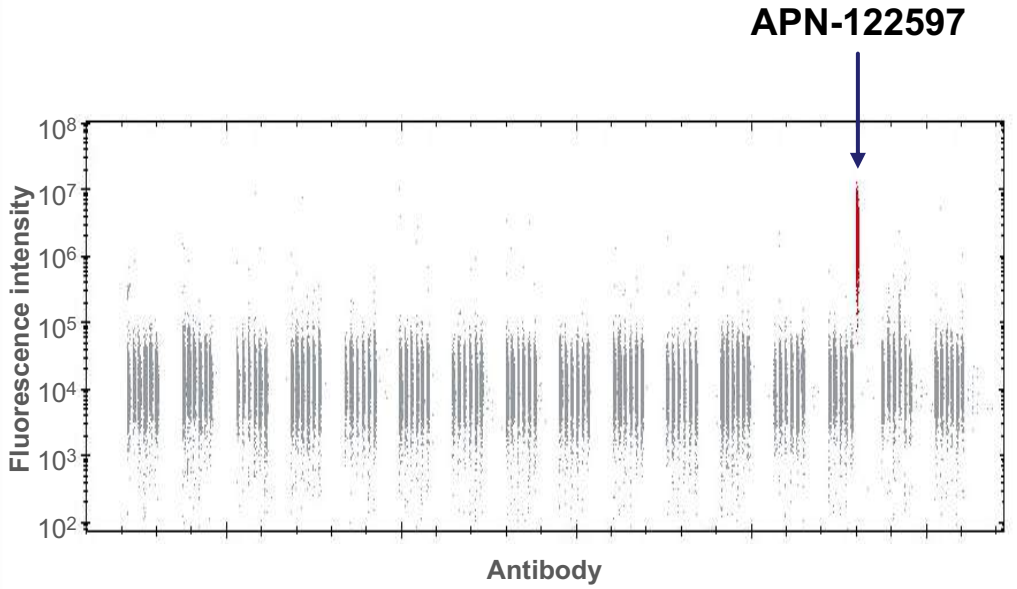
*Branches in circular phylogram are differentially colored by lineage.
EphA2, erythropoietin-producing hepatocellular receptor A2.

Anti-EphA2 Antibody Binds to Human Tumor but not to Normal Tissue & Recognizes its Target on the Cell Surface

APN-122597 reactivity is tumor-specific across multiple cancer types



APN-122597 was identified as a strong binder to human tumor cell lines by high-throughput flow cytometry



- Time-resolved histogram: high-throughput screening assay to detect cell surface binding
- Each column shows fluorescence intensity of human prostate cancer cells stained with a different antibody from a 96-well plate

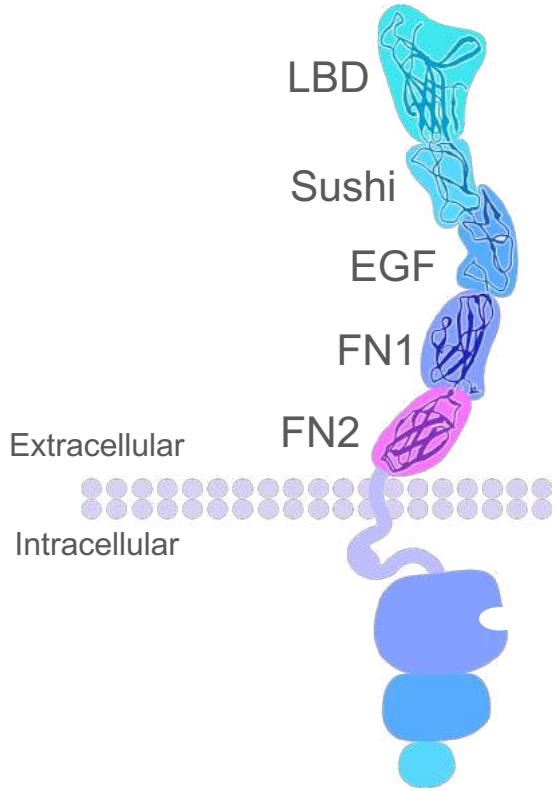
EphA2, erythropoietin-producing hepatocellular receptor A2; H&E, hematoxylin and eosin; NSCLC, non-small cell lung cancer.

EphA2: A Validated and Potentially High Value Target

- Eph proteins are the largest family of receptor tyrosine kinases (RTKs) known in humans
- RTKs are a proven target class in treatment of solid tumors
- Eph receptors regulate cell-to-cell communication, plasticity, and patterning
- Ephrins are the cell surface-bound ligands of Eph receptors
- EphA2 is one of 14 Eph receptors that predominantly bind ephrin A ligands
- **Only low levels of EphA2 are normally expressed in the adult in non-tumor tissues**
- **EphA2 is overexpressed in many cancers including:**

Prostate	**Esophageal**	**Ovarian**
Melanoma	**Gastric**	**Bladder**
Colon	**Breast**	**Lung**
Glioma	**Cervical**	

EphA2 receptor domain structure

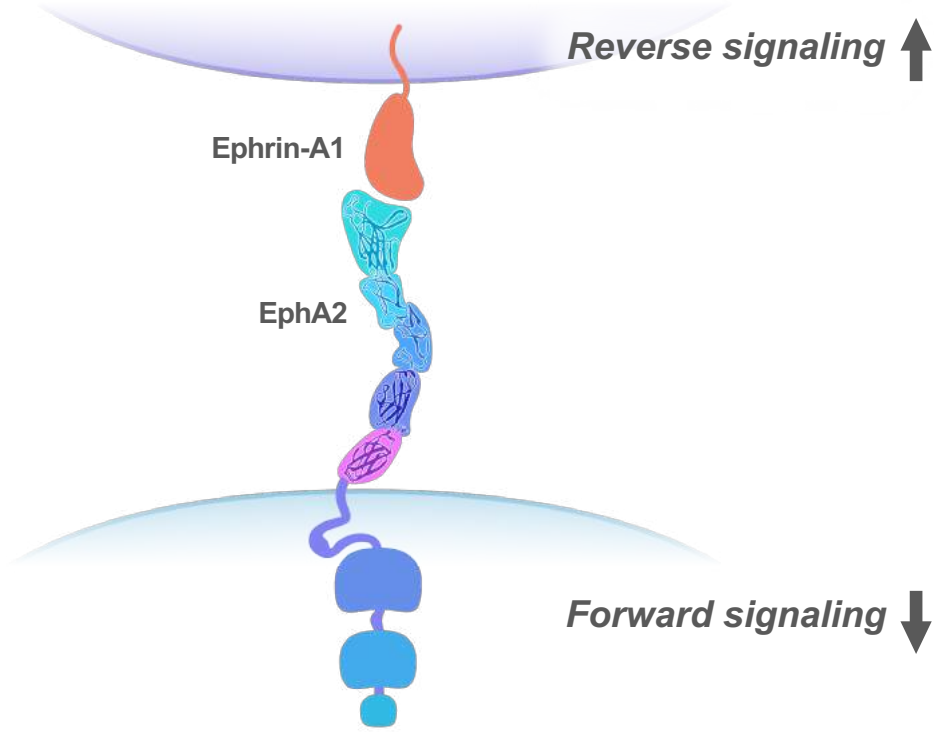


EGF, epidermal growth factor-like; Eph, erythropoietin-producing hepatocellular; EphA2, erythropoietin-producing hepatocellular receptor A2; FN, fibronectin; LBD, ligand-binding domain.

Balanced Ligand-Driven Signaling Mediates Eph Function

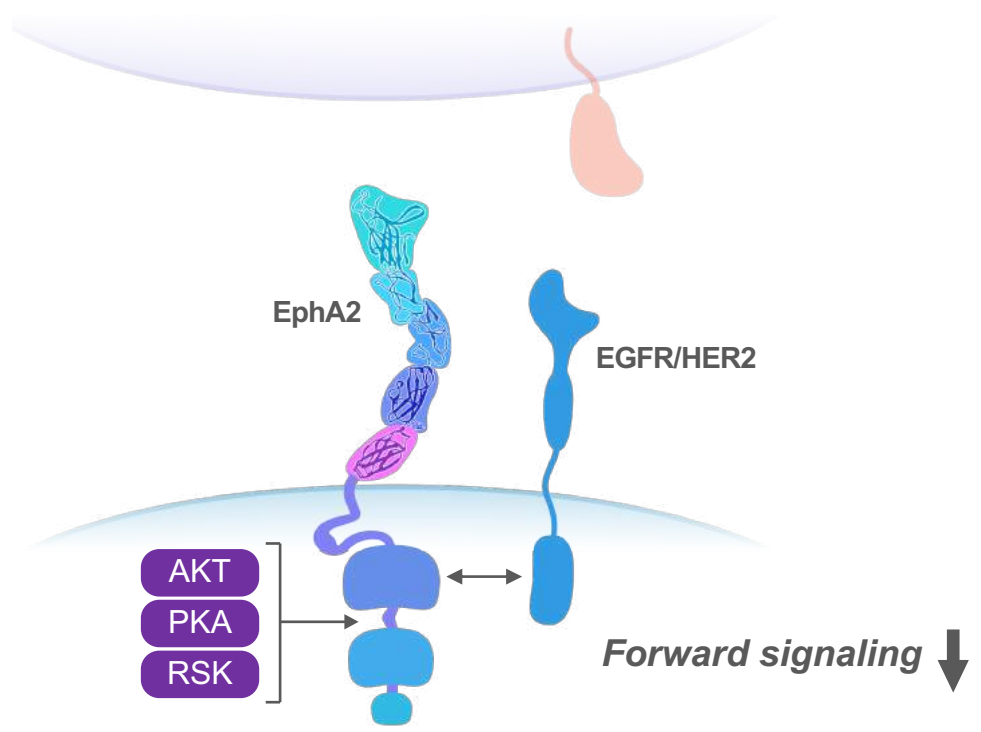
Unbalanced receptor signaling drives pathology

Normal tissue expression



Balanced Eph-Ephrin expression and engagement regulates key functions through ligand-dependent signaling

Overexpression of EphA2

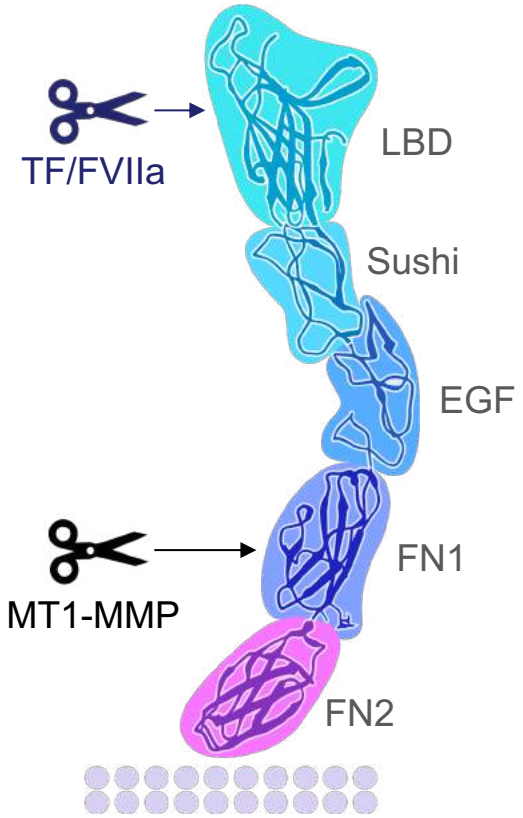


Overexpression of EphA2 and ligand-to-receptor imbalance leads to ligand independent signaling and pathology

EGFR, epidermal growth factor receptor; Eph, erythropoietin-producing hepatocellular; EphA2, erythropoietin-producing hepatocellular receptor A2; HER2, human epidermal growth factor receptor 2; PKA, protein kinase A; RSK, ribosomal s6 kinase.

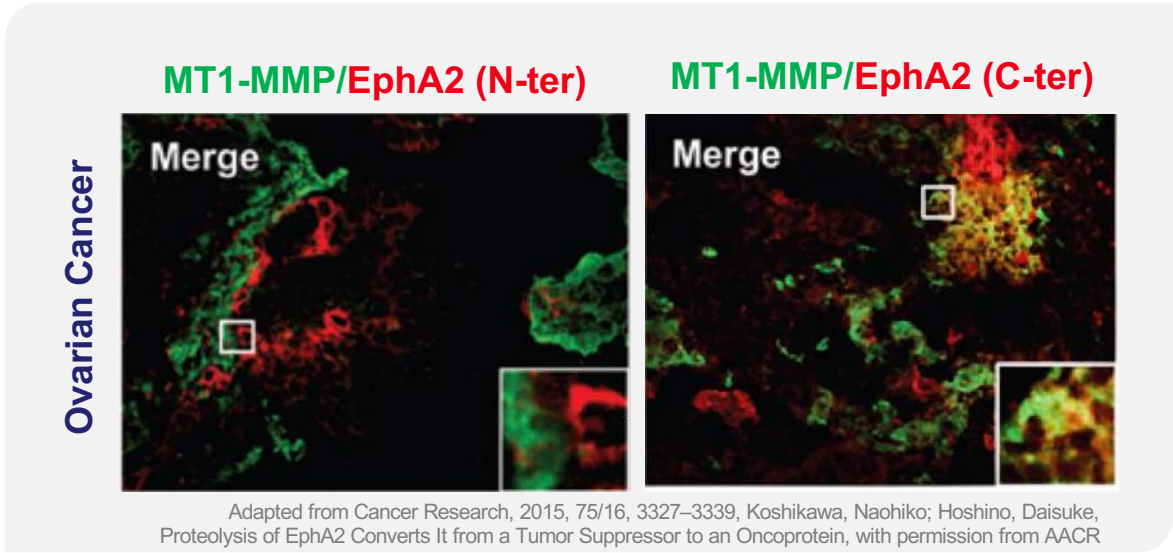
EphA2 Tumor Biology Can Potentially Prevent Binding by Agents That Target the Ligand Binding Domain

Proteases cleave the extracellular domain of EphA2



- TF/FVIIa cleaves within the LBD[1]
- MT1-MMP cleaves within the FN1 domain[2]

Presence of MT1-MMP is associated with loss of reactivity for EphA2 N-terminus



Adapted from Cancer Research, 2015, 75/16, 3327–3339, Koshikawa, Naohiko; Hoshino, Daisuke, Proteolysis of EphA2 Converts It from a Tumor Suppressor to an Oncoprotein, with permission from AACR

The epitope of APN-122597 is present after cleavage

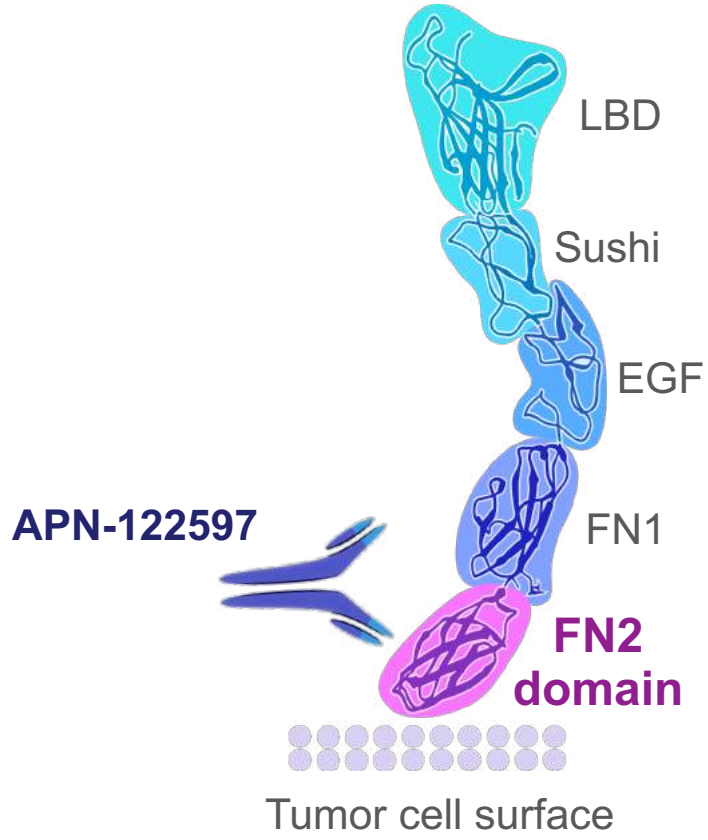
Other EphA2 biology creates potential for novel epitopes

EGF, epidermal growth factor-like; EphA2, erythropoietin-producing hepatocellular receptor A2; F, factor; FN, fibronectin; LBD, ligand-binding domain; MTI-MMP, membrane type 1 matrix metalloproteinase; TF, tissue factor.

1. Eriksson O, et al. *J Biol Chem.* 2014;289:32379–32391; 2. Koshikawa N, et al. *Cancer Res.* 2015;75:3327–3339.

Atreca's Anti-EphA2 Antibodies Target a Novel Epitope

APN-122597 targets a specific conformational epitope on the FN2 domain of EphA2



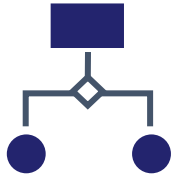
Epitope of APN-122597 confirmed by co-crystal structure

- Yeast display utilized to delineate epitope
- Epitope is conformational and spans four stretches of sequence in FN2 domain
- Epitope residues are not conserved in other Eph family members
- Epitope residues are conserved across tox species

Epitope distinct from those targeted by biologics previously or currently in clinical development

EGF, epidermal growth factor-like; Eph, erythropoietin-producing hepatocellular; EphA2, erythropoietin-producing hepatocellular receptor A2; FN, fibronectin; LBD, ligand-binding domain.

Antibody Lead Optimization Yielded Significant Improvements in Potency and Developability



Reduce development liabilities

Remove the sequence motifs that create risk

Lead: In silico analysis determined no high-risk liabilities

R1: Successfully removed a potential proteolysis site

R2–R3: Successfully improved T_m

Reduce immunogenicity risk

Mutate to closest germline sequence

R2–R3: Successfully reduced immunogenicity score

Improve function

Discover novel variants through design & selection

R2–R3: Improved ADCC & ADC, and maintained APN-122597-like signaling

R2–R3: Maintained or improved tumor & normal tissue staining

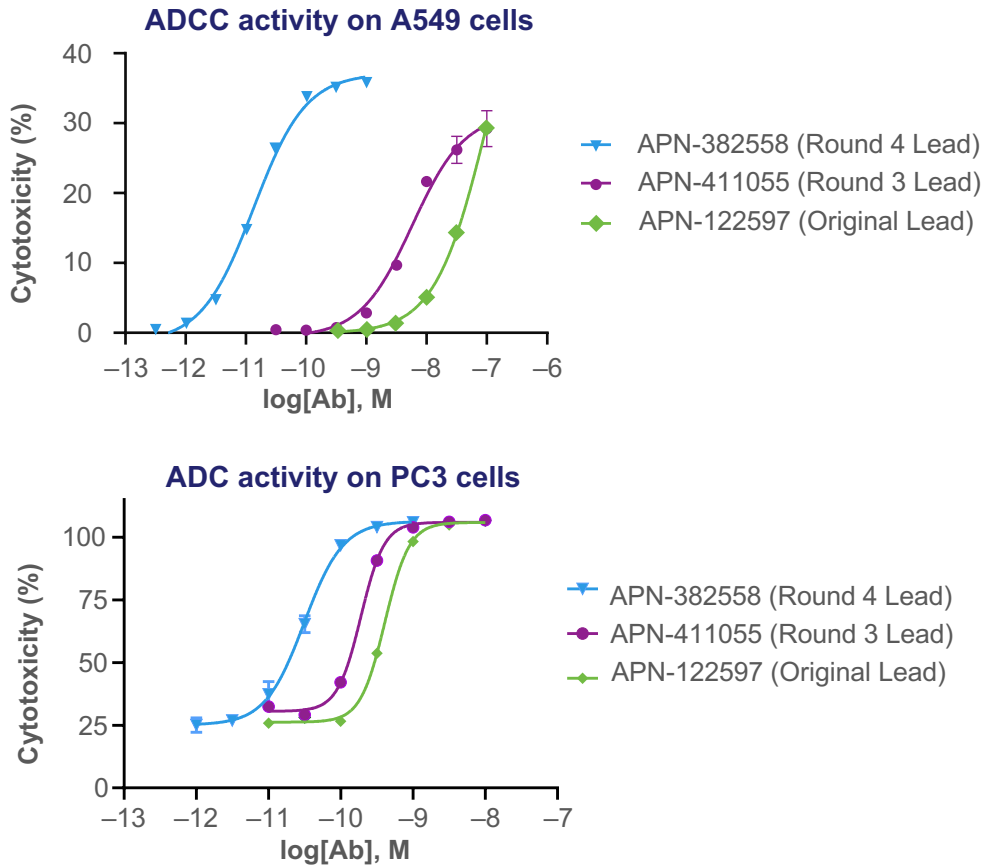
R4: Significantly improved potency via yeast display (~4-log)

ADC, antibody–drug conjugate; ADCC, antibody-dependent cellular cytotoxicity; R, round; T_m, melting temperature.

Optimized Leads Are Developable and Potent

	APN-122597	APN-411055	APN-382558
Antibody	Lead	Optimized R3	Optimized R4
Mutations from lead, n	0	5	9
Predicted high-risk liabilities, n	0	0	0
Predicted medium-risk liabilities, n	1	0	0
Predicted immunogenicity risk	Low	Low	Low
BVP binding	0	0	0
T_m (°C)	64.8	64.7	66.4
Monovalent binding affinity	2000 nM	1000 nM	20 nM
A549 cell binding EC_{50}	400 nM	30 nM	1 nM
A549 ADCC EC_{50}	30 nM	3 nM	0.006 nM

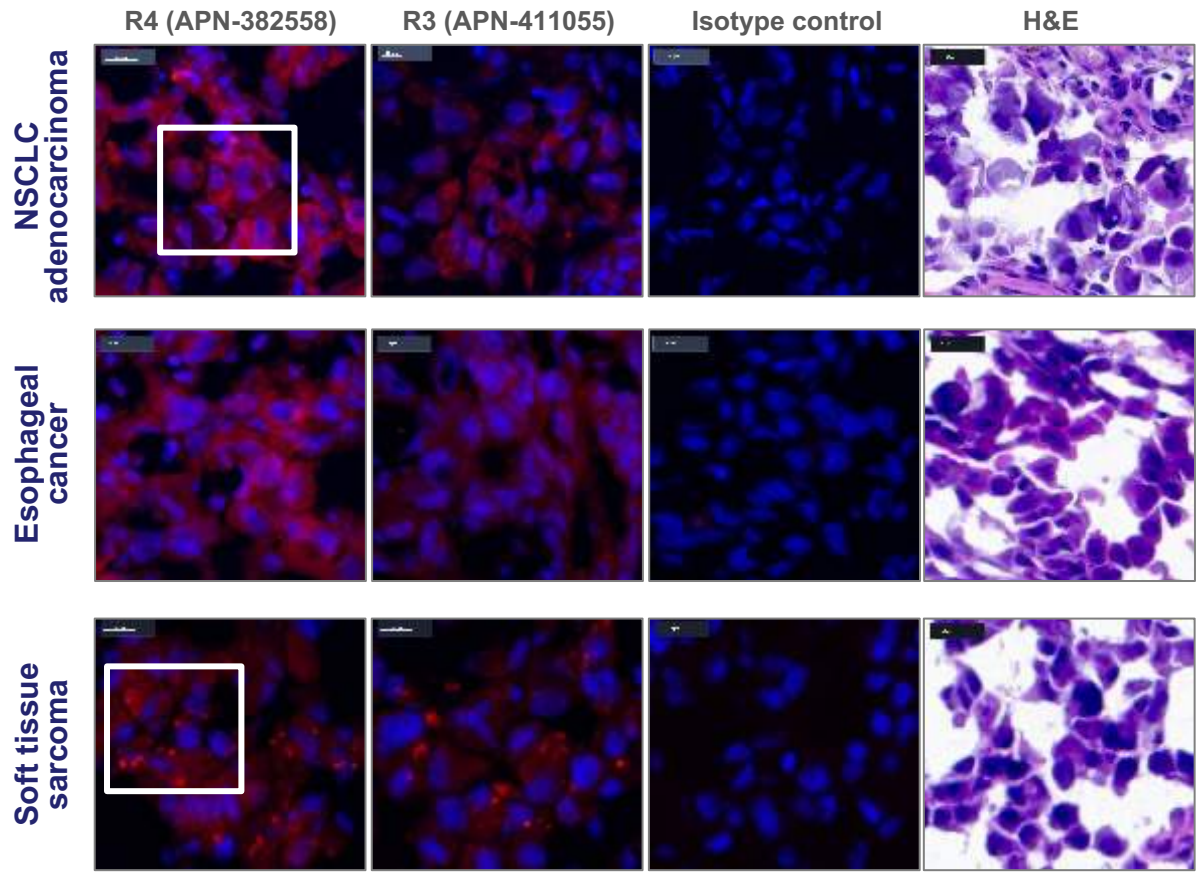
Optimized lead antibodies demonstrate increased potency

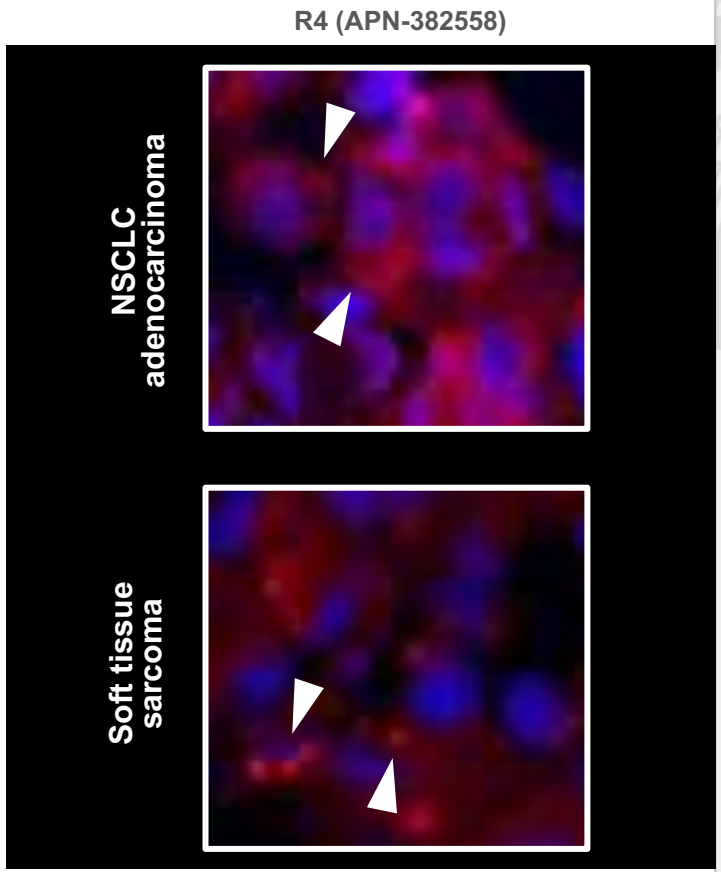


ADC, antibody–drug conjugate; ADCC, antibody-dependent cellular cytotoxicity; BVP, baculovirus particles; EC_{50}, half maximal effective concentration; R, round; T_m, melting temperature.

Optimized Leads Possess Enhanced Tumor Binding

Decoration of membrane and cytoplasmic punctae in tumor cells with optimized leads

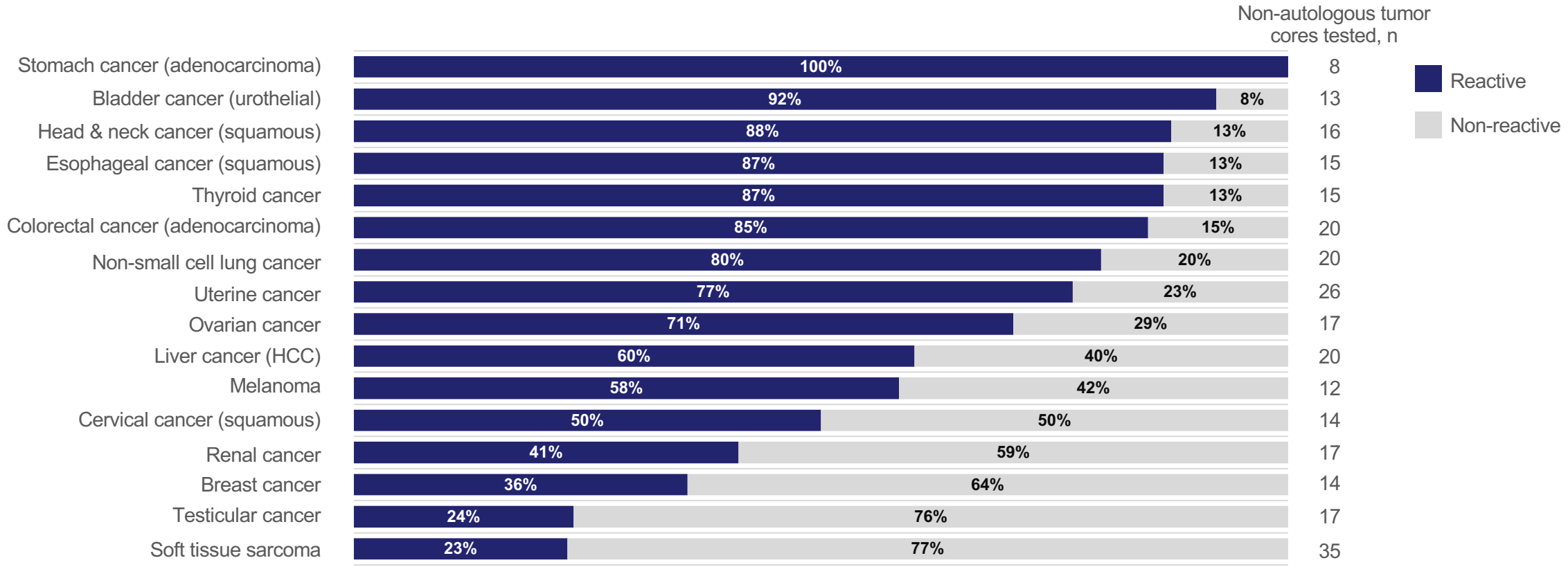




H&E, hematoxylin and eosin; NSCLC, non-small cell lung cancer; R, round.

Atreca's Anti-EphA2 Antibodies Bind Multiple Tumor Types

Tumors considered reactive if APN-382558 demonstrated detectable signal in >30% malignant cells per core



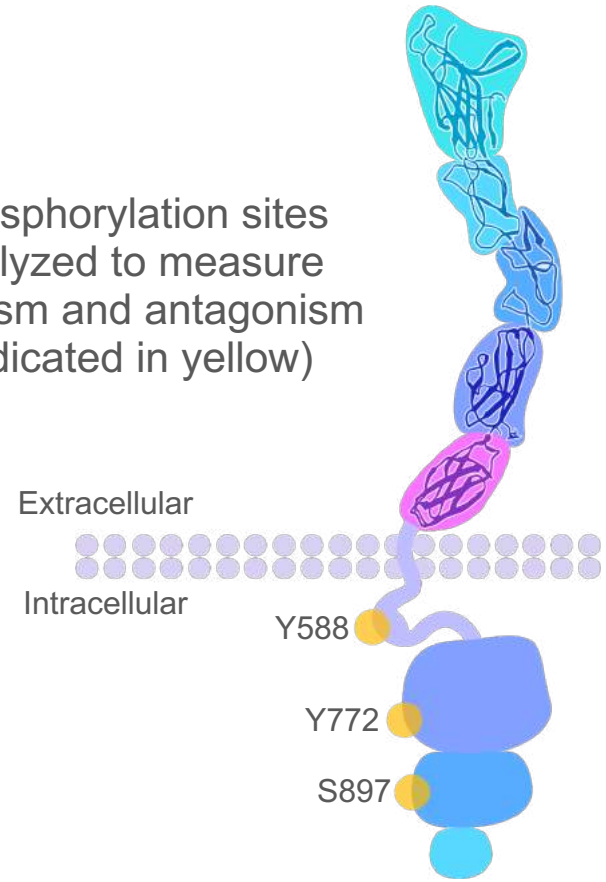
No appreciable signal (including membrane decoration) was detected in 26 normal human tissues by IHC

EphA2, erythropoietin-producing hepatocellular receptor A2; HCC, hepatocellular carcinoma; IHC, immunohistochemistry.

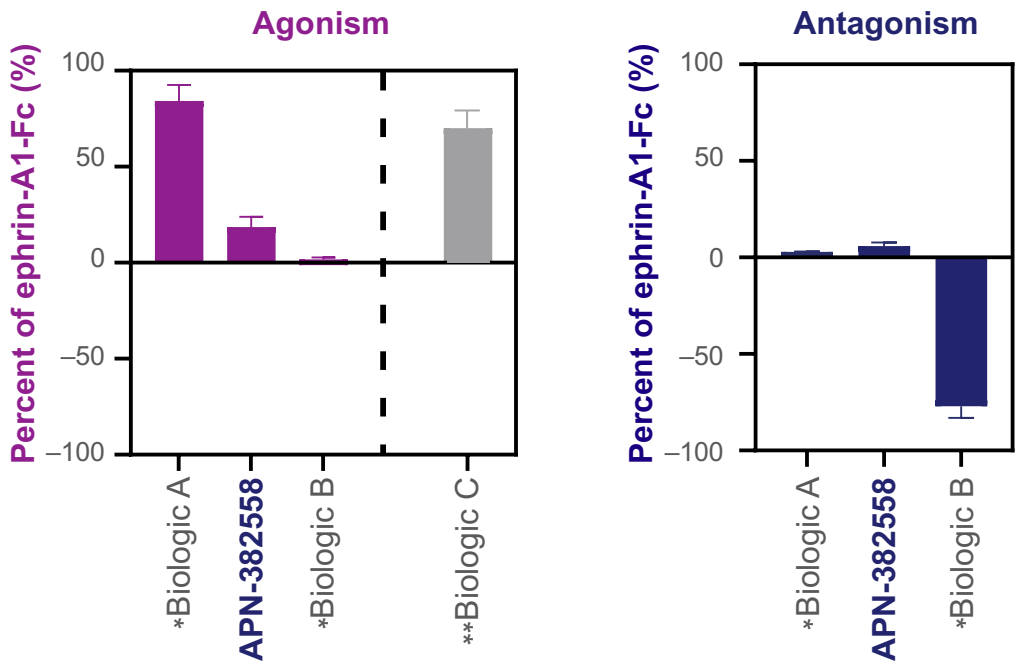
Atreca's Anti-EphA2 Antibodies Minimally Impact the EphA2-EphrinA1 Signaling Axis

Multiple sites phosphorylated during Eph signaling

Phosphorylation sites analyzed to measure agonism and antagonism (indicated in yellow)



Other EphA2-targeting biologics studied clinically significantly impact EphA2 signaling



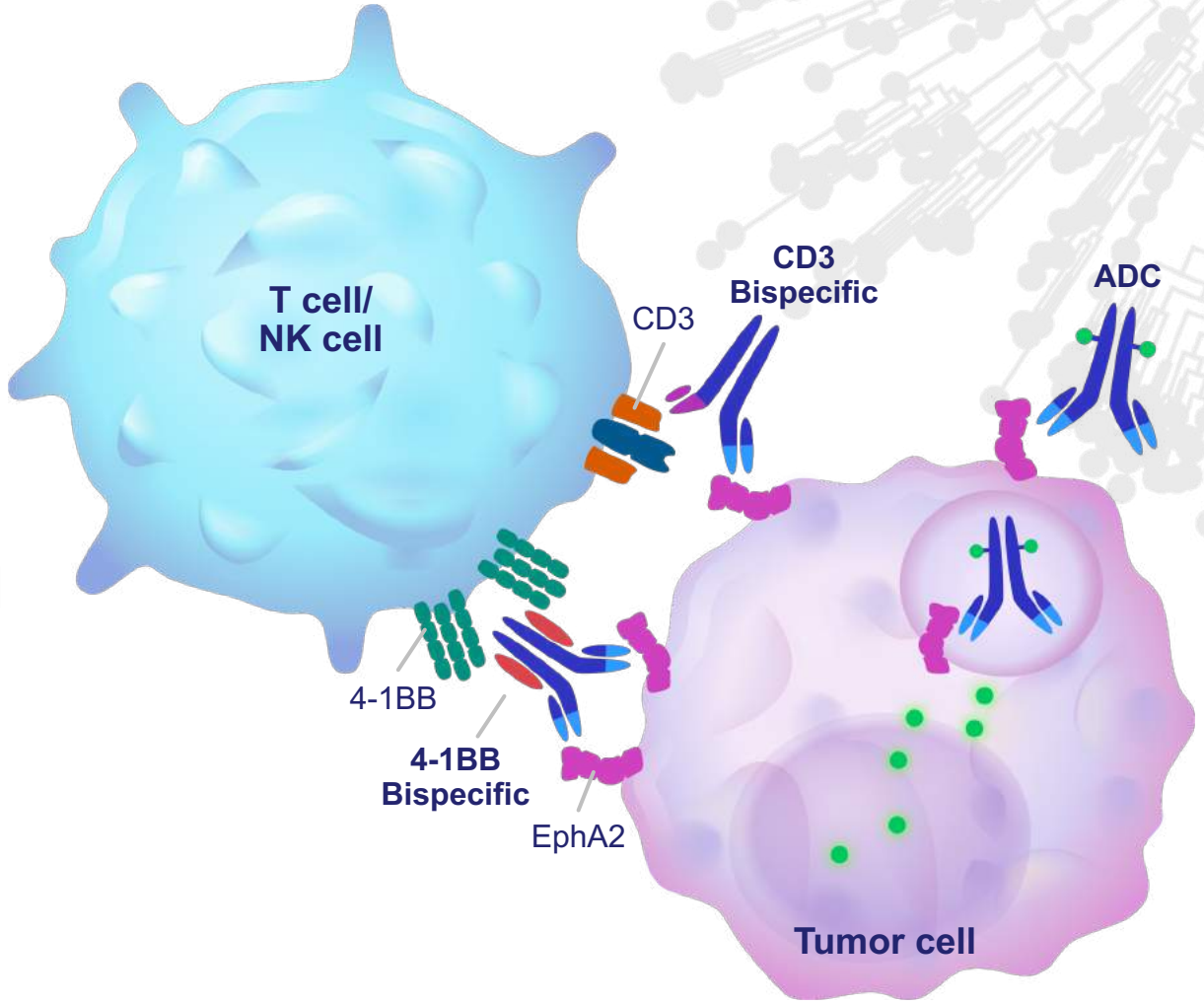
*Data from Atreca experiments
**As reported with undisclosed detection method and cell line

Eph, erythropoietin-producing hepatocellular; EphA2, erythropoietin-producing hepatocellular receptor A2; Fc, fragment crystallizable.

Antibody Weaponization Delivers Potent Tumor Killing

EphA2 Weaponization

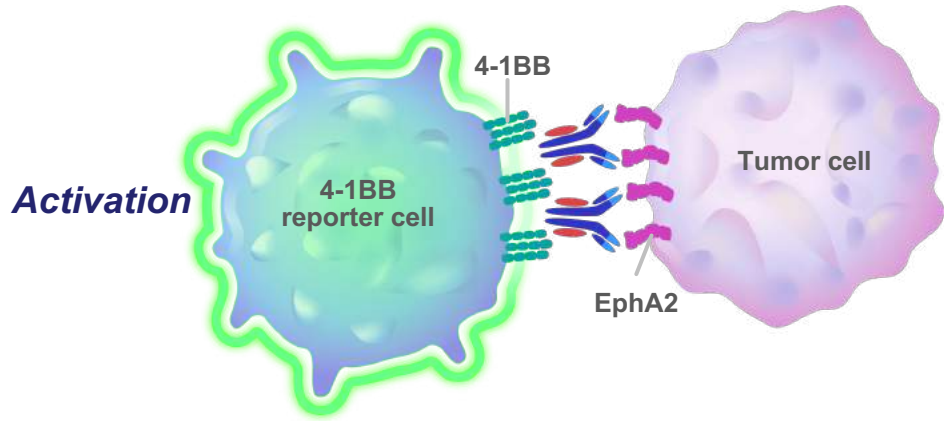
- T & NK cell activators (4-1BB)
- T cell engagers (CD3)
- Antibody-drug conjugates (ADC)

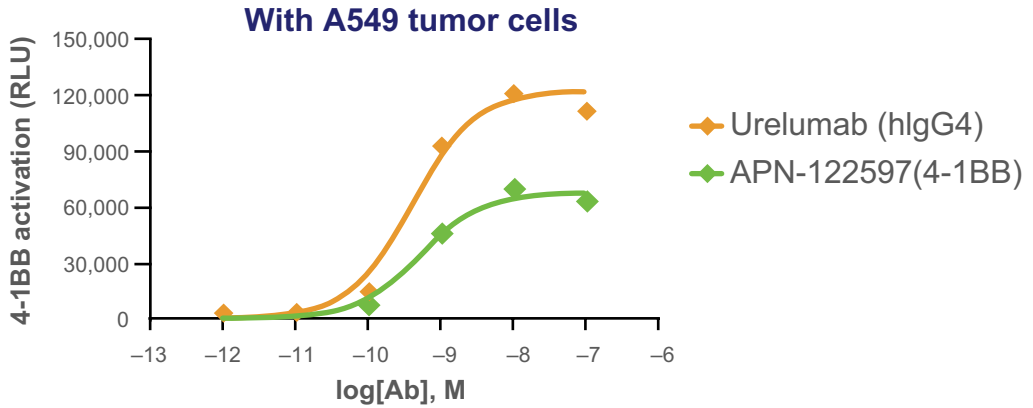


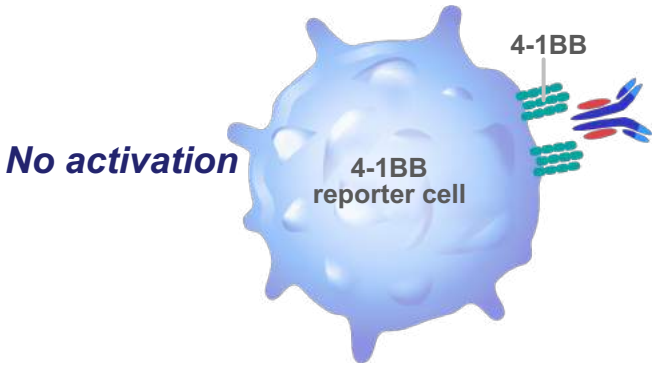
NK, natural killer.

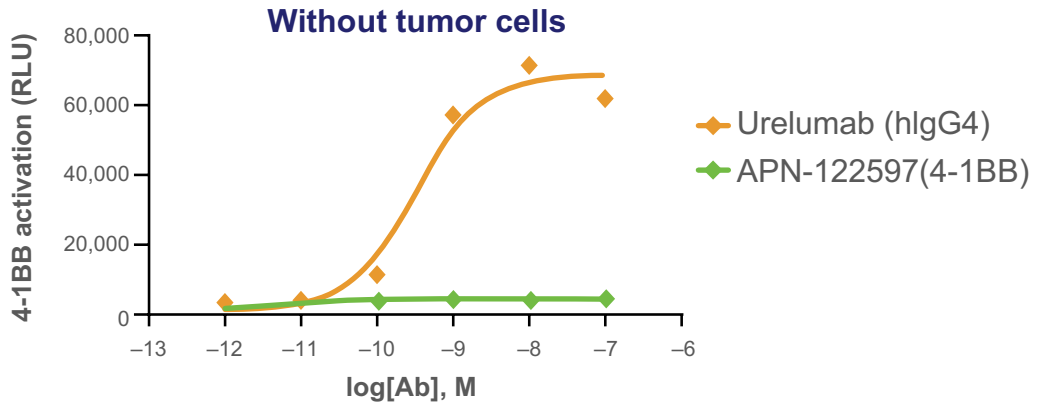
EphA2-targeting 4-1BB Bispecific Active *in Vitro* Only in Presence of Human Tumor Cells

Tumor targeting required for EphA2 4-1BB bispecific activity





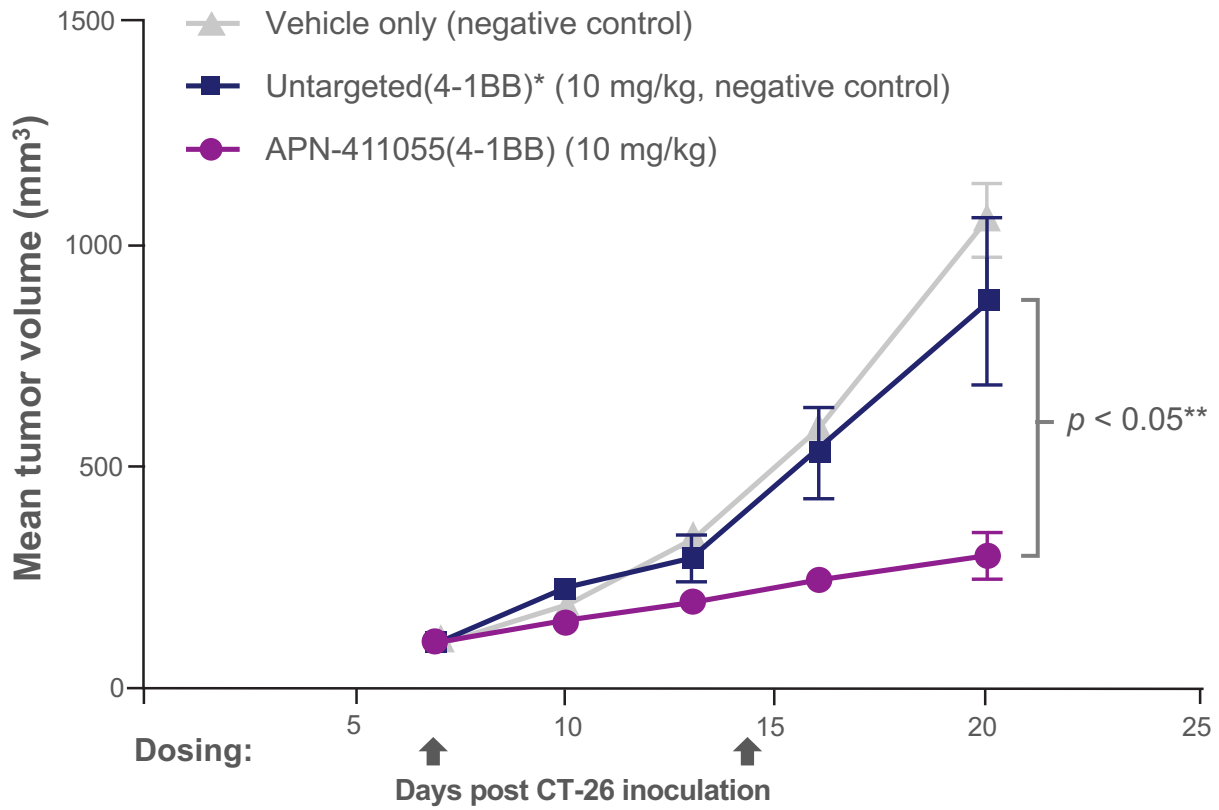




EphA2, erythropoietin-producing hepatocellular receptor A2; hIgG4, human immunoglobulin G4; RLU, relative light unit.

4-1BB Bispecific Version of Atreca Anti-EphA2 Antibody Reduces Tumor Growth Significantly *in Vivo*

R3 optimized lead APN-411055 drives tumor reduction in a 4-1BB agonist bispecific format

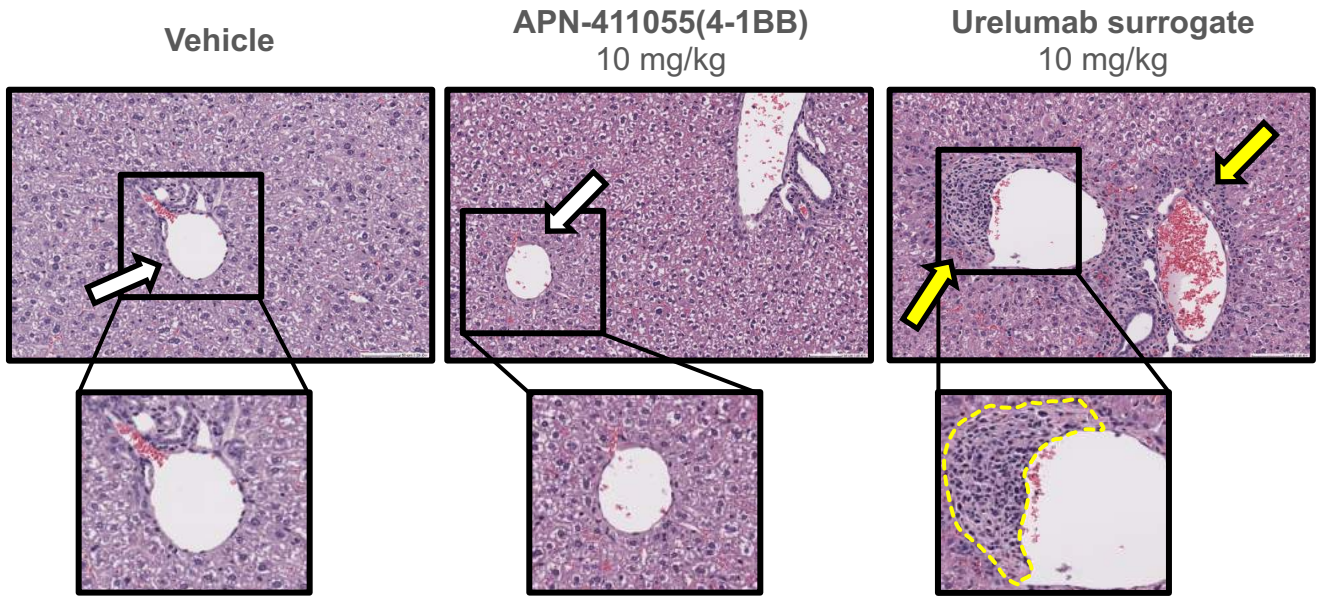


- Standard syngeneic CT-26 model
- Treatment of established tumors
- Robust effects on tumor growth compared to untargeted 4-1BB
- Survival as compared to untargeted 4-1BB also significantly longer (log rank, $p < 0.001$)
- No body weight or other changes noted

*Anti-hen egg lysozyme "targeting" 4-1BB bispecific, control for EphA2 targeting of 4-1BB.
**One-sided Wilcoxon rank sum test for normalized area above the curve at end of study.
EphA2, erythropoietin-producing hepatocellular receptor A2; R, round.

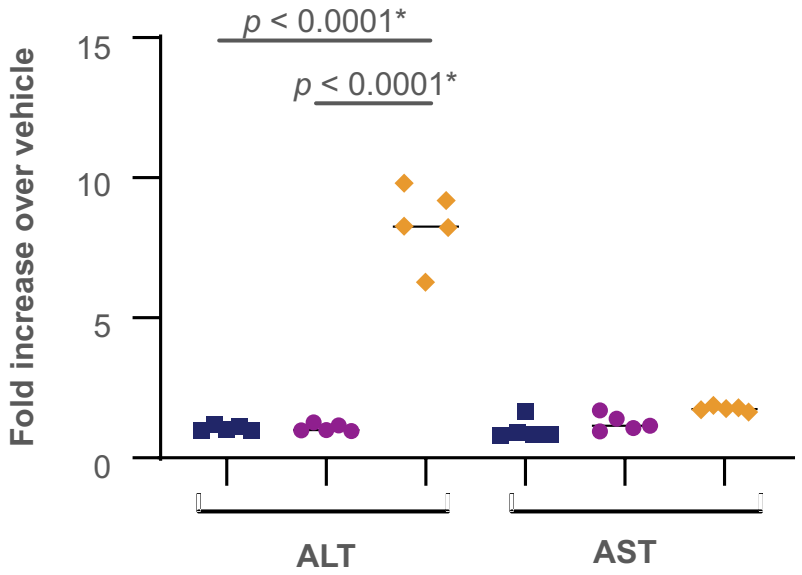
4-1BB Bispecific Does Not Cause Signs of Liver Damage

No signs of liver inflammation observed with APN-411055(4-1BB)



- Atreca 4-1BB bispecific shows no breach of portal vein
- Urelumab surrogate causes lymphocytic infiltration into liver parenchyma

APN-411055(4-1BB) does not increase ALT *in vivo* like the urelumab surrogate

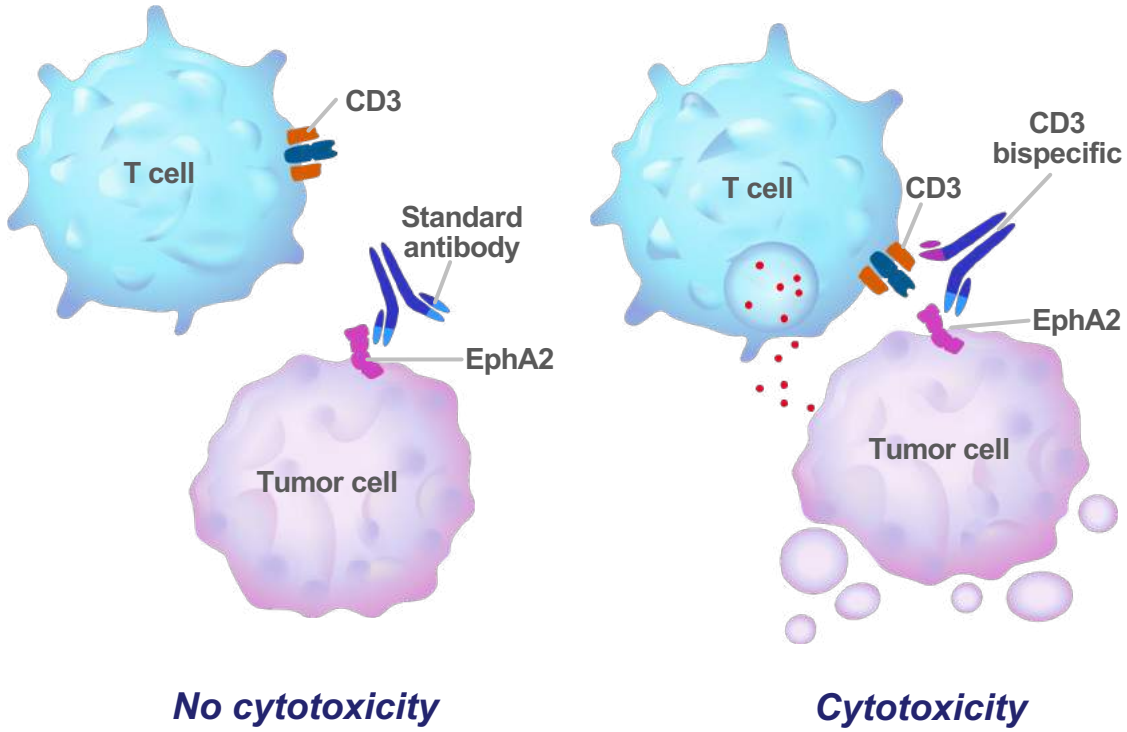


- Untargeted(41BB)** (negative control; 10 mg/kg)
- APN-411055(41BB) (10 mg/kg)
- Urelumab surrogate (3H3 positive control; 10 mg/kg)

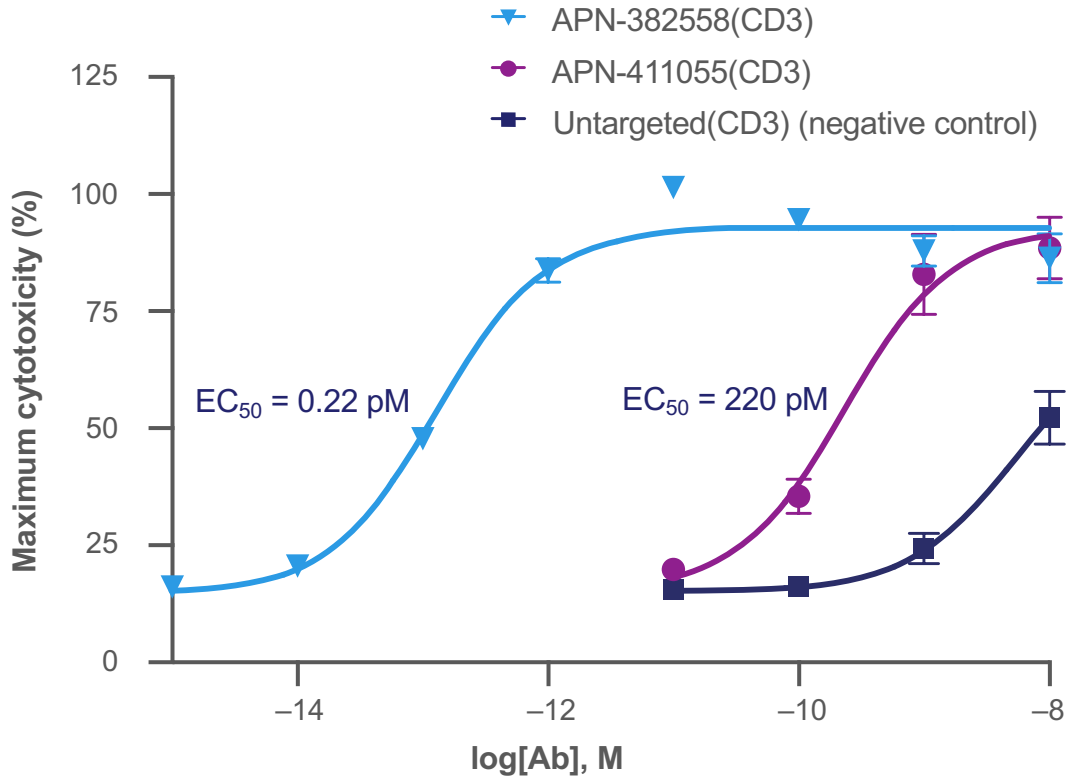
*One-way ANOVA. **Anti-hen egg lysozyme "targeting" 4-1BB bispecific, control for EphA2 targeting of 4-1BB.
ALT, alanine aminotransferase; AST, aspartate aminotransferase.

Anti-EphA2 Antibody as CD3 T Cell Engager Demonstrates Sub-Picomolar *in Vitro* Cell Killing

Bispecific T cell engagers mediate TDCC



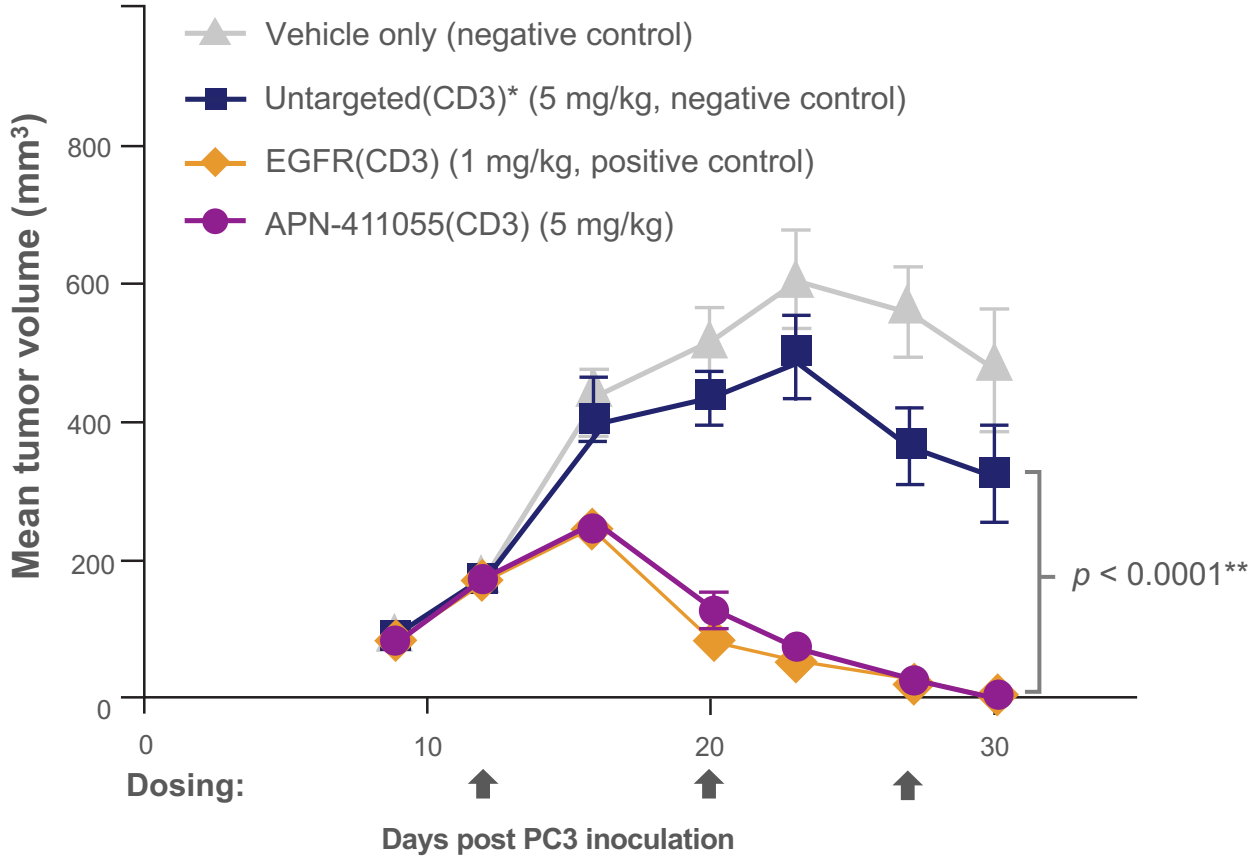
Optimized T cell engagers demonstrate potent PC3 cell killing



Ab, antibody; EC_{50}, half maximal effective concentration; EphA2, erythropoietin-producing hepatocellular receptor A2; TDCC, T cell-dependent cellular cytotoxicity.

CD3 T Cell Engager Version of Atreca Anti-EphA2 Antibody Drives Significant Tumor Regression *in Vivo*

In vivo tumor reduction with the R3 optimized lead APN-411055 in a CD3 bispecific format

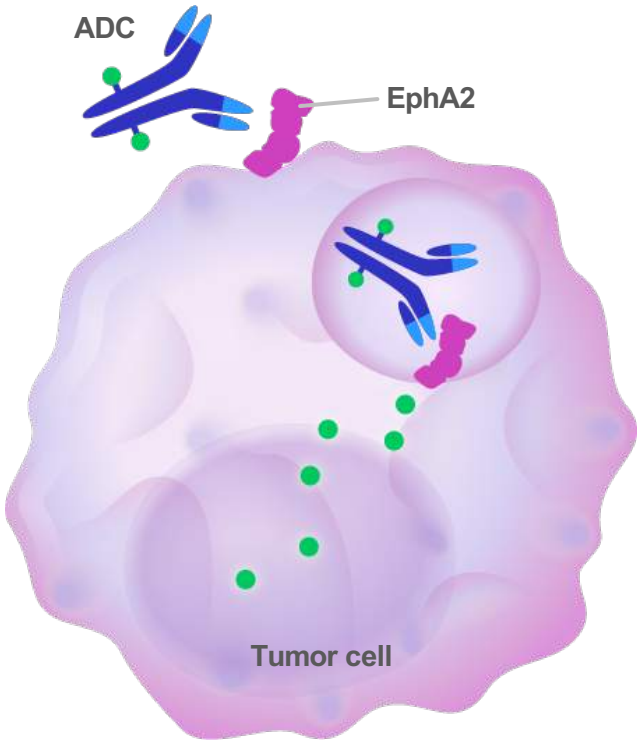


- Standard humanized mouse model
- Treatment of established tumors
- Weekly IP dosing
- Significant tumor regression/elimination
- No significant body weight changes
- Advancing an EphA2 in CD3 engager format

*Anti-hen egg lysozyme "targeting" 4-1BB bispecific, control for EphA2 targeting of 4-1BB. **One-sided Wilcoxon rank sum test for normalized area above the curve at Day 30.
EGFR, epidermal growth factor receptor; EphA2, erythropoietin-producing hepatocellular receptor A2; IP, intraperitoneal; R, round.

Zymeworks Technology Driving Atreca ADCs

ADCs mediate tumor cell killing directly



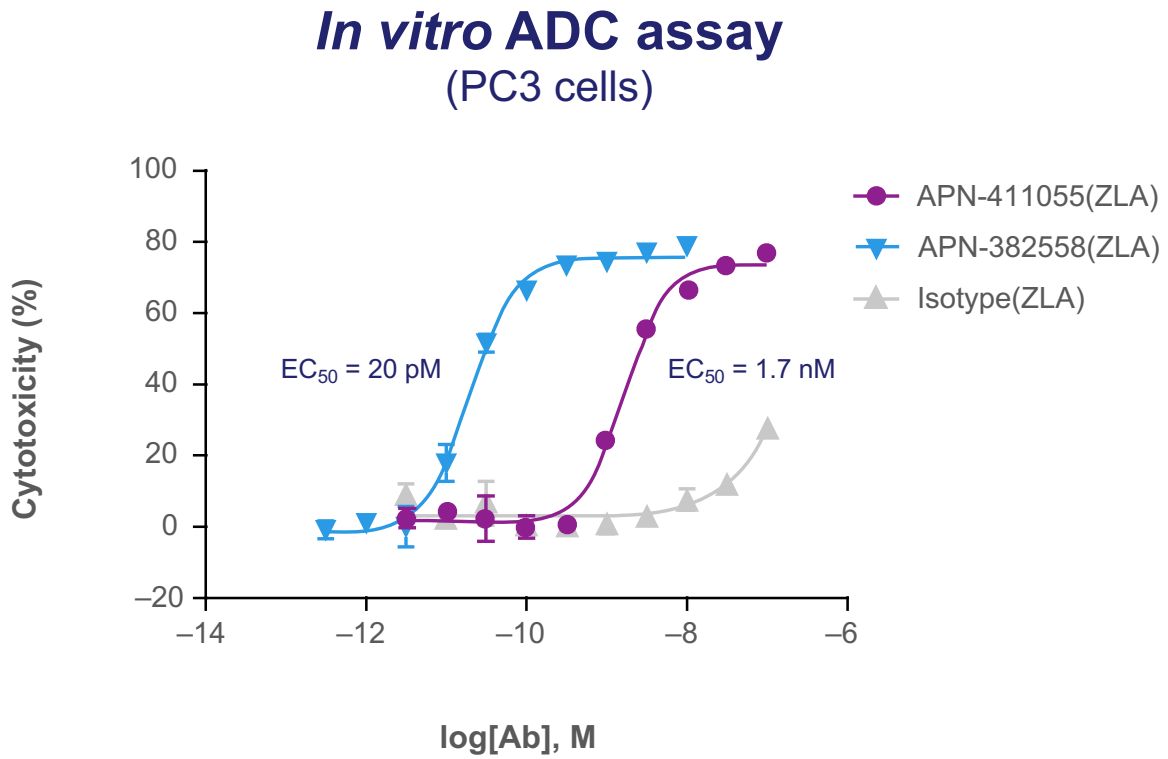
ZymeLink™ technology highlights

- Uses proprietary auristatin-based linker-payload that inhibits cell division by blocking tubulin polymerization
- Closely resembles natural antibodies with potential for improved pharmacokinetics, stability, and cytotoxin exposure
- Designed for increased tolerability
- Supports a wide therapeutic window

ADC, antibody–drug conjugate; EphA2, erythropoietin-producing hepatocellular receptor A2.

Atreca's Anti-EphA2 ADCs Show Potent *in Vitro* Activity

Successful conjugation with Zymeworks' auristatin linker-payload technology (ZLA)

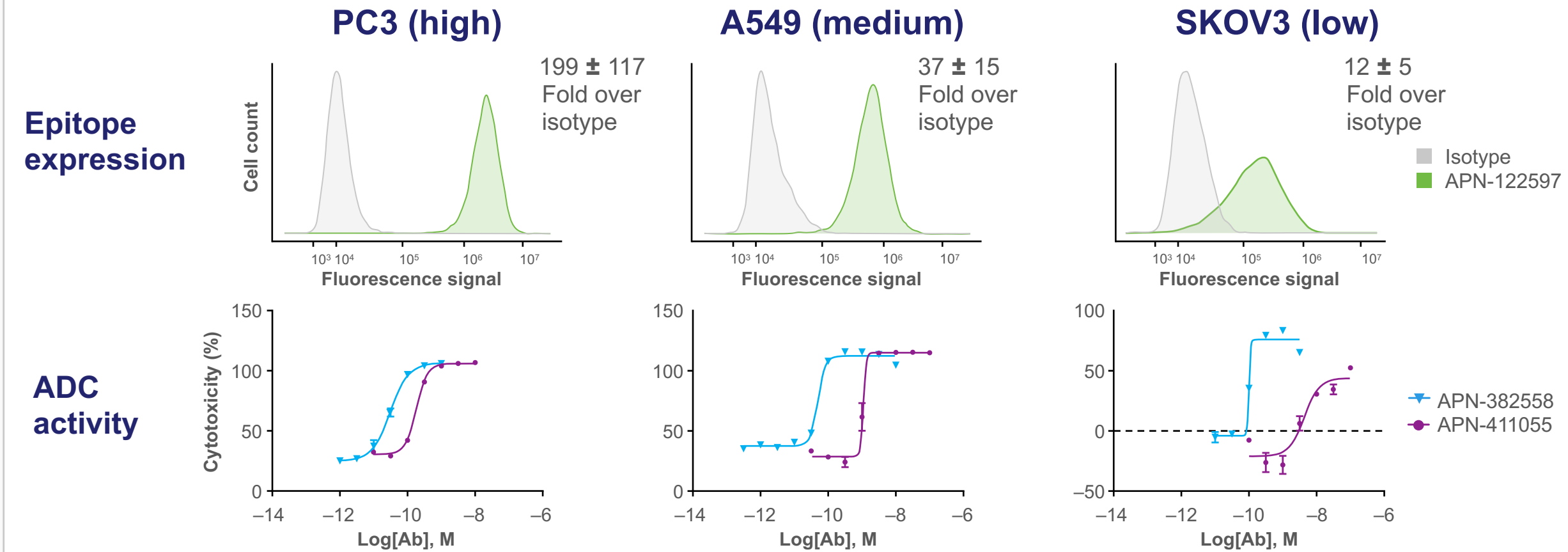


- Conjugation of Atreca's EphA2-targeting antibodies with ZLA technology at DAR 3
- Final ADC shows potent and specific cytotoxic activity on EphA2 expressing cells *in vitro*
- Strong improvements in potency observed going from Lead Optimization round 3 to 4

ADC, antibody–drug conjugate; DAR, drug-to-antibody ratio; EC_{50}, half maximal effective concentration; EphA2, erythropoietin-producing hepatocellular receptor A2.

Optimized Anti-EphA2 Leads Maintain Potent ADC Activity *in Vitro* Across a Range of Epitope Expression Levels

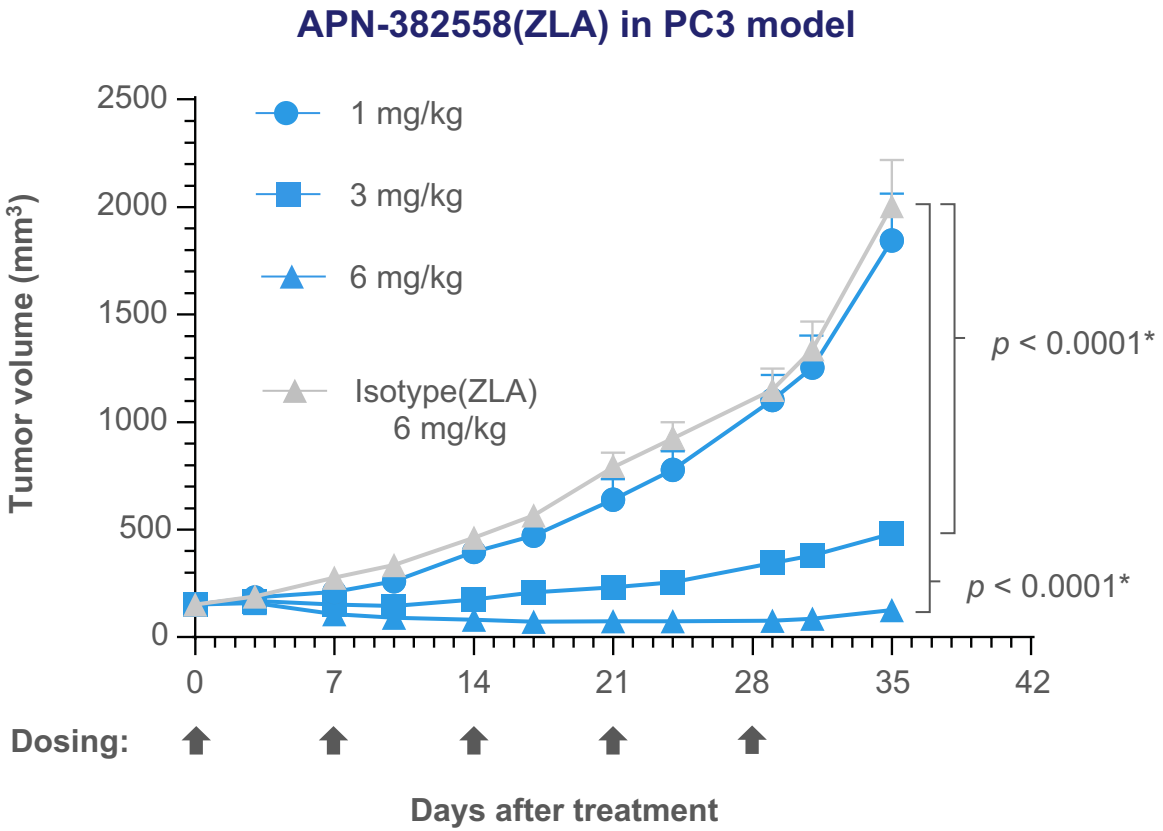
Most potent binder maintains activity despite reduced receptor density



ADC assay using secondary anti-mouse Fab DMDM.
ADC, antibody–drug conjugate; DMDM, duocarmycin DM; EphA2, erythropoietin-producing hepatocellular receptor A2; Fab, fragment antigen-binding.

Optimized Lead Antibody Shows Potent Anti-Tumor Activity in ZymeLink Auristatin (ZLA) Format

APN382558(ZLA) demonstrates anti-tumor activity *in vivo*



- APN-382558(ZLA) induces dose-dependent anti-tumor activity in the PC3 CDX model
- No significant reduction in body weight observed compared to vehicle control group
- Single doses of up to and including **30 mg/kg** in rats were well-tolerated with no significant safety signals around coagulation and on other tox parameters

*One-sided Wilcoxon rank sum test for normalized area above the curve at Day 35.
CDX, cell line-derived xenograft; EphA2, erythropoietin-producing hepatocellular receptor A2.

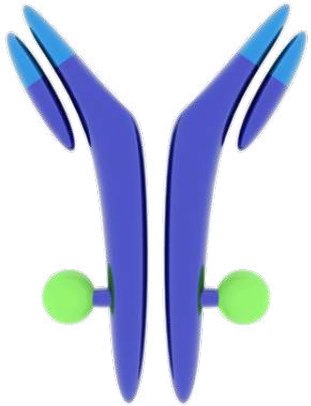
Atreca's Anti-EphA2 Program Differentiated from Previous and Current Clinical-Stage Programs

Points of differentiation for Atreca's anti-EphA2 program

- Novel membrane-proximal epitope
- High epitope prevalence across and within indications
- Minimal agonist and no antagonist activity
- Differentiated tumor tissue reactivity
- Minimal normal tissue reactivity
- Portfolio of potently binding optimized antibodies
- Activity demonstrated in a variety of weaponized formats
- Initial safety studies suggest substantial therapeutic window for ADC format

ADC, antibody–drug conjugate; EphA2, erythropoietin-producing hepatocellular receptor A2.

ATRC-301: Atreca's Anti-EphA2 ADC Clinical Candidate



APN-382558(ZLA)

Several backups advancing as well

Upcoming milestones

- IND enabling activities for candidate and backup molecules have been initiated
- Non-GLP NHP toxicology data expected 2H 2022
- IND filing expected 2H 2023
- FIH study expected 1H 2024 in solid tumors including gastrointestinal and gynecological

ADC, antibody–drug conjugate; EphA2, erythropoietin-producing hepatocellular receptor A2; FIH, first-in-human; GLP, good laboratory practices; IgG4, immunoglobulin G4; IND, investigational new drug; NHP, non-human primates; ZLA, ZymeLink Auristatin.

Lead Stage ADC Programs:
APN-497444 (Lead)
APN-959038 (Lead)

Alexander Scholz, PhD

Senior Director, *In Vitro* Pharmacology

Atreca's ADC Engine Creates a Rich Starting Point for Clinical Candidate Generation

Robust and consistent large-scale ADC discovery platform

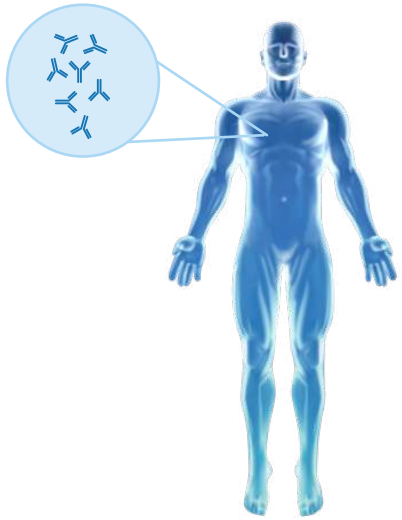
- **Currently have >50 unique tumor-selective antibodies with ADC activity**
- **Represents ~20% hit rate for hit antibodies tested**

  ~1% hit rate for all antibodies selected and synthesized

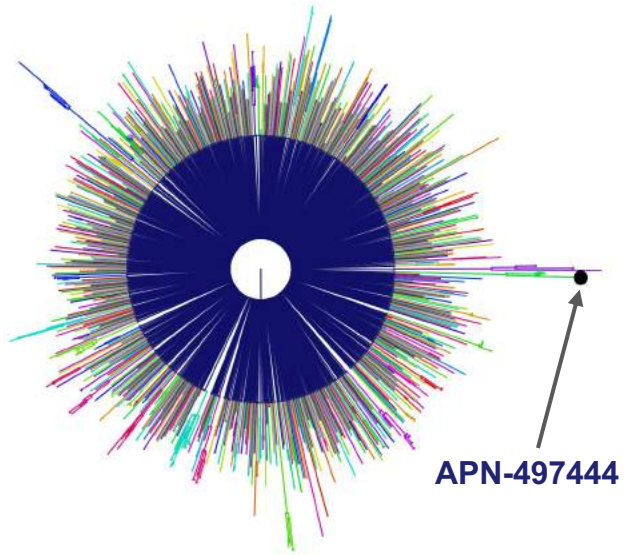
Hit antibody = selective human tumor binding.
ADC, antibody–drug conjugate; HTS, high-throughput screening; IRC, Immune Repertoire Capture.

APN-497444: A Tumor-Specific Anti-Glycan Antibody

Lead antibody APN-497444 discovered via the Atreca platform



Melanoma patient with durable (3-year) response on anti-PD-1 immunotherapy



IRC®-generated antibody repertoire*

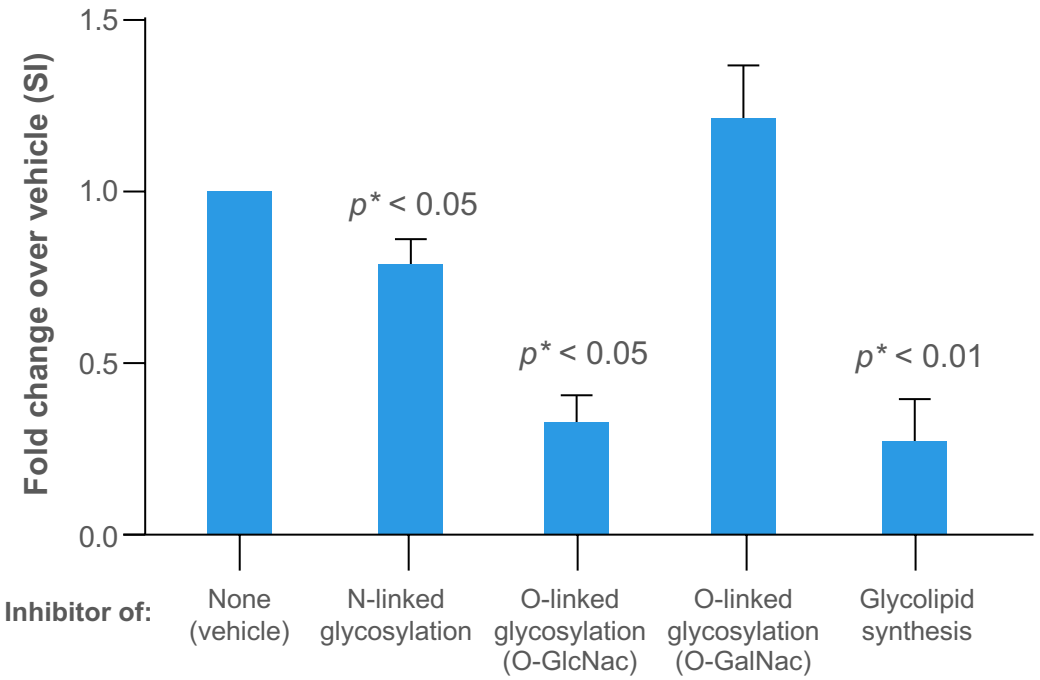
Lead highlights

- Strong evidence of affinity maturation in sequence
- Binds to non-autologous human tumors with high selectivity
- Selectively binds human tumor cell lines
- Recognizes a surface-expressed glycan target

*Branches differentially colored by lineage.
IRC, Immune Repertoire Capture; PD-1, programmed cell death 1.

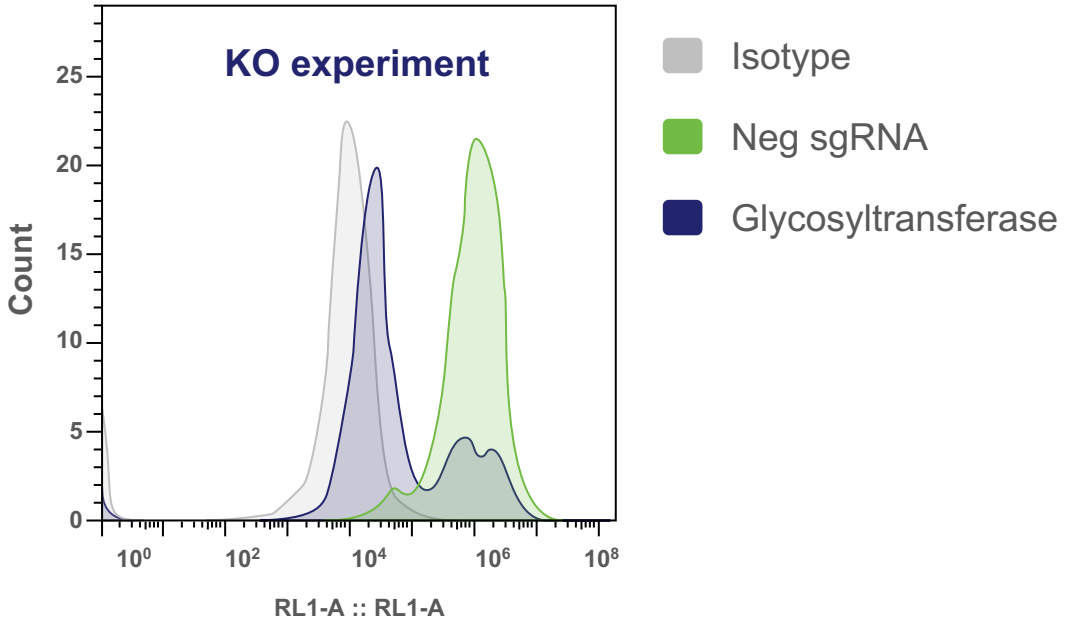
APN-497444 Recognizes a Tumor-Specific Glycan Epitope

Glycosyltransferase inhibitors selectively reduce binding



Cell surface expression of **APN-497444** target is sensitive to selective glycosyltransferase inhibitors

Modulating expression of a specific glycosyltransferase affects binding of APN-497444 in flow cytometry



- Knockout of a specific glycosyltransferase inhibits cell-surface binding of **APN-497444** (shown)
- Overexpression of that specific glycosyltransferase increases cell-surface binding by antibody

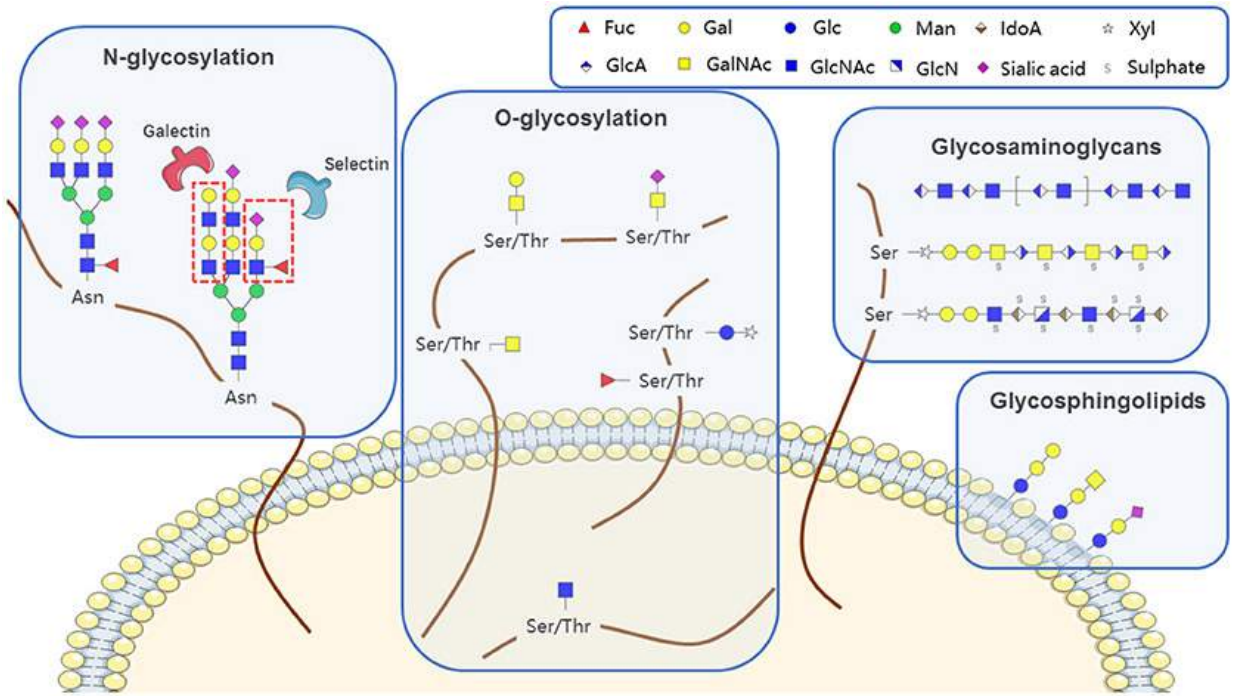
*p-value = one-sided, paired Student's t-test against vehicle.
SI, stain index; sgRNA, single guide RNA.

Tumor-associated Carbohydrate Antigens (TACAs) Are Attractive Cancer Targets

Anti-TACA Antibodies with Therapeutic Potential Are Identified via Atreca's Discovery Platform

- Aberrant glycosylation known to be a hallmark of tumor malignancies for decades
- Multiple TACA antibodies are currently being explored in clinical trials
- Dinutuximab and naxitamab (both anti-GD2 antibodies) have received FDA approval for treatment of neuroblastoma
- Potent and selective anti-TACA antibodies are challenging to generate via standard immunization procedures

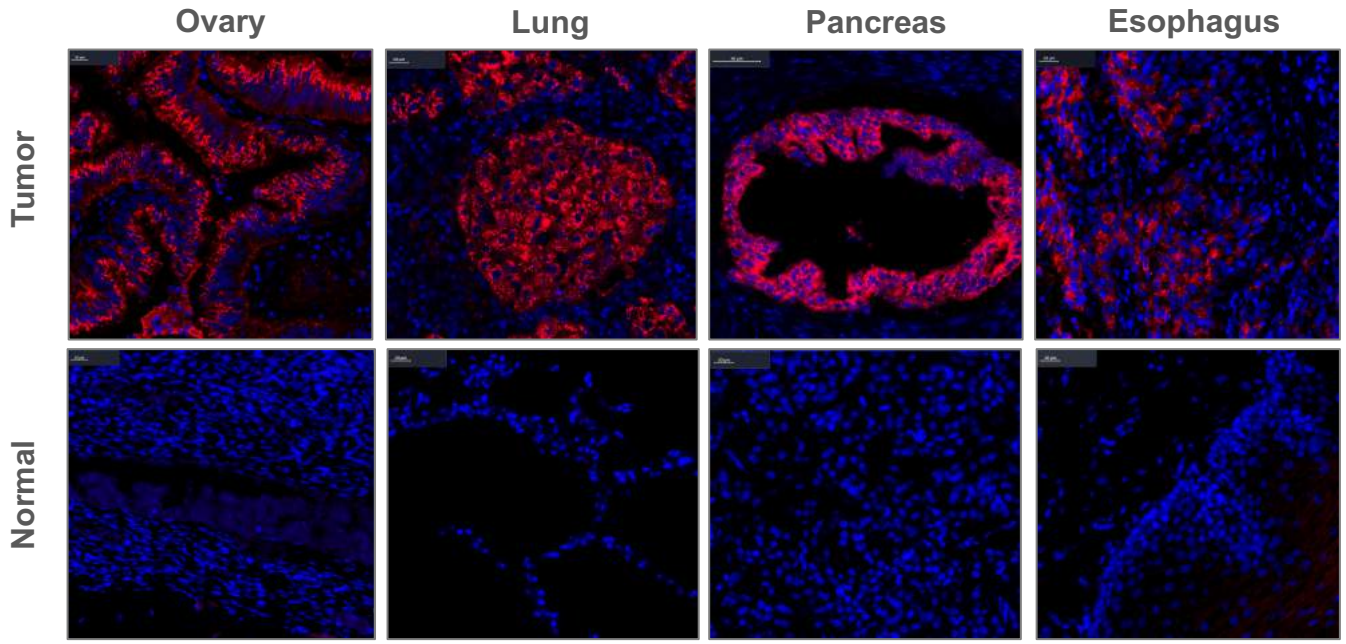
20% of Atreca's tumor-selective and ADC-active antibodies bind glycan targets



ADC, antibody–drug conjugate; anti-GD2, anti-disialoganglioside; FDA, US Food and Drug Administration.

Robust and Tumor-Specific Reactivity Detected on Multiple Human Cancer Types

APN-497444 displays widespread yet tumor-selective binding



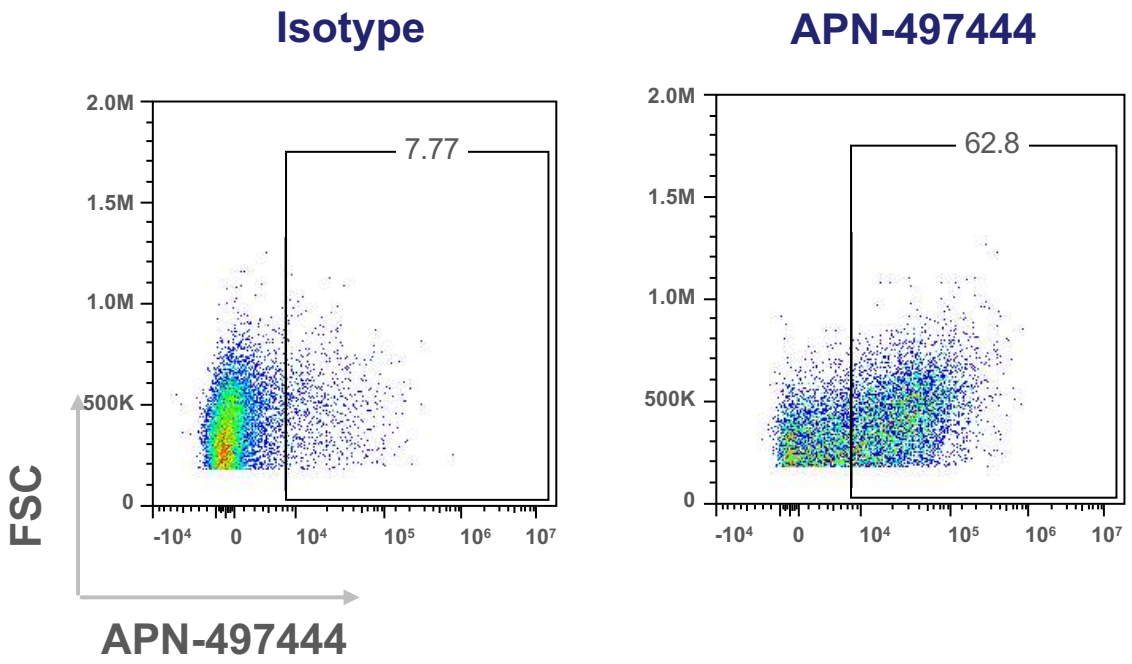
Indication	Percent reactive	Total cores scored
Ovarian cancer	71%	7
Lung cancer	60%	10
Colorectal cancer	60%	20
Pancreatic cancer	50%	18
Esophageal cancer	50%	10
Prostate cancer	22%	18
Thyroid cancer	20%	20

No significant reactivity or membrane signal detected in 27 normal human tissues by IHC

IHC, immunohistochemistry.

APN-497444 Recognizes a Target on the Surface of Human Colorectal Carcinoma Cells

Flow cytometry of dissociated human tumor tissue reveals cell-surface binding



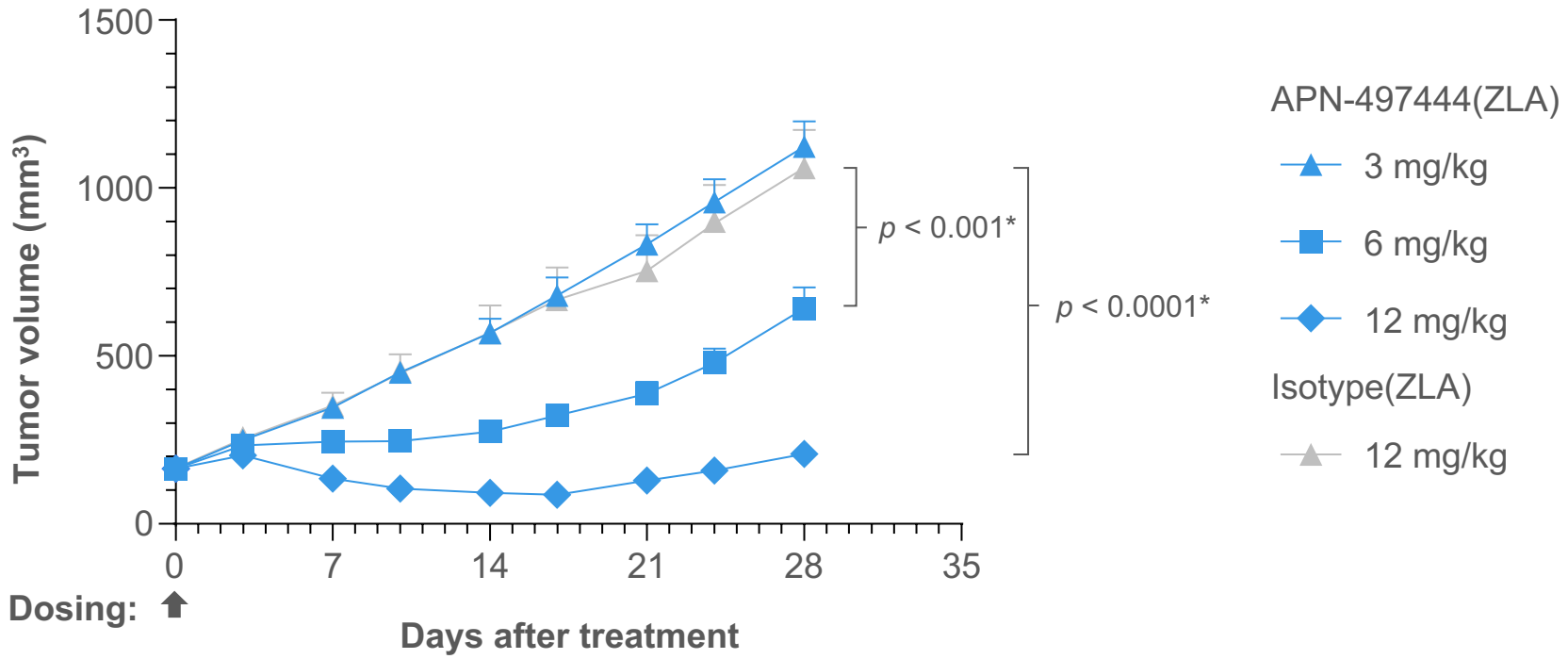
Subtype	Samples bound
Splenic flexure	0/1
Colon	2/2
Rectum	1/2
Total	**3/5**

- **APN-497444** bound to the surface of 3 out of 5 dissociated colorectal cancer samples
- Antibody does not recognize target on $CD45^+$ tumor-infiltrating immune cells

FSC, forward scatter.

APN-497444 Shows Potent *in Vivo* Activity in ZymeLink-Auristatin (ZLA) Format in a Colorectal Cancer Model

APN-497444(ZLA) shows potent anti-tumor activity in the LoVo tumor model

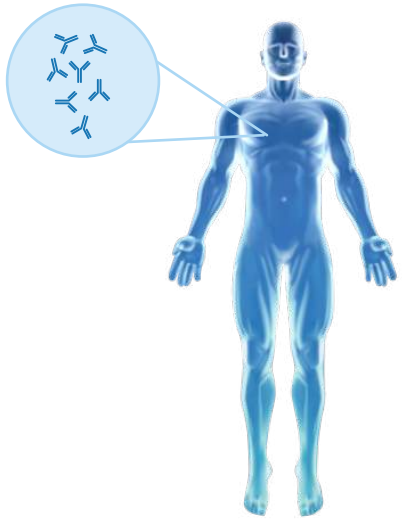


- Potent and dose-dependent tumor reduction observed **after single doses**
- No significant reduction in body weight observed compared to isotype control

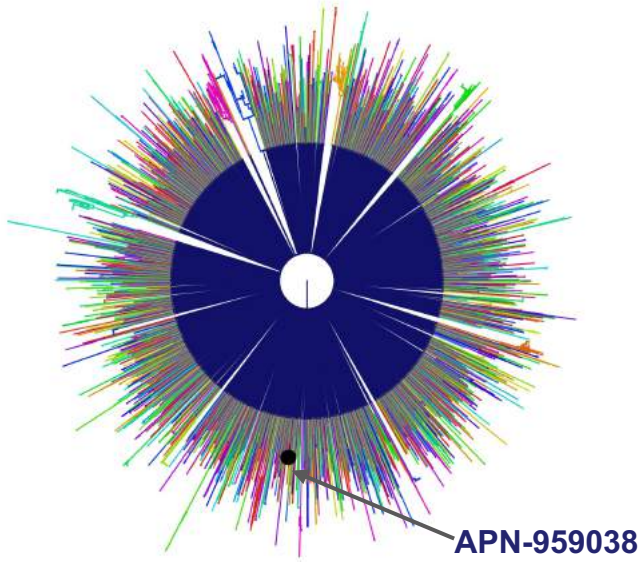
*One-sided Wilcoxon rank sum test for normalized area above the curve at Day 28.

APN-959038: A New Angle on a Known Cancer Target

Lead antibody APN-959038 discovered via the Atreca platform



Colorectal Adenocarcinoma patient with durable (2-year) response on cytotoxic chemotherapy



IRC®-generated antibody repertoire*

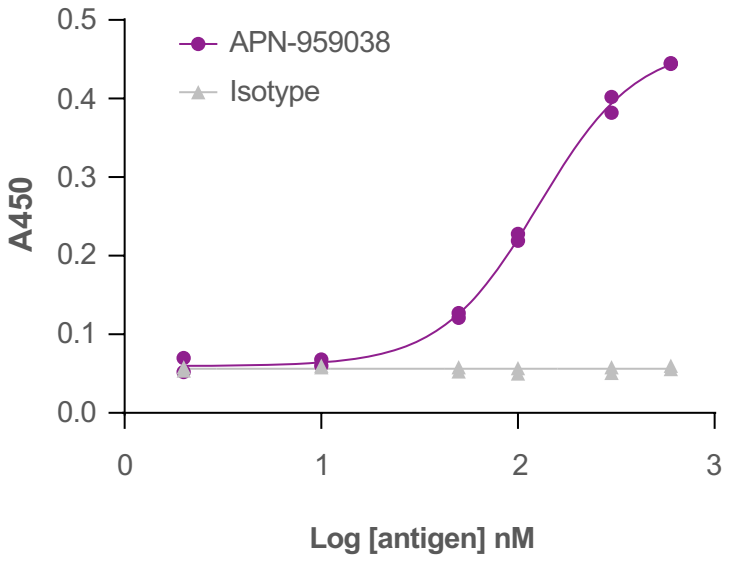
Lead highlights

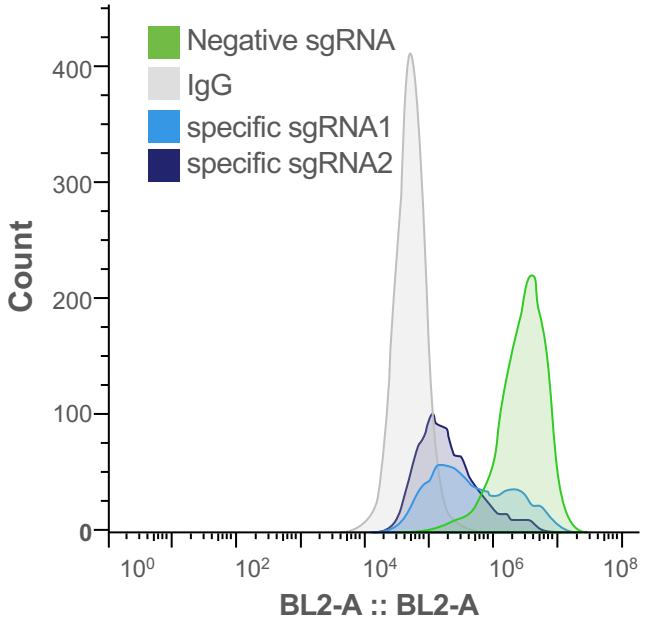
- Identified from an expanded lineage
- Binds to non-autologous human tumor with high selectivity
- Recognizes a surface-expressed target
- Selectively binds human tumor cell lines
- No high-risk sequence-based liabilities

*Branches differentially colored by lineage.
IRC, Immune Repertoire Capture.

APN-959038 Recognizes a Well-Described Cancer Target via a Novel Epitope

Target confirmed through ELISA and knockout





Current data indicate that APN-959038 binds a novel epitope

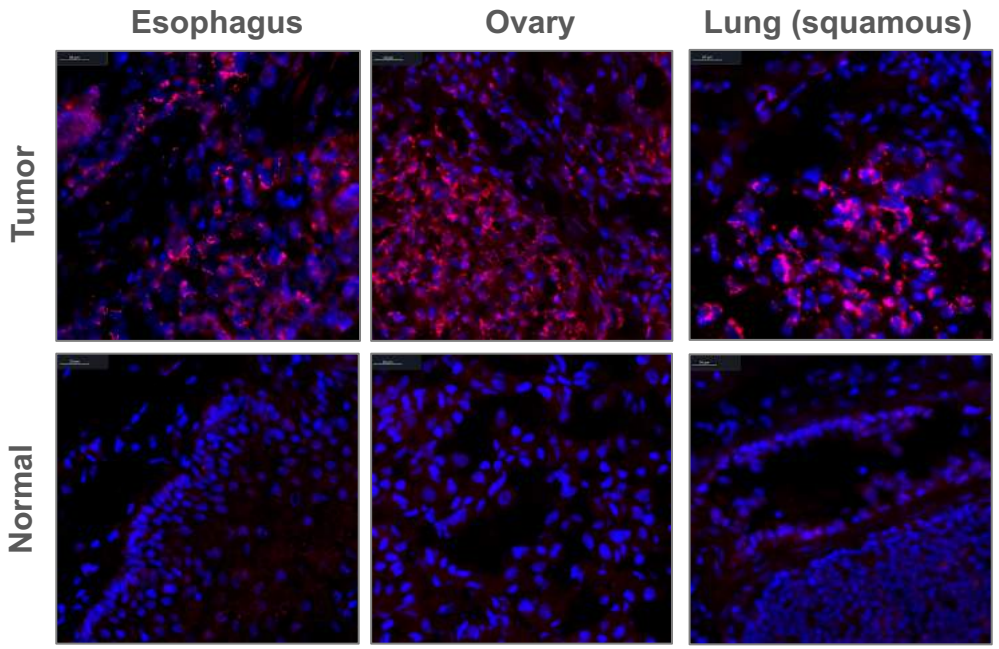
APN-959038 target features

- The target of APN-959038 is
  - Single-pass transmembrane protein
  - Overexpressed in multiple human cancer types
  - Internalizer with rapid kinetics
  - Attractive ADC target
- Prior clinical development by others as an ADC was limited due to on-target, off-tumor toxicity
- Atreca targets a novel epitope which may help overcome that limitation

ADC, antibody–drug conjugate; ELISA, enzyme-linked immunosorbent assay; IgG, immunoglobulin G; sgRNA, single guide RNA.

APN-959038 Shows Robust and Tumor-Selective Immunoreactivity

APN-959038 binds to a tumor-selective epitope



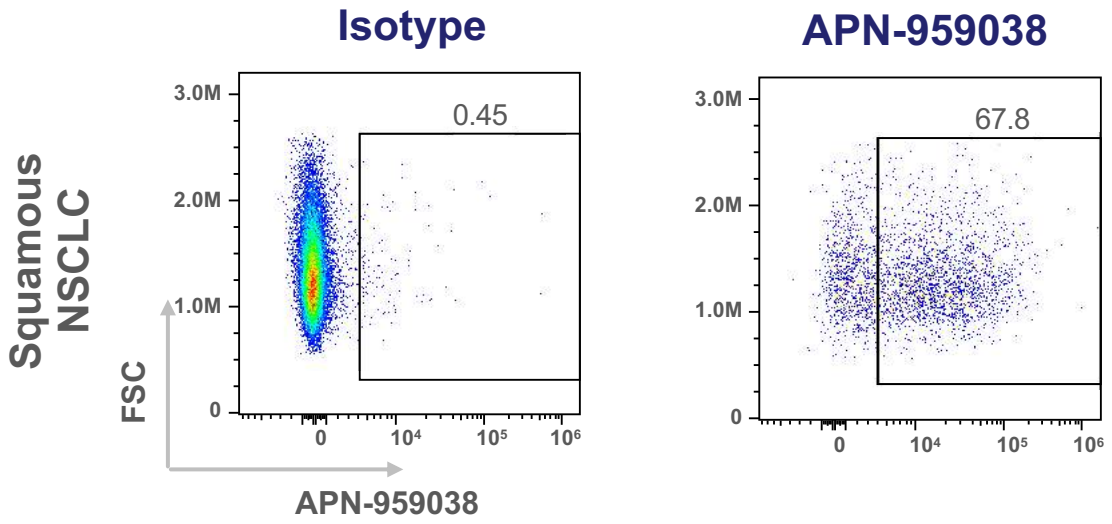
Indication	Percent reactive	Total cores scored
Melanoma	50%	14
Esophageal cancer	50%	16
Ovarian cancer	50%	10
Gastric cancer	36%	8
Renal cancer	24%	37
Testicular cancer	21%	14
NSCLC	20%	15

No significant reactivity detected in 27 normal human tissues by IHC

IHC, immunohistochemistry; NSCLC, non-small cell lung cancer.

APN-959038 Recognizes an Epitope on its Target Accessible on the Surface of Human NSCLC Cells

Flow cytometry of dissociated human tumor tissue reveals cell-surface binding



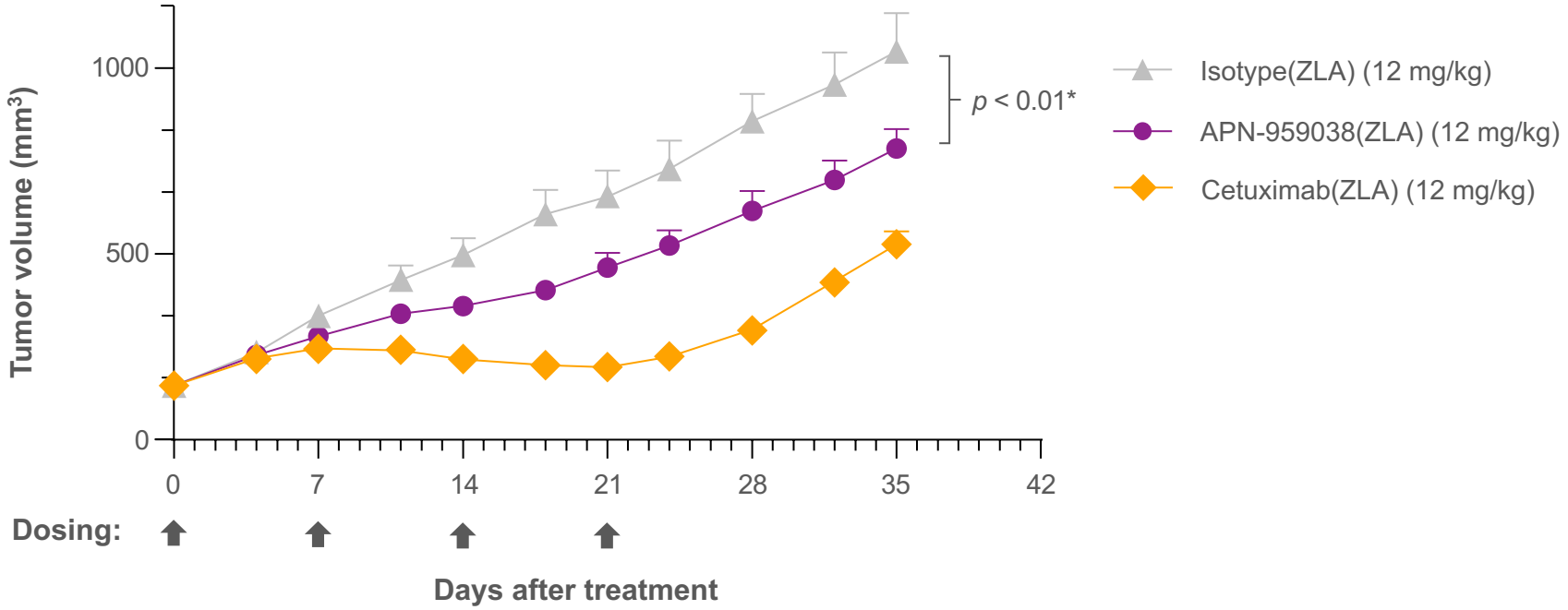
Subtype	Samples bound
Adenocarcinoma	1/2
Squamous cell carcinoma	4/4
Undetermined	0/2

- **APN-959038** bound to the surface of 5 out of 8 dissociated NSCLC cancer samples
- Surface reactivity was preferentially detected in NSCLC of the squamous subtype
- Antibody does not recognize target on $CD45^+$ tumor-infiltrating immune cells

FSC, forward scatter; NSCLC, non-small cell lung cancer.

APN-959038(ZLA) Shows Tumor Growth Inhibition in a Fast-Growing CDX Model

APN-959038(ZLA) demonstrates significant tumor growth inhibition in the SK-BR-3 model

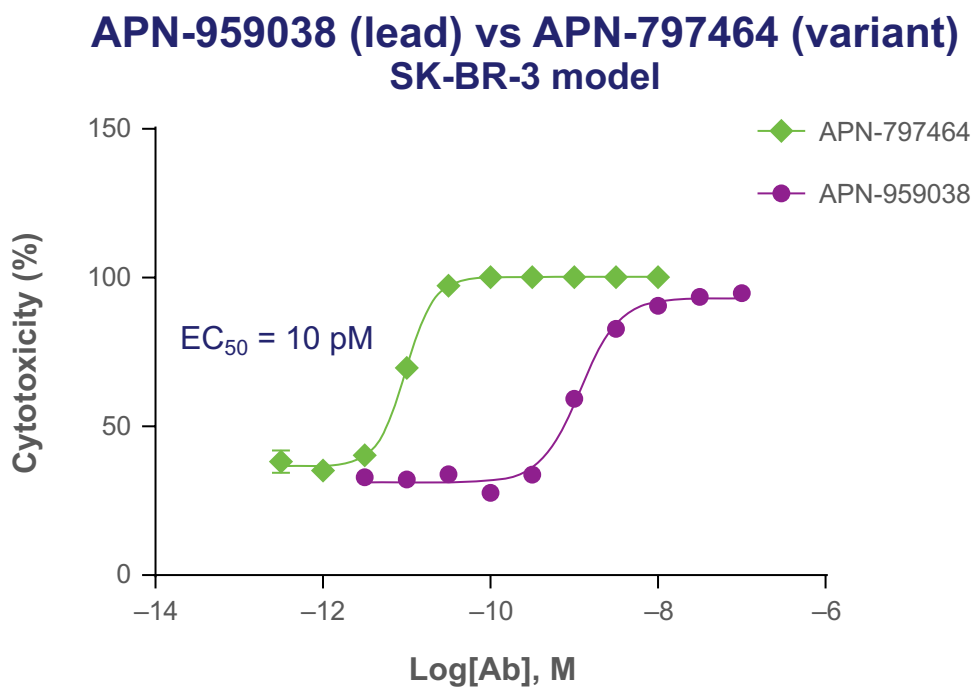


- Model only weakly responsive to high doses of positive control cetuximab(ZLA)
- No significant loss in body weight observed compared with isotype control group

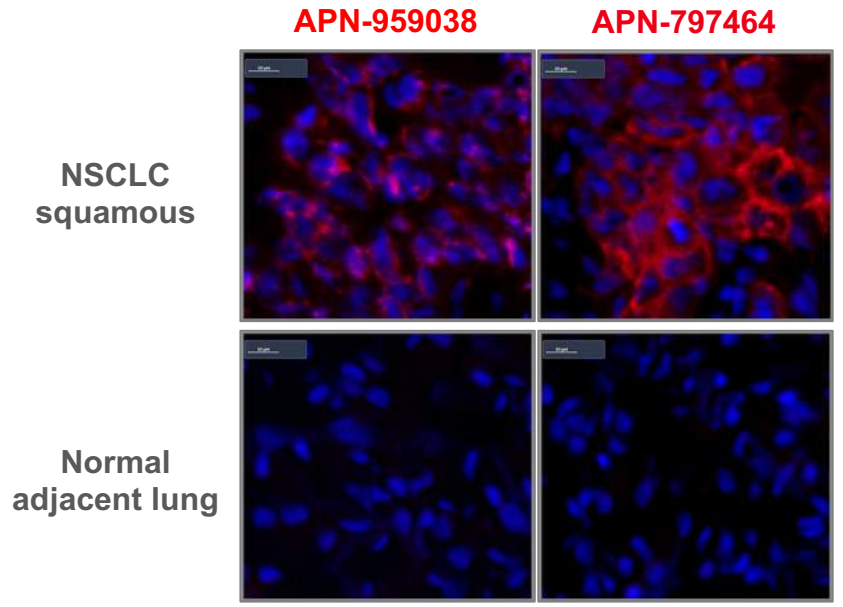
*One-sided Wilcoxon rank sum test for normalized area above the curve at Day 35.
CDX, cell line-derived xenograft; ZLA, ZymeLink Auristatin.

First Round of Lead Optimization Has Already Produced Variants with Significantly Improved Activity

ADC activity improved by >100 fold



More potent variant shows improved tumor selectivity



Ab, antibody; ADC, antibody–drug conjugate; EC_{50}, half maximal effective concentration; NSCLC, non-small cell lung cancer.

Summary: Two Lead-stage ADC Programs Advancing

- **APN-497444** recognizes a tumor-specific glycan epitope
- **APN-959038** recognizes a known cancer target via a potentially novel epitope

- **APN-497444** and **APN-959038** display strong and tumor-selective immunoreactivity
- No significant reactivity in normal tissues detected for either antibody

- **APN-497444(ZLA)** showed potent & dose-dependent tumor reduction after single doses
- **APN-959038(ZLA)** showed significant tumor growth inhibition

- Continuing lead optimization campaign for both molecules
- Evaluating novel variants in efficacy as well as toxicology models

Continuing to leverage robust ADC Engine for additional programs

ADC, antibody–drug conjugate; ZLA, ZymeLink Auristatin.

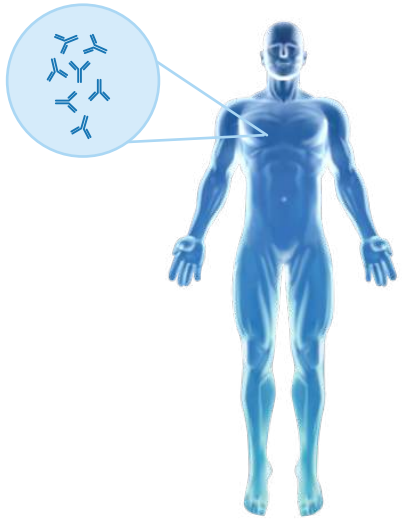
Lead Stage CD3-Engager Program: APN-346958 (Lead)

Shaun Lippow, PhD

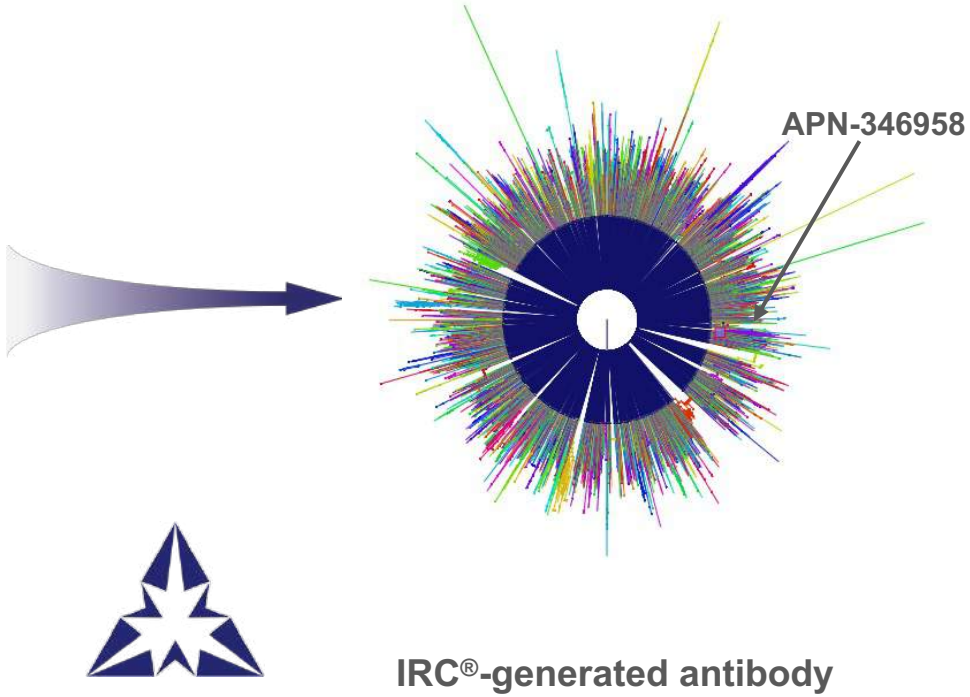
VP, Protein Engineering

APN-346958: A Tumor-Selective Antibody Recognizing an RNA-Binding Protein Target

Lead antibody APN-346958 discovered via the Atreca platform



Melanoma patient undergoing treatment with pembrolizumab



IRC®-generated antibody repertoire*

Lead highlights

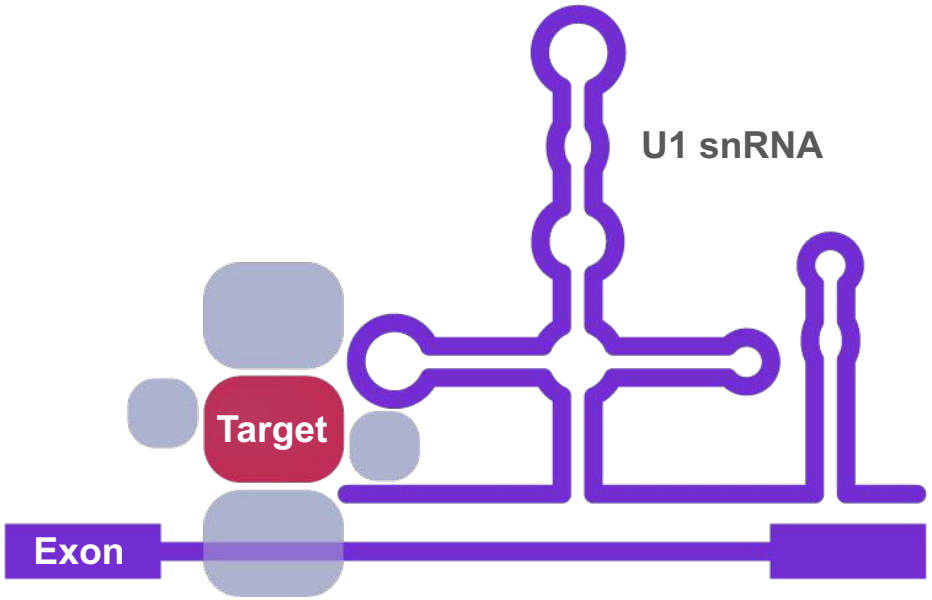
- Identified a lead antibody with a rare ultra-long H-CDR3
- APN-346958 selectively binds non-autologous human tumor tissue
- APN-346958 selectively binds human tumor cell lines
- No high-risk sequence-based liabilities

*Branches differentially colored by lineage.
CDR, complementarity determining region; H, heavy chain; IRC, Immune Repertoire Capture; RNA, ribonucleic acid.

Novel Tumor Target: Pathological Cell-Surface Localization of a Normally Nuclear RNA-Binding Protein

Tumor-specific surface exposure potentially related to U1 snRNP cell-surface localization

- The target of APN-346958 is normally in the nucleus
- The target family has been shown to interact with the U1 snRNP complex
- The U1 snRNP has been detected on the surface of cells,[1,2] consistent with cell-surface localization of autoantibody targets[3] (including RNA binding proteins)
- It is hypothesized that the target of APN-346958 gets to the cell surface via a stress-driven, tumor-specific process



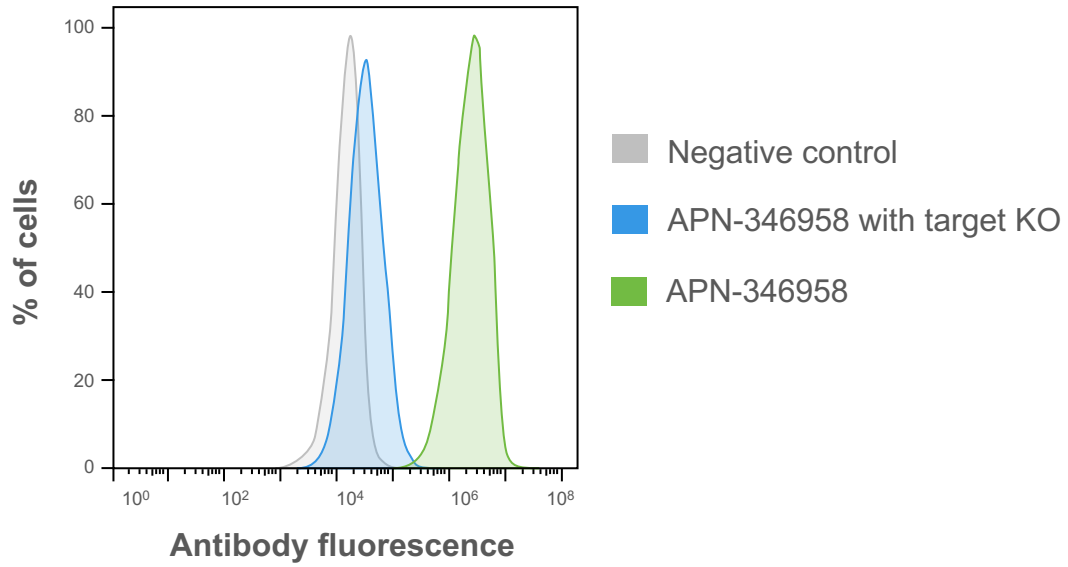
RNA, ribonucleic acid; snRNP, small nuclear ribonucleoprotein.

1. Ma J, et al. *Clin Exp Immunol.* 1993; 93:396–404; 2. Okawa-Takatsuji M, et al. *Clin Exp Immunol.* 2001;126:345–354; 3. Jordan P, et al. *Mol Biol Reports.* 1996;22:63–66.

APN-346958 Binds the Surface of Human Tumor Cell Lines

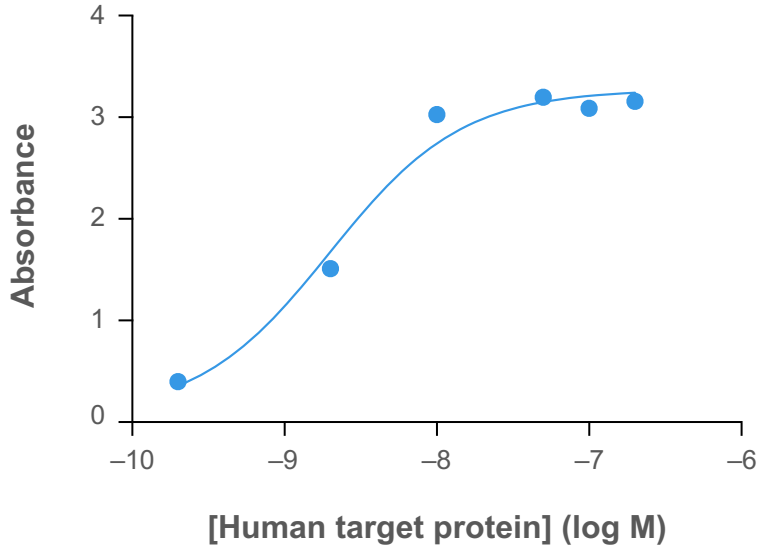
Binding diminished by CRISPR knockout of the target

Surface staining of A549 human lung cancer cell line



Binding to recombinant target confirmed by ELISA

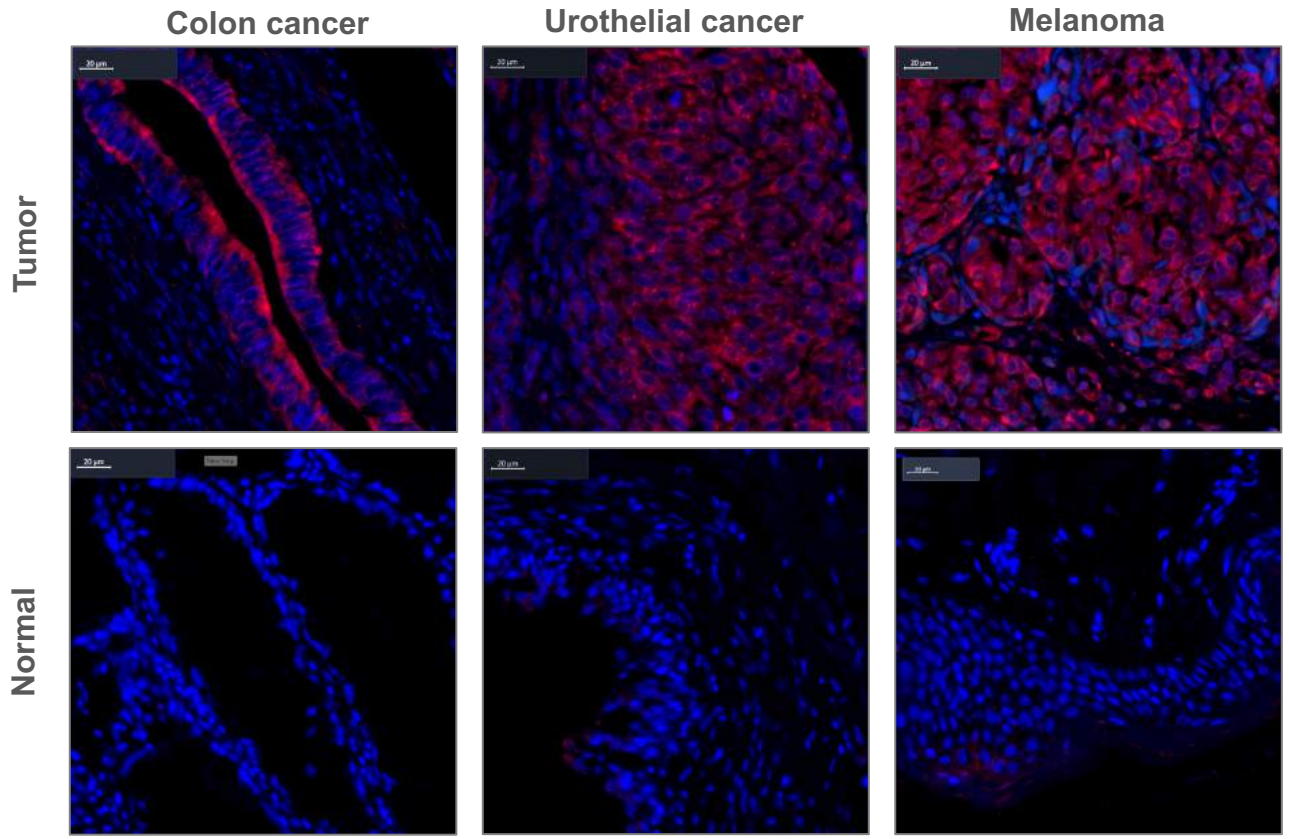
Epitope conserved across mouse/rat/cynomolgus monkey



CRISPR, clustered regularly interspaced short palindromic repeats; ELISA, enzyme-linked immunosorbent assay.

APN-346958 Pilot Survey Reveals Marked Prevalence in Multiple Cancer Types

Robust and tumor-selective signal observed in ≥50% of six tumor types



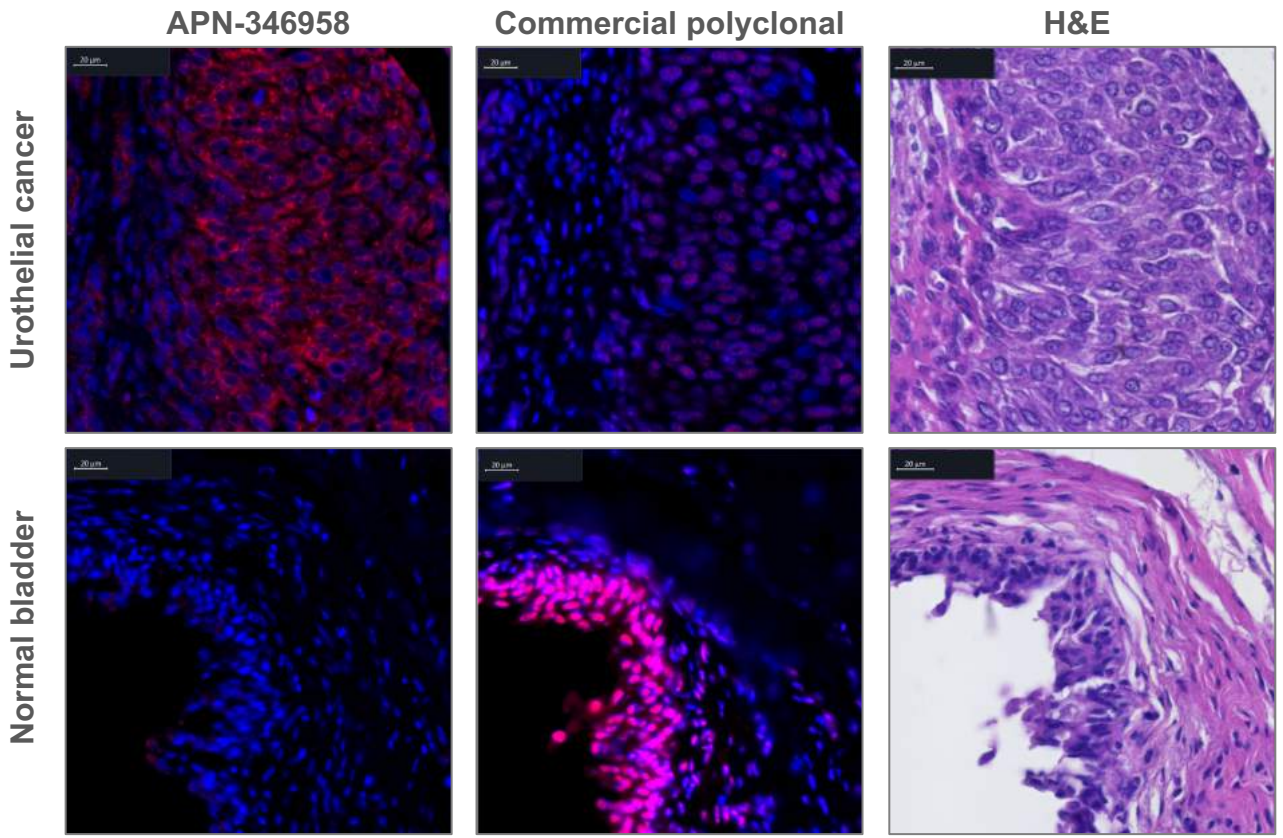
Indication	Percent reactive	Total cores scored
Colorectal cancer	75%	20
Thyroid cancer	68%	19
Head & neck cancer	67%	18
Urothelial cancer	63%	16
Melanoma	54%	13
Brain cancer	50%	20
NSCLC	42%	19
Cervical cancer	42%	19
Ovarian cancer	40%	15

Only faint-to-moderate cytoplasmic immunoreactivity observed in normal human tissues

NSCLC, non-small cell lung cancer.

APN-346958 May Recognize a Novel Tumor-associated Form of the Target Across Multiple Tumor Types

APN-346958 reactivity apparent in malignant cells *but not* stroma or normal tissues



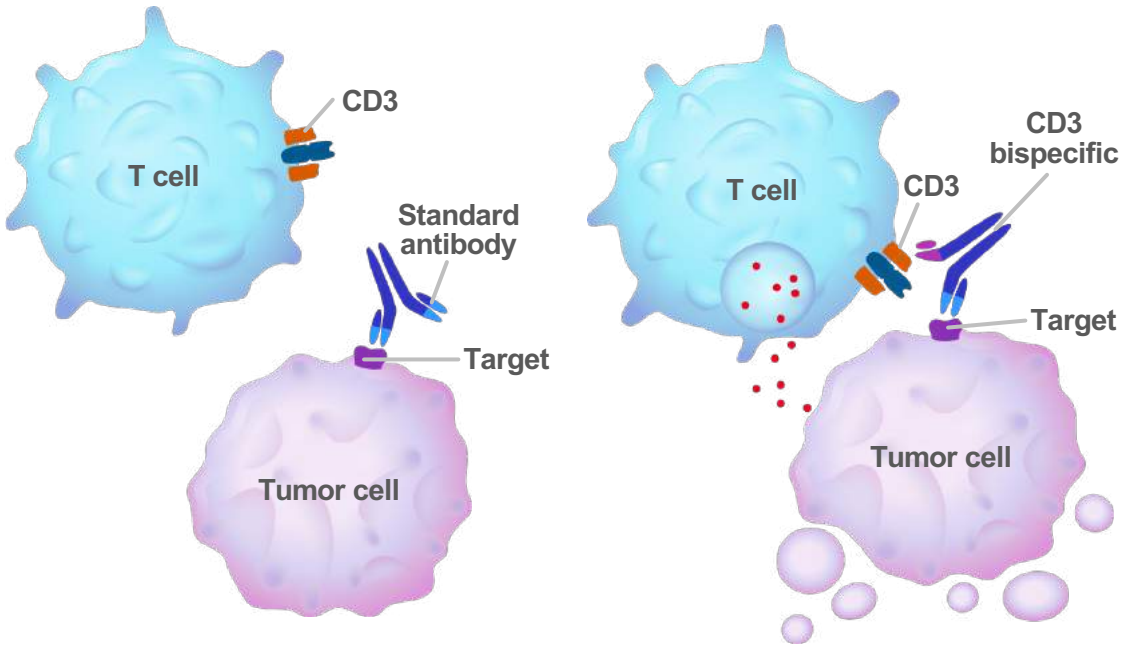
APN-346958 compared to commercial polyclonal against target

- Differences observed across multiple tumor types
- Commercial polyclonal
  - Binds tumor **and** normal tissues
  - Has reactivity localized to the nucleus

H&E, hematoxylin and eosin; pAb, polyclonal antibody.

Xencor and Atreca Collaborating to Discover and Develop Novel CD3-Engagers

Bispecific T cell engagers mediate TDCC



No cytotoxicity ***Cytotoxicity***

Collaboration highlights

Atreca brings:

- Novel tumor-selective antibodies
- Target ID and epitope ID
- Antibody optimization

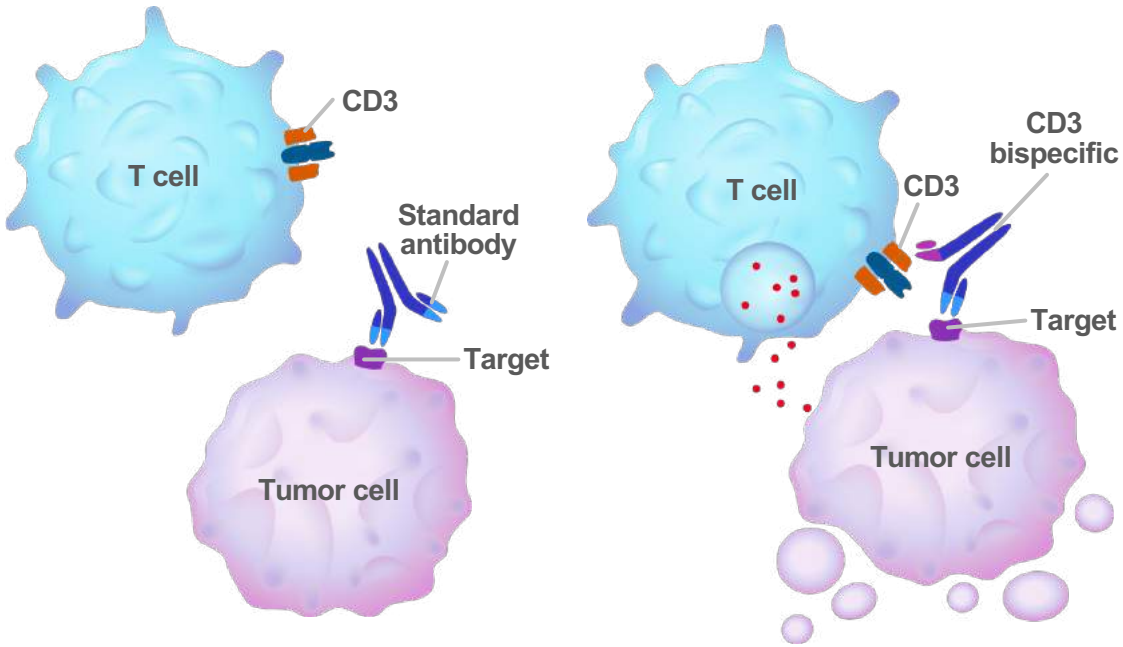
Xencor brings:

- Leadership in taking CD3-engagers from engineering through manufacturing and clinical development
- XmAb® bispecific Fc domain technology that retains full-length antibody properties in bispecific antibody formats
- Tunable XmAb® 1+1 and 2+1 formats

Fc, fragment crystallizable; TDCC, T cell-dependent cellular cytotoxicity.

APN-346958(CD3) XmAb® Bispecific T Cell Engager Kills Tumor Cells *in Vitro*

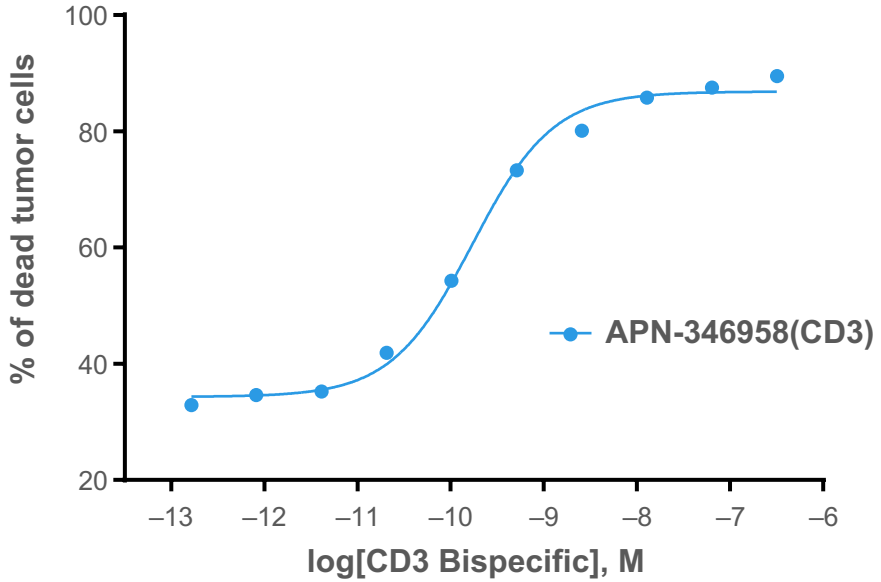
Bispecific T cell engagers mediate TDCC



No cytotoxicity ***Cytotoxicity***

APN-346958(CD3) mediates *in vitro* TDCC

TDCC on LoVo (human colon cancer cell line)

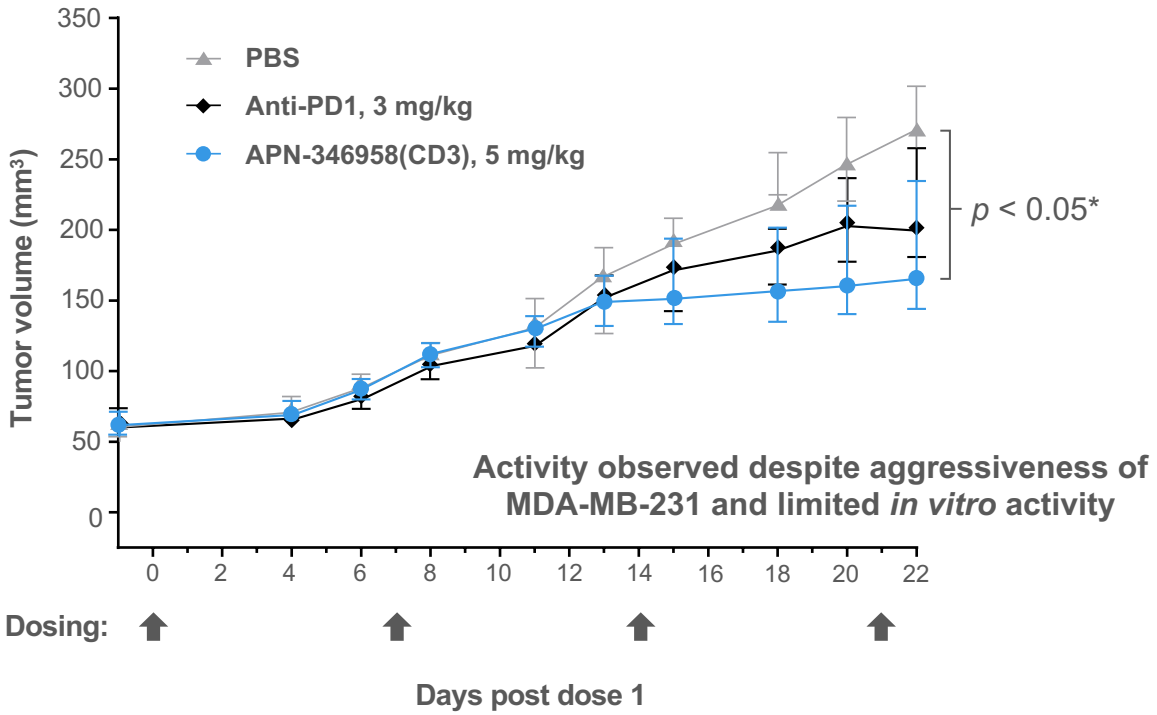


	LoVo	786O	PC3	A549	MDA-MB-231
EC_{50} (nM)	0.17	0.68	0.69	1.4	27

EC_{50}, half maximal effective concentration; TDCC, T cell-dependent cellular cytotoxicity.

APN-346958(CD3) Active *in Vivo* in Hard-to-Treat Humanized Mouse Tumor Model

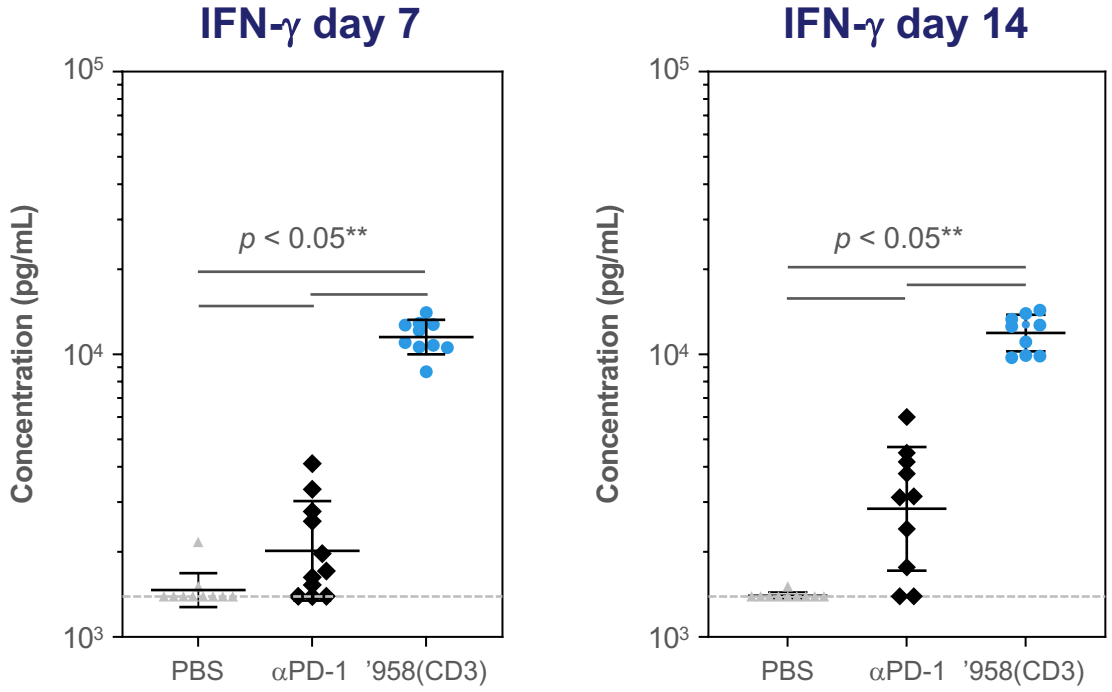
APN-346958(CD3) inhibited MDA-MB-231 tumor growth



Day −16: Inoculated 5x10^6 cells/mouse

Day 0: Engrafted 5x10^6 huPBMCs/mouse from a random donor and started weekly IP dosing

APN-346958(CD3) treatment generated large burst of IFN-γ



Stable body weights also observed

*One-sided Wilcoxon rank sum test for normalized area above the curve at Day 22. **Two-sided unpaired t-test.
IFN-γ, interferon gamma; IP, intraperitoneal; PD-1, programmed cell death 1; PBS, phosphate-buffered saline; huPBMC, human peripheral blood mononuclear cell.

APN-346958(CD3) Advancing Towards Candidate

- **APN-346958** binds a novel, tumor-selective target mislocated to cell surface
- Exhibits marked prevalence in six cancer types

- **APN-346958** binds a species-conserved epitope
- May recognize a unique tumor-specific form of the target

APN-346958(CD3) bispecific T cell engager:

- Active *in vitro* to kill cells
- Active *in vivo* to inhibit tumor growth

Lead optimization underway

- Leveraging yeast-display platform
- Evaluating tunable aspects of format (valency & CD3 potency)

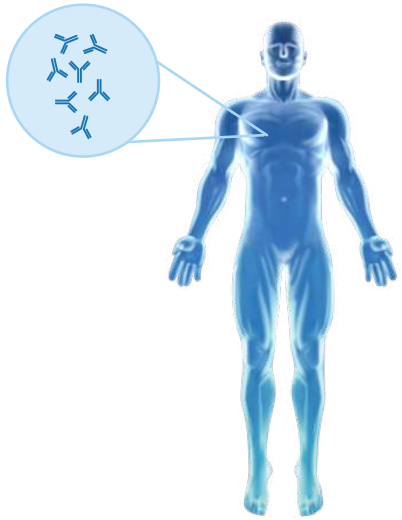
Lead Stage IL-15SA Fusion Program: APN-541885 (Lead)

Amy Manning-Bog, PhD

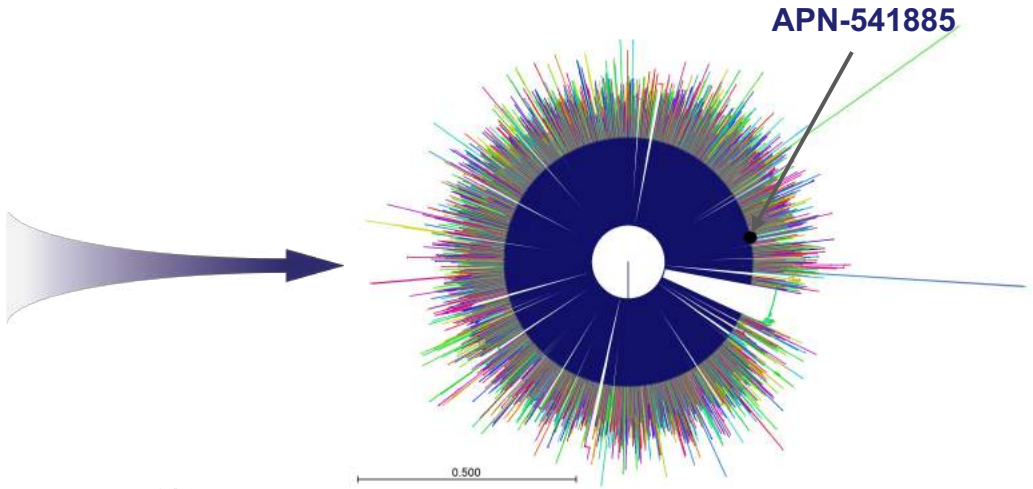
VP, Translational Sciences

APN-541885: An Antibody Targeting an Oncofetal Antigen

Lead antibody APN-541885 discovered via the Atreca platform



Prostate Adenocarcinoma and NSCLC (Squamous Cell) patient undergoing treatment with Nivolumab



IRC®-generated antibody repertoire*

Lead highlights

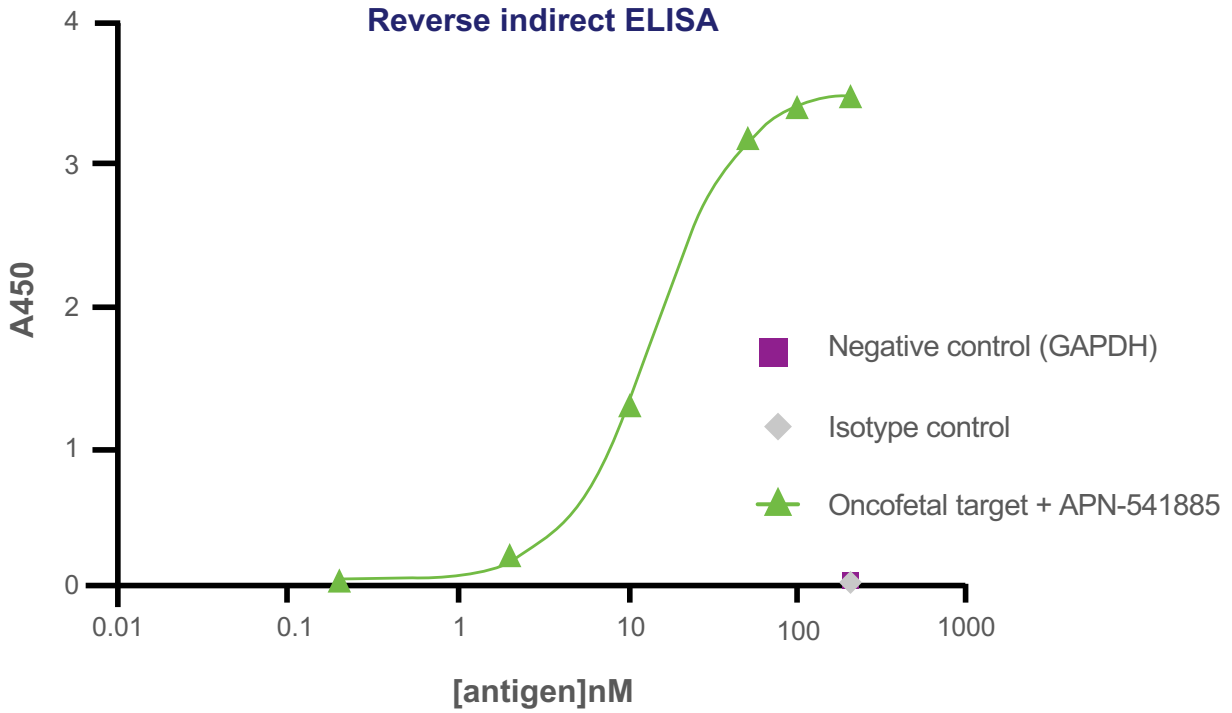
- Identified from sample collected post-nivolumab treatment
- APN-541885 derived from a persistent and expanded lineage
- APN-541885 selectively binds non-autologous human tumor tissue
- APN-541885 selectively binds human tumor cell lines
- No high-risk sequence-based liabilities

*Branches differentially colored by lineage.
NSCLC, non-small cell lung cancer; IRC, Immune Repertoire Capture.

APN-541885 Target Is a Well-described Oncofetal Protein

Target confirmed by ELISA

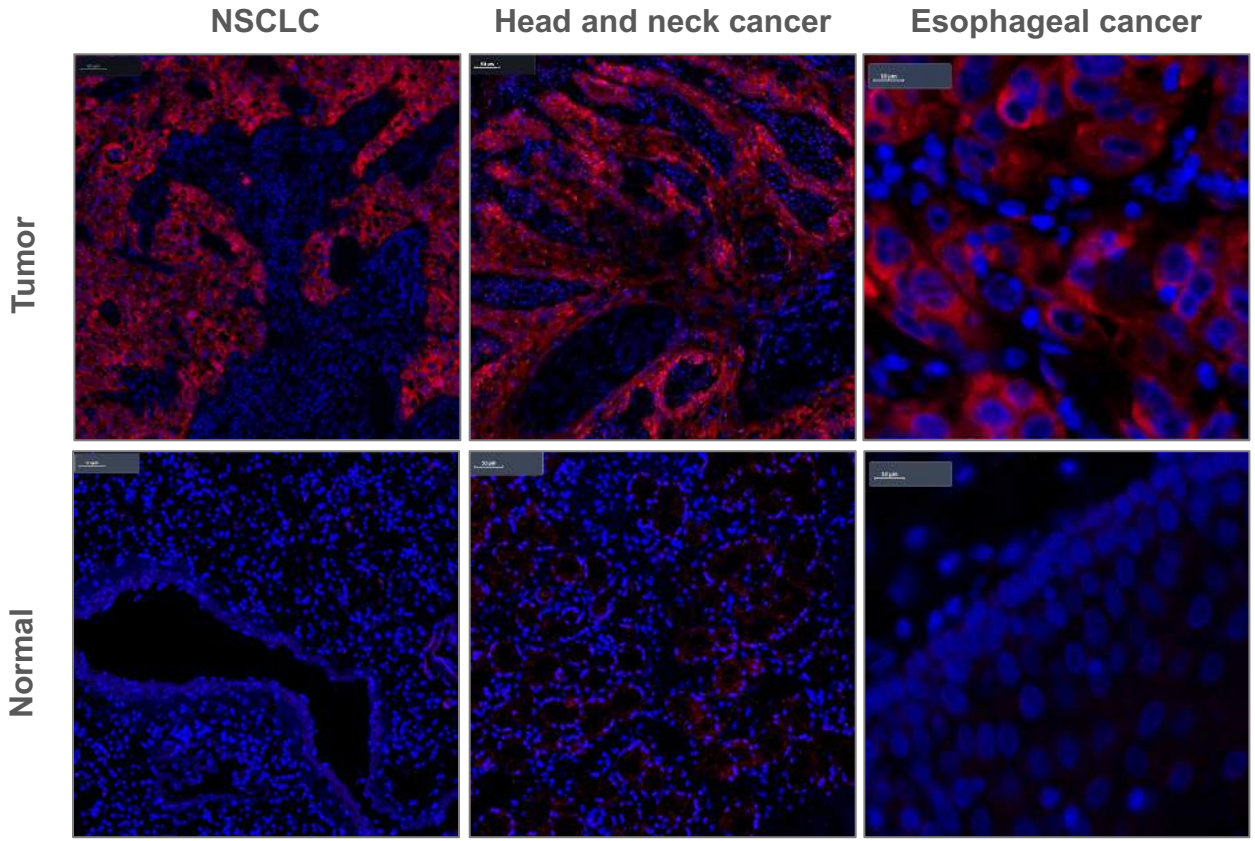
- Oncofetal proteins are expressed during development and only in tumors in adults
- Expression of APN-541885 target described in several cancers including melanoma, adenocarcinomas, squamous cell carcinomas, and hematological cancers
- Higher levels of APN-541885 target in tumor and circulation linked to worse survival



ELISA, enzyme-linked immunosorbent assay; GAPDH, glyceraldehyde-3-phosphate dehydrogenase.

APN-541885 Demonstrates Tumor-selective Binding Across Multiple Cancer Types

Robust APN-541885 reactivity apparent in malignant cells *but not* stroma or normal tissues



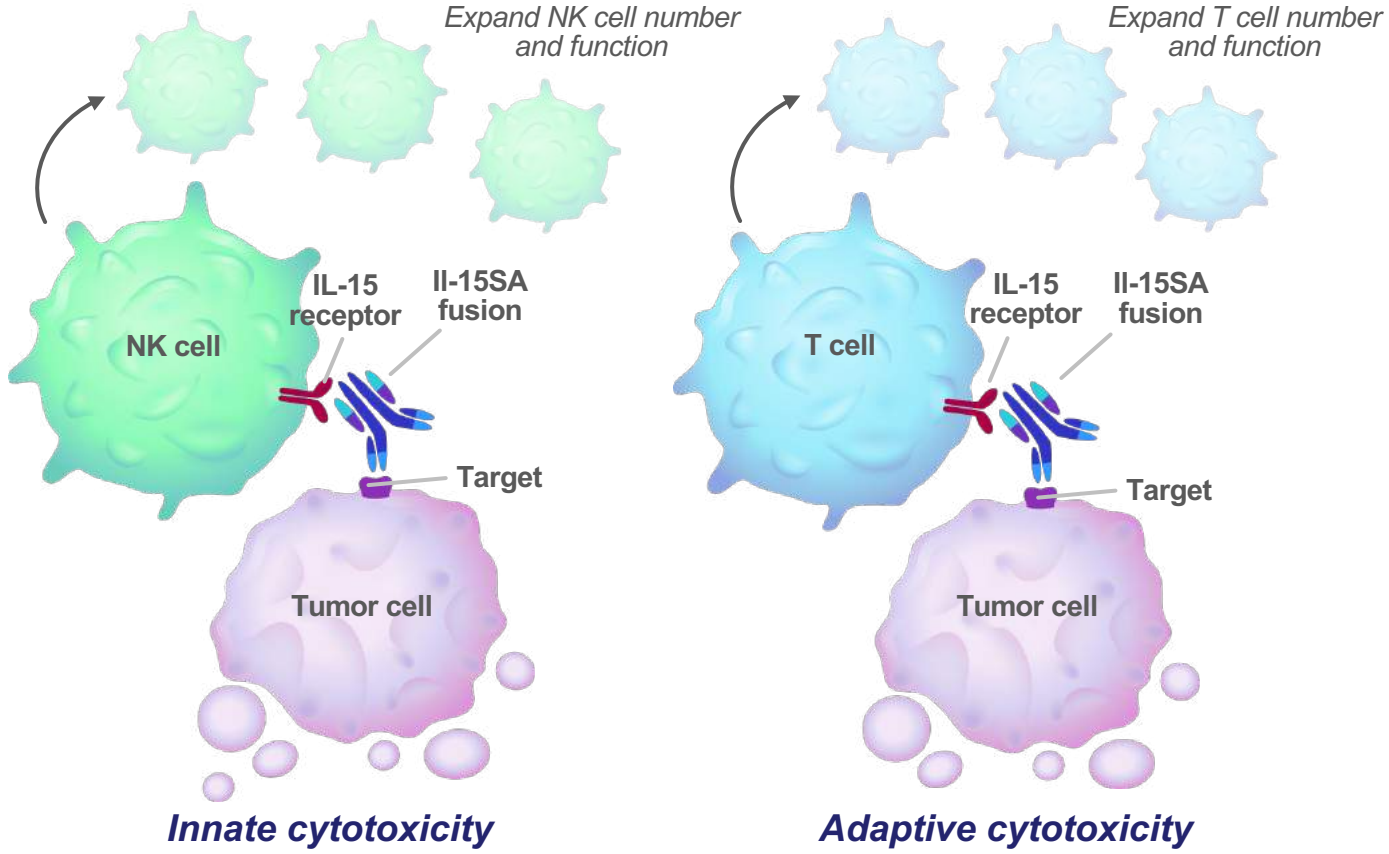
Indication	Percent reactive	Total cores scored
NSCLC	68%	19
Thyroid cancer	67%	15
Cervical cancer	60%	15
Testicular cancer	59%	17
Head and neck cancer	56%	16
Esophageal cancer	53%	15
Ovarian cancer	43%	14
Urothelial cancer	38%	13
Renal cancer	29%	14

Minimal reactivity detected across normal human tissues with no membrane signal apparent

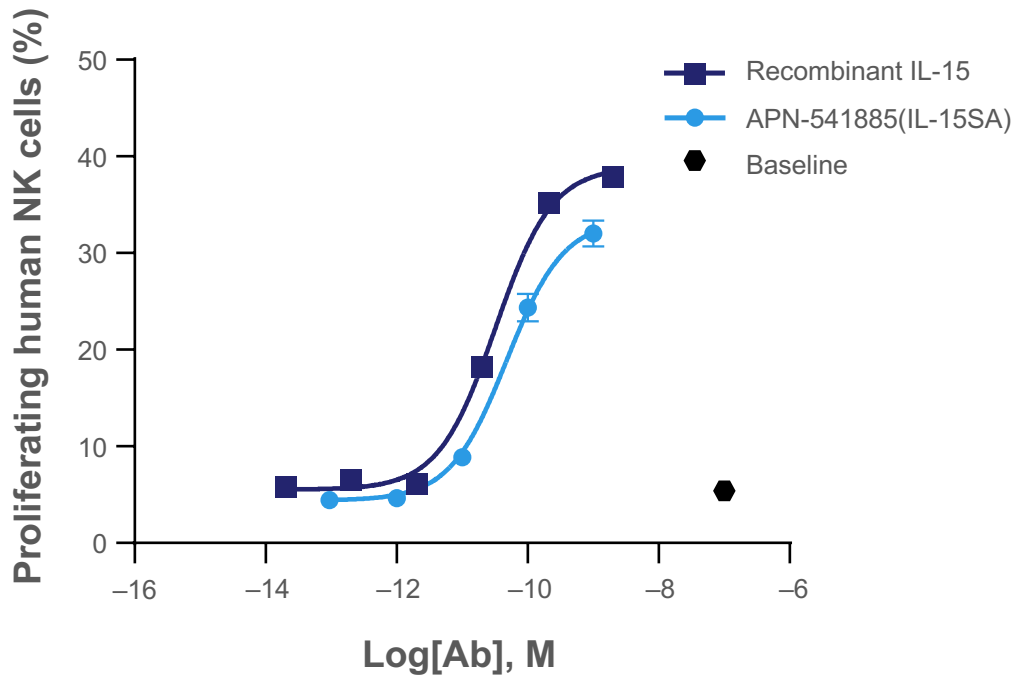
NSCLC, non-small cell lung cancer.

APN-541885(IL-15SA) Promotes NK Cell Proliferation *in Vitro*

IL-15SA fusion antibodies mediate innate and adaptive immune cell expansion and activation in TME



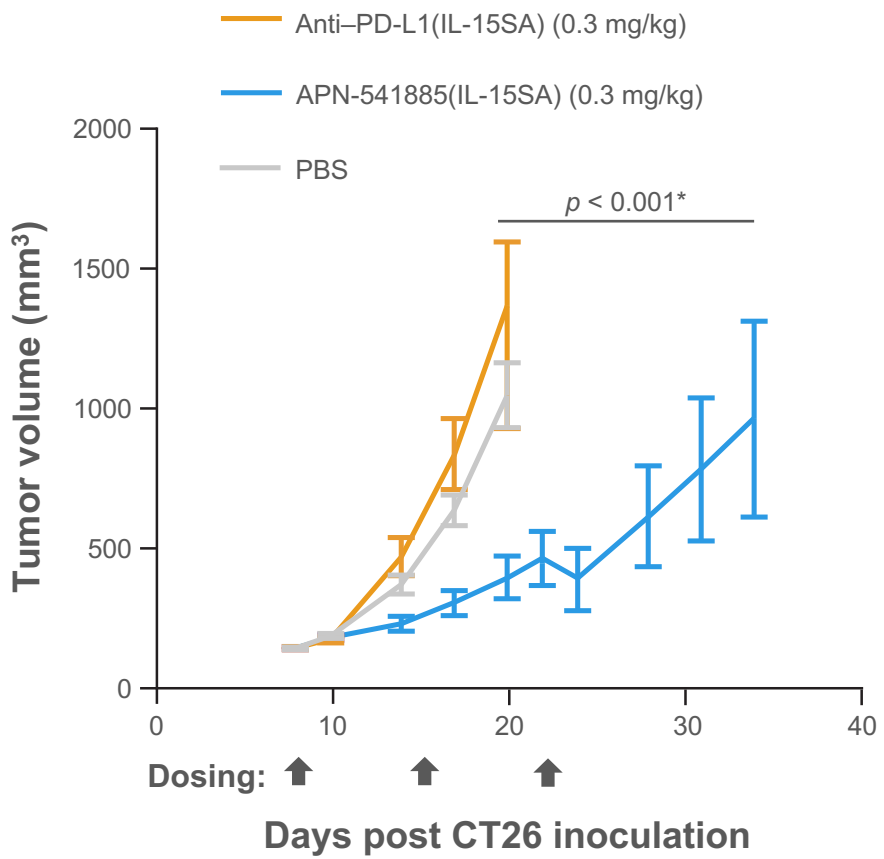
In vitro NK cell proliferation with APN-541885(IL-15SA)



IL, interleukin; NK, natural killer; PD-L1, programmed death-1 ligand; SA, superagonist; TME, tumor microenvironment.

APN-541885(IL-15SA) Shows Enhanced Anti-Tumor Activity *in Vivo* Compared to Anti-PD-L1(IL-15SA)

In vivo tumor reduction with APN-541885(IL-15SA)



- APN-541885(IL-15SA) promoted robust tumor growth inhibition in the CT26 model at a low dose
- No anti-tumor activity noted with an anti-PD-L1(IL-15SA) at the same dose
- No untoward safety signals such as clinical observations or changes in body weight observed

*One-sided Wilcoxon rank sum test for normalized area above the curve at end of study for APN-541885(IL-15SA) vs Anti-PD-L1(IL-15SA).
IL, interleukin; PBS, phosphate-buffered saline; PD-L1, programmed death-1 ligand; SA, superagonist.

Summary: APN-541885(IL-15SA) Profile Supports Advancement

- **APN-541885** binds a well-described oncofetal protein with prognostic value
- Target externalized and found in circulation

- **APN-541885** has marked tumor-selective binding and demonstrates reactivity across 15 cancer types
- Minimal cross-reactivity to normal human tissues consistent with oncofetal nature of target

- **APN-541885(IL-15SA)** inhibits tumor growth *in vivo*
- **APN-541885(IL-15SA)** displays greater activity compared to anti-PD-L1(IL-15SA)

IL, interleukin; PD-L1, programmed death-1 ligand; SA, superagonist.

Business Development, Summary and Next Steps

John Orwin

President and CEO

Atreca's Pipeline

Candidate / Lead	Target	Format / MOA	Lead	Candidate / Preclinical	Phase 1	Phase 2	Weaponization Tech
ONCOLOGY							
ATRC-101	Novel RNP Complex	IgG Antibody w/ Driver Antigen Engagement					
ATRC-301	EphA2 (novel epitope)	ADC (Cytotoxic)					zymeworks
APN-122597		T Cell Engagement (via CD3)					
APN-497444	Glycan (tumor-specific)	ADC (Cytotoxic)					zymeworks
APN-959038	Transmembrane protein (novel epitope)	ADC (Cytotoxic)					zymeworks
APN-346958	RNA-binding protein	T Cell Engagement (via CD3)					Xencor
APN-541885	Oncofetal protein	NK & T Cell Engagement (via IL-15SA)					
INFECTIOUS DISEASES							
ATRC-501 / MAM01 (Malaria)	*P. falciparum* Circumsporozoite Protein	IgG antibody					
APN-850271 / APN-906072 (COVID-19)	SARS-CoV-2 Spike Protein	IgG antibody					

ADC, antibody–drug conjugate; EphA2, erythropoietin-producing hepatocellular receptor A2; IgG, immunoglobulin G; IL, interleukin; MOA, mechanism of action; NK, natural killer; RNA, ribonucleic acid; RNP, ribonucleoprotein; SA, superagonist; SARS-CoV-2, severe acute respiratory syndrome coronavirus 2.

Partnering with World Leaders to Access Technologies for Atreca Antibody Weaponization

Collaborating with Xencor to Discover and Develop Novel T Cell-Engaging Bispecific Antibodies

- **Atreca** provides antibodies against novel targets from which **Xencor** engineers XmAb bispecific antibodies that bind to the CD3 receptor on T cells
  - Up to two joint programs will be mutually selected for further development and commercialization with 50/50 cost and profit sharing.
  - Each partner may pursue up to two programs independently with royalties payable on net sales

Licensing technology from Zymeworks to Develop Novel Antibody-Drug Conjugates

- **Atreca's** novel antibodies will be conjugated using ZymeLink™, **Zymeworks**' suite of proprietary cytotoxins, stable linkers, and conjugation technologies
  - Two-year Research Term for **Atreca** to evaluate antibodies as ADC's using ZymeLink™ with the option for a 3rd year
  - **Atreca** can acquire up to 3 commercial licenses during the Research Term to develop 3 unique ADC programs

Existing agreements designed to facilitate further potential development and commercial partnerships

ADC, antibody–drug conjugate.

Summary

Platform

- Atreca's drug discovery approach and platform validated by ATRC-101 clinical data
- Atreca platform continues to evolve and is delivering a robust pipeline

ATRC-301

- ADC targeting EphA2 declared as clinical candidate
- Enabled by newly announced licensing agreement with Zymeworks
- Demonstrates potent anti-tumor activity *in vivo*
- Differentiated from previous and current clinical-stage programs

Pipeline

- Four additional lead-stage oncology programs advancing
- Lead antibodies bind novel tumor targets that vary in molecular class
- All programs have positive *in vivo* data

ADC, antibody–drug conjugate; EphA2, erythropoietin-producing hepatocellular receptor A2.

Financial/IP Overview

Financial Overview

- **$125M** equity financing completed in **July 2020**
- Current capital expected to be adequate to fund operations through **1H23**
- Cash, cash equivalents & investments of **$148.1M** as of **December 31, 2021**

Intellectual Property

- Patents issued in multiple jurisdictions, including a granted US patent, covering critical aspects of Atreca's **Immune Repertoire Capture® (IRC®)** technology and platform exclusively licensed to Atreca
- Patent applications covering **ATRC-101** and related antibodies pending worldwide
- Patent application covering **ATRC-301** and related antibodies filed internationally
- US provisional applications filed covering pipeline assets

Next Steps and Upcoming Milestones

ATRC-101

- Enrolling at 30 mg/kg in monotherapy and pembrolizumab combination cohorts in order to determine indications for expansion
- Participant selection based on target expression expected to begin in 2Q 2022
- Additional monotherapy and combination data expected in 4Q 2022

ATRC-301

- IND enabling studies for candidate and backup molecules have been initiated
- Non-GLP NHP tox expected 2H 2022
- IND filing expected 2H 2023

Additional Programs

- Multiple lead-stage oncology programs advancing
- Continuing to leverage robust ADC Engine for additional programs
- Targeting one IND per year starting with ATRC-301 in 2023

ADC, antibody–drug conjugate; GLP, good laboratory practices; IND, investigational new drug; NHP, non-human primates.

Q&A