



# Delivering the Potential of Immunotherapy

**Corporate Overview**

March 2020

# 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. In some cases, you can identify forward-looking statements because they contain words such as “anticipate,” “believe,” “contemplate,” “continue,” “could,” “estimate,” “expect,” “intend,” “may,” “plan,” “potential,” “predict,” “project,” “should,” “target,” “will” or “would” 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, any clinical trials and Investigational New Drug and other regulatory submissions; the initiation, timing, progress and results of collaborations and partnerships; our expectations regarding the activity of our product candidate ATRC-101 or potential future product candidates once administered in a human subject; our ability to identify and develop product candidates for treatment of additional disease indications; our or a potential future collaborator’s ability to obtain and maintain regulatory approval of any of our current or potential future product candidates; and the implementation of our business model and strategic plans for our business, technologies, and current or 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 most recent Quarterly Report on Form 10-Q filed with the U.S. Securities and Exchange Commission, and may cause our actual results, performance or achievement to differ materially and adversely from those anticipated or implied by our forward-looking 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 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.*

*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.*

*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. 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. We may not actually achieve the plans, intentions or expectations disclosed in our forward-looking statements, and you should not place undue reliance on our forward-looking statements. Our forward-looking statements do not reflect the potential impact of any future acquisitions, mergers, dispositions, joint ventures or investments. We qualify all of our forward-looking statements by these cautionary statements.*

# Investment Highlights

Discovering and Developing Novel Antibody-based Cancer Immunotherapeutics



## Differentiated Discovery Approach

- First-mover advantages in accessing a potentially large and underexploited target space via interrogation of the human active anti-tumor immune response
- Delivers novel antibodies binding to targets otherwise unlikely discoverable by traditional approaches
- Scalable and industrialized platform

## Large Opportunities

- Approach leads to antibodies that bind to “public” tumor targets
- Potential treatments for large patient populations across multiple tumor types

## Lead Candidate: ATRC-101

- Monoclonal antibody with a novel mechanism of action and target
- Demonstrated potent single-agent anti-tumor activity in multiple preclinical solid tumor models
- Dosed First Patient in Phase 1b trial in early 2020

## Pipeline Expansion

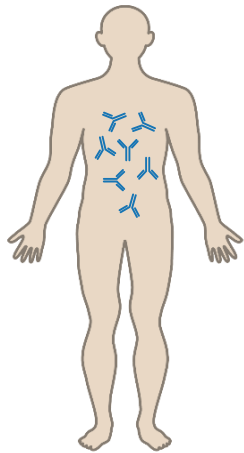
- Growing hit library of >1,600 human antibodies that bind to non-autologous tumor tissue preferentially
- Potential for additional product candidates with distinct mechanisms of action

## Foundational Excellence

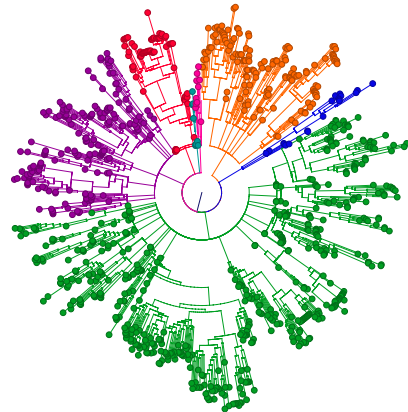
- Experienced management team with deep scientific, R&D and operational expertise
- Support from leading institutional investors and SAB

# Our Novel Approach Inverts the Discovery Paradigm

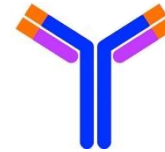
The HUMAN IMMUNE SYSTEM Tells Us What Is Important



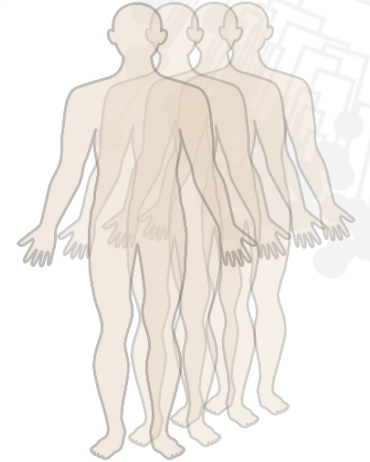
“Responder” with  
Anti-Tumor Immune  
Response



Interrogation of the  
Active B Cell Response via  
Atreca Discovery Platform



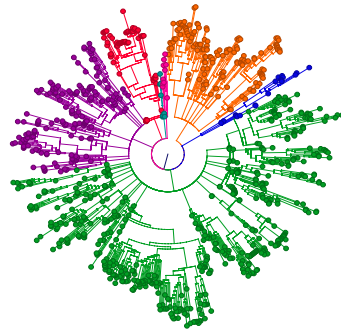
Novel Antibody-Target  
Pairs Yielding  
Product Candidates



# Four Fundamental Pillars of Our Discovery Platform



**SAMPLE  
ACQUISITION &  
REPOSITORY**



**DIFFERENTIATED  
TECHNOLOGY**



**BIOINFORMATICS  
EXPERTISE**



**INDUSTRIALIZED  
WET LAB  
INFRASTRUCTURE**

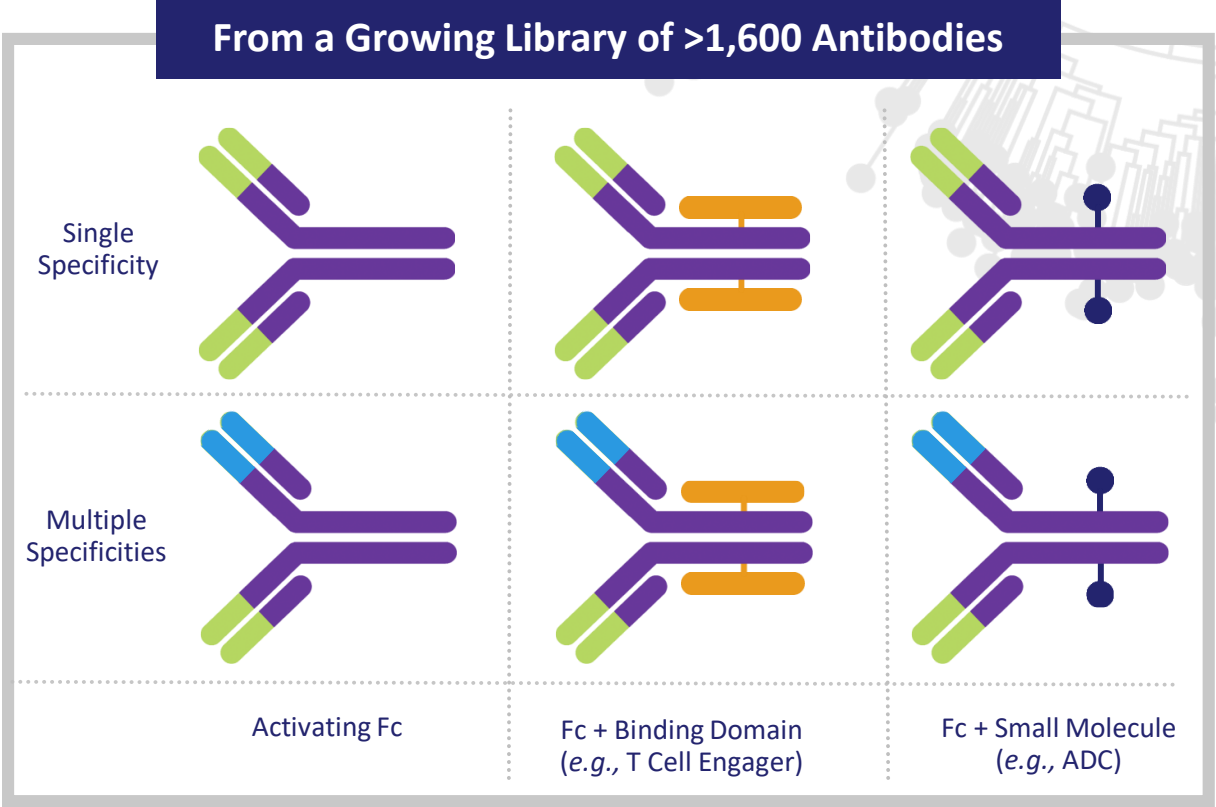
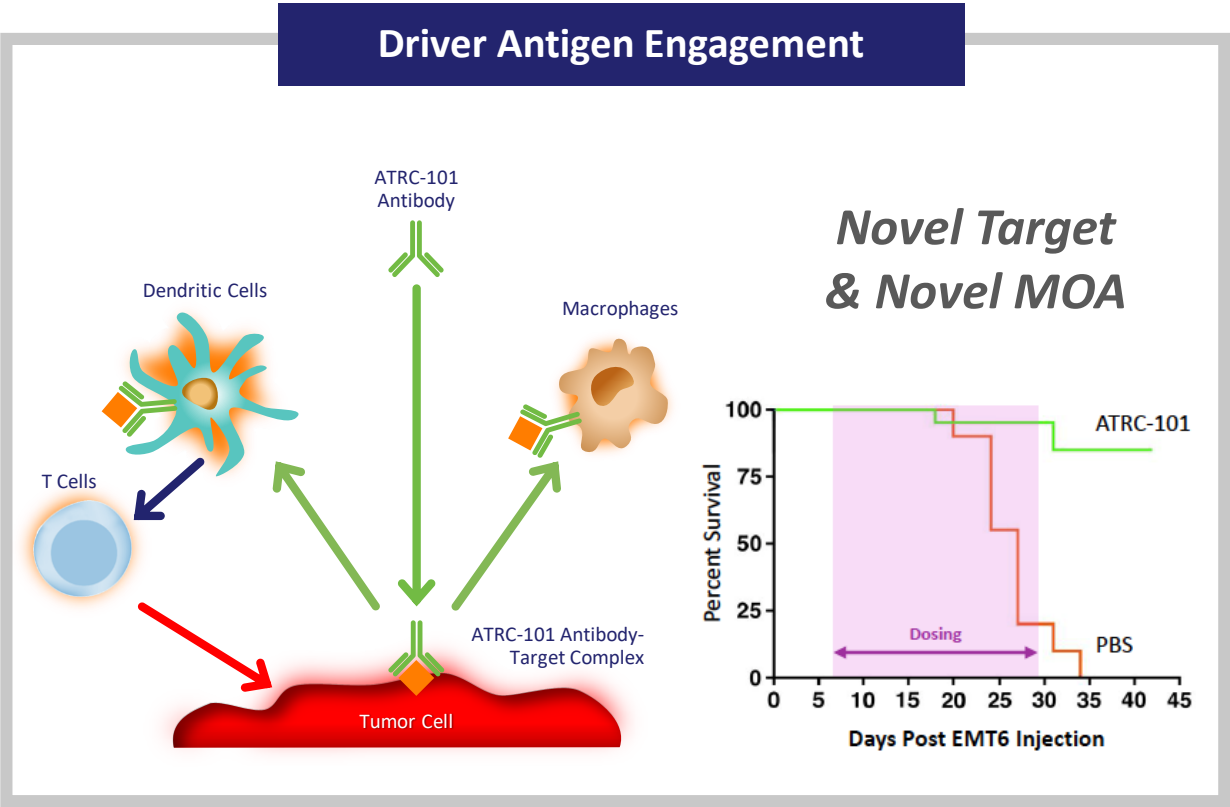
**KNOWLEDGE**

**ENABLING OUR DISCOVERY PROCESS**

# The Atreca Platform Delivers

## ATRC-101: A Novel Way to Target Cancer

## Pipeline Opportunities





# The Atreca Discovery Platform



# SAMPLE ACQUISITION:

## A Diverse and Rapidly Growing Sample Repository



### BLOOD SAMPLES FROM MULTIPLE SOURCES

#### Sponsored Clinical Sites

STUDIES DESIGNED TO SUPPORT OUR  
DISCOVERY EFFORTS

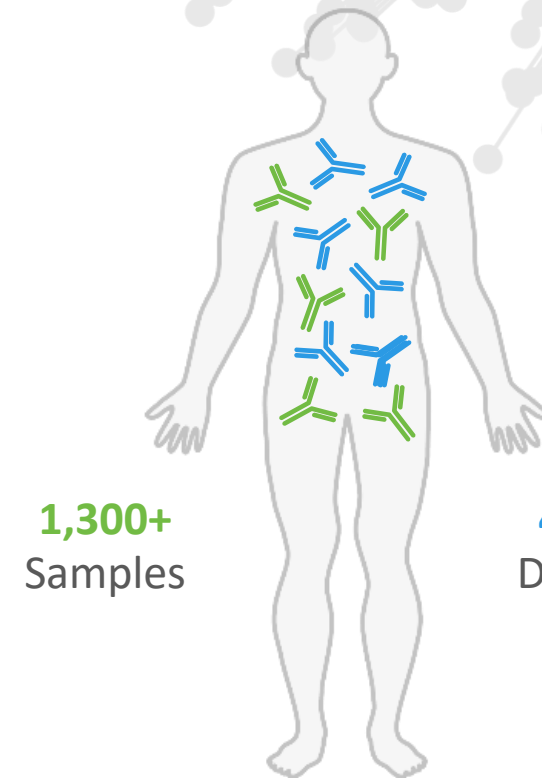


#### Academic Collaborations

GROWING KOL NETWORK



### SAMPLES FROM PATIENTS REPRESENTING OVER 30 DIFFERENT SOLID TUMOR TYPES



1,300+  
Samples

400+  
Donors

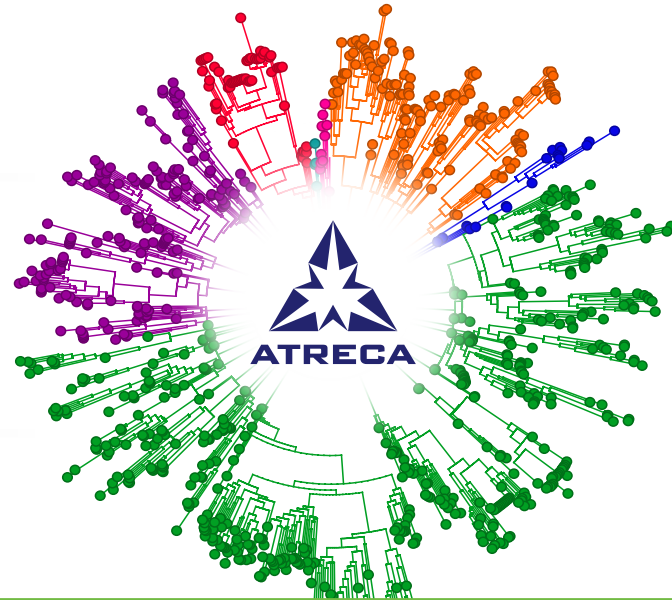
*Multiple samples collected over time from individual patients enable longitudinal analyses*



# REPertoire GENERATION: Immune Repertoire Capture<sup>®</sup> Enables Robust Analyses of Immune Response



**MOLECULAR  
& CELL BIOLOGY**



**BIOINFORMATICS**

**B Cell Antibodies Generated by Human Immune Responses Typically Over Many Months**

## **ACCURATE**

Corrects for sequence  
error and quantitation bias

## **RELEVANT**

Keeps native antibody  
chain pairings intact

## **EFFICIENT**

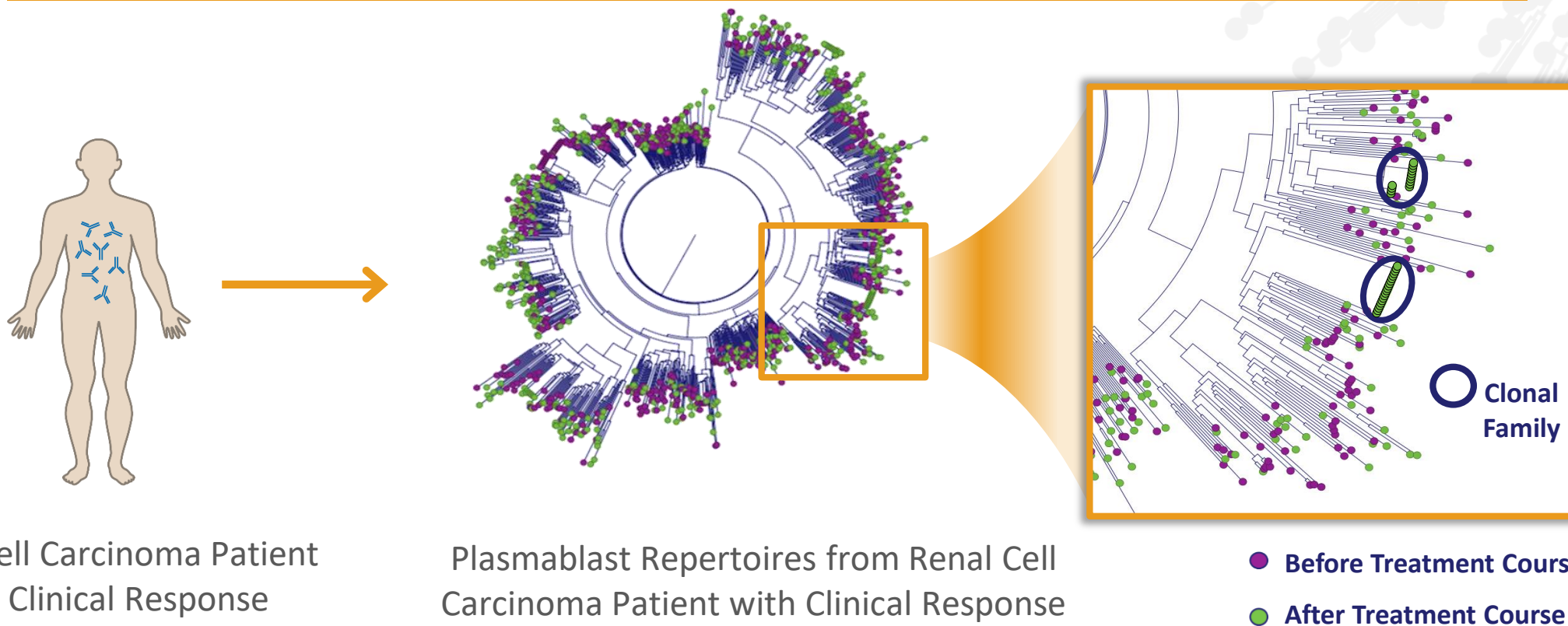
Generates natively paired  
sequences for 65% of input B cells

**Atreca Captures the ACTIVE Immune Response  
at the Single-Cell Level**

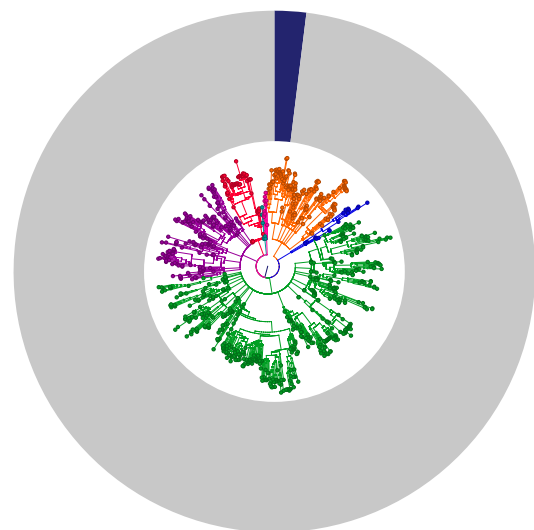
## REPERTOIRE GENERATION:

We Enable New Analyses of the Immune Response

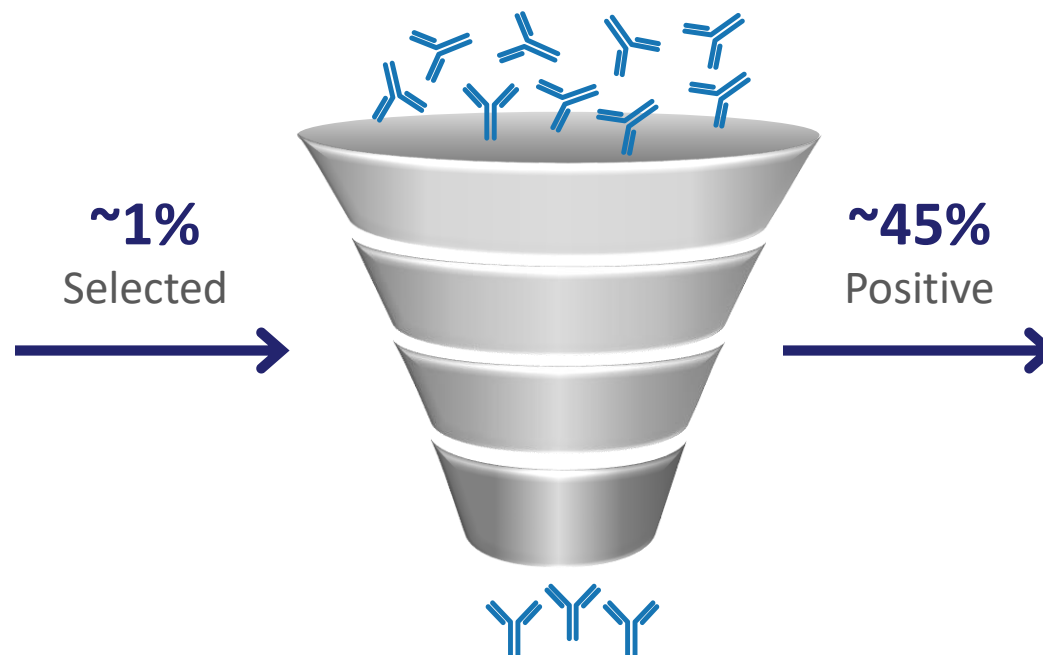
Proprietary Bioinformatics Enables Us to Identify  
the Responder Antibodies Most Likely to Target Human Tumor Tissue



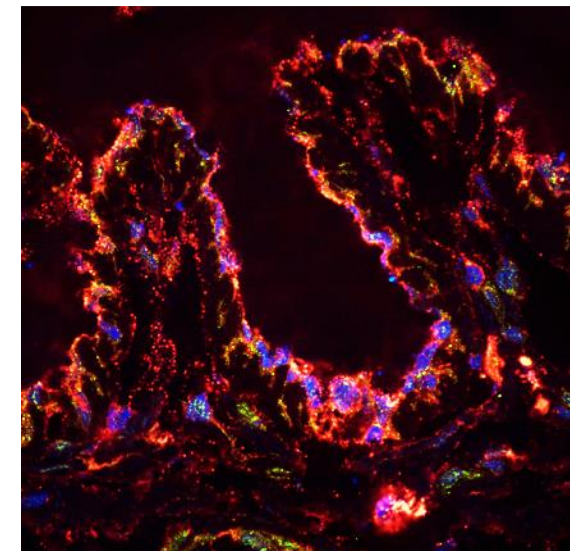
# HIT GENERATION: Growing Library of Antibodies Binding to “Public” Tumor Targets



Responder  
Antibody Repertoire  
Analysis



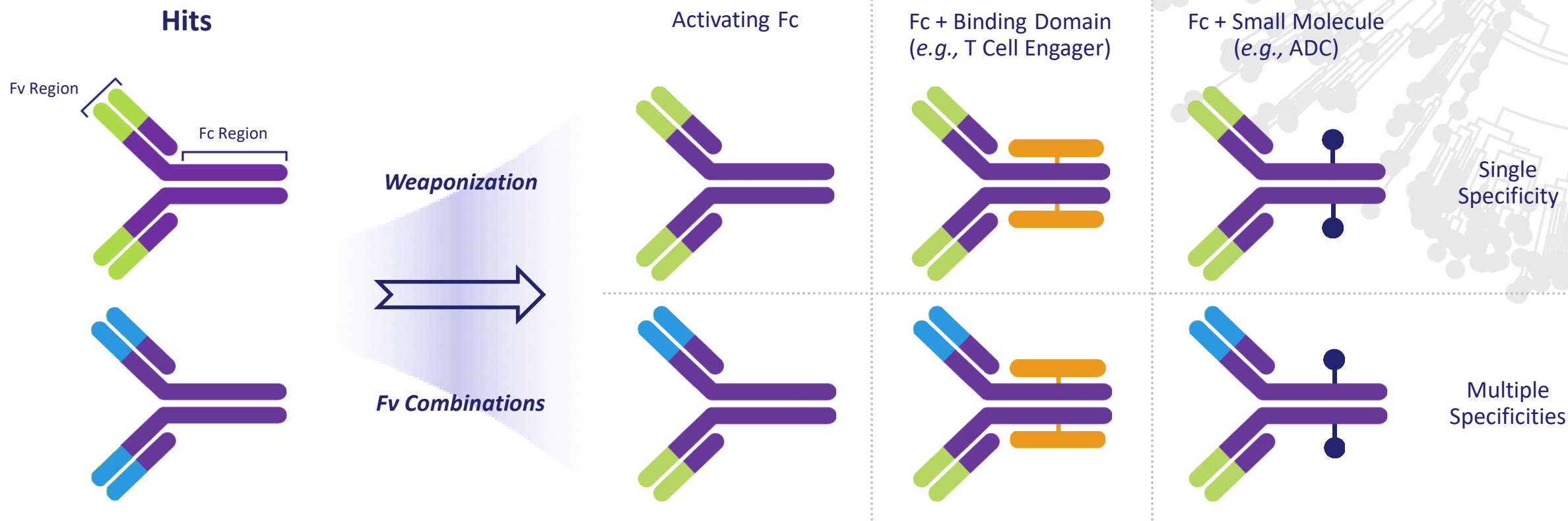
Wet-Lab Analysis:  
Selective Non-Autologous  
Tumor Tissue Binding



Currently **>1,600**  
Antibodies Targeting  
Non-Autologous Tumor

**High Hit Rate and Scalability Promotes Additional Candidate Generation**

# LEAD GENERATION: Generating Programs from Large Hit Collection Using Multiple Specificities and MOAs



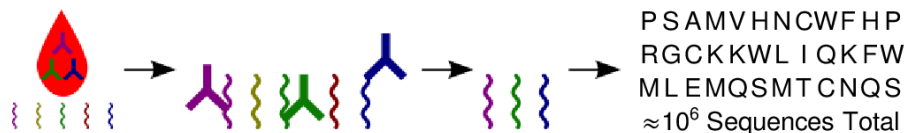
**Building a Pipeline of Clinical Candidates Utilizing a Wide Range of Native and scFv Formats and MOAs**

# TARGET IDENTIFICATION:

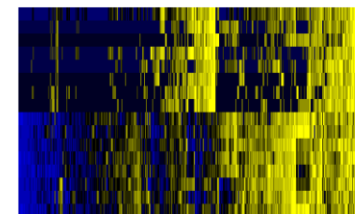
## Multiple Approaches to Identify Targets of Atreca Antibodies



### Peptide Libraries

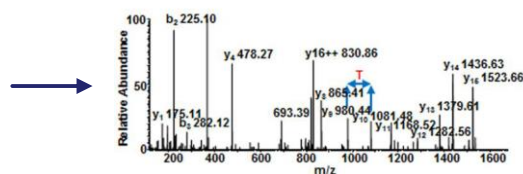
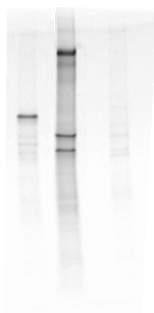


### Protein & Carbohydrate Arrays



NIH NATIONAL CANCER INSTITUTE *et al.*

### IP / XL and MS



### Other Modalities



*Portfolio of internal platforms and external collaborations continues to expand*



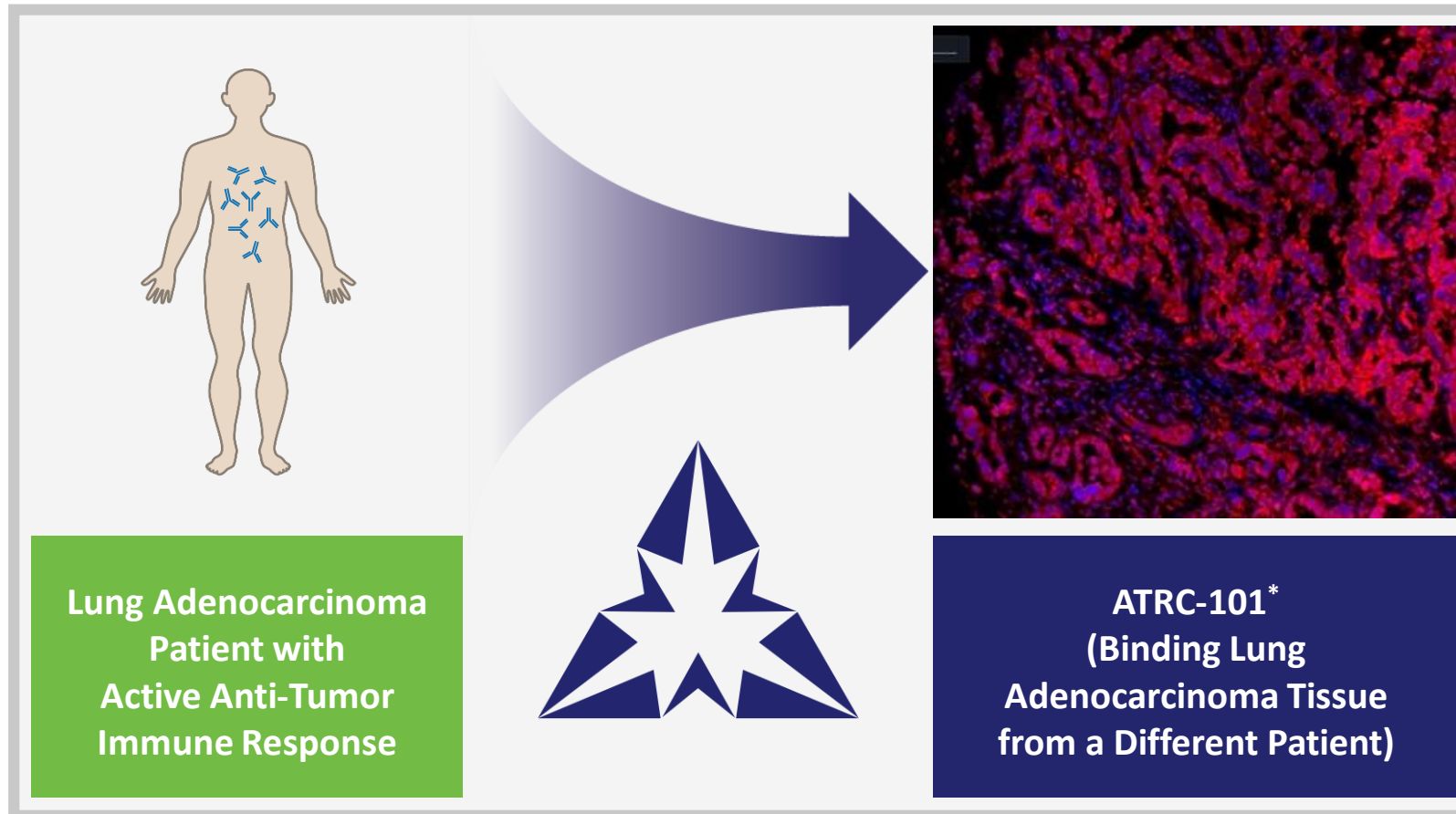
# ATRC-101

**Phase 1b Trial Initiated in Early 2020**



# ATRC-101: A New Way to Target Cancer

## Engineered Version of a Patient Antibody Discovered via the Atreca Platform



- First-in-Class Program
  - Novel Target
  - Novel MOA
- Phase 1b clinical trial commenced early 2020\*\*
- Enrolling patients with multiple solid tumor cancers, including:
  - NSCLC
  - Breast
  - Ovarian
  - Colorectal
  - Acral Melanoma

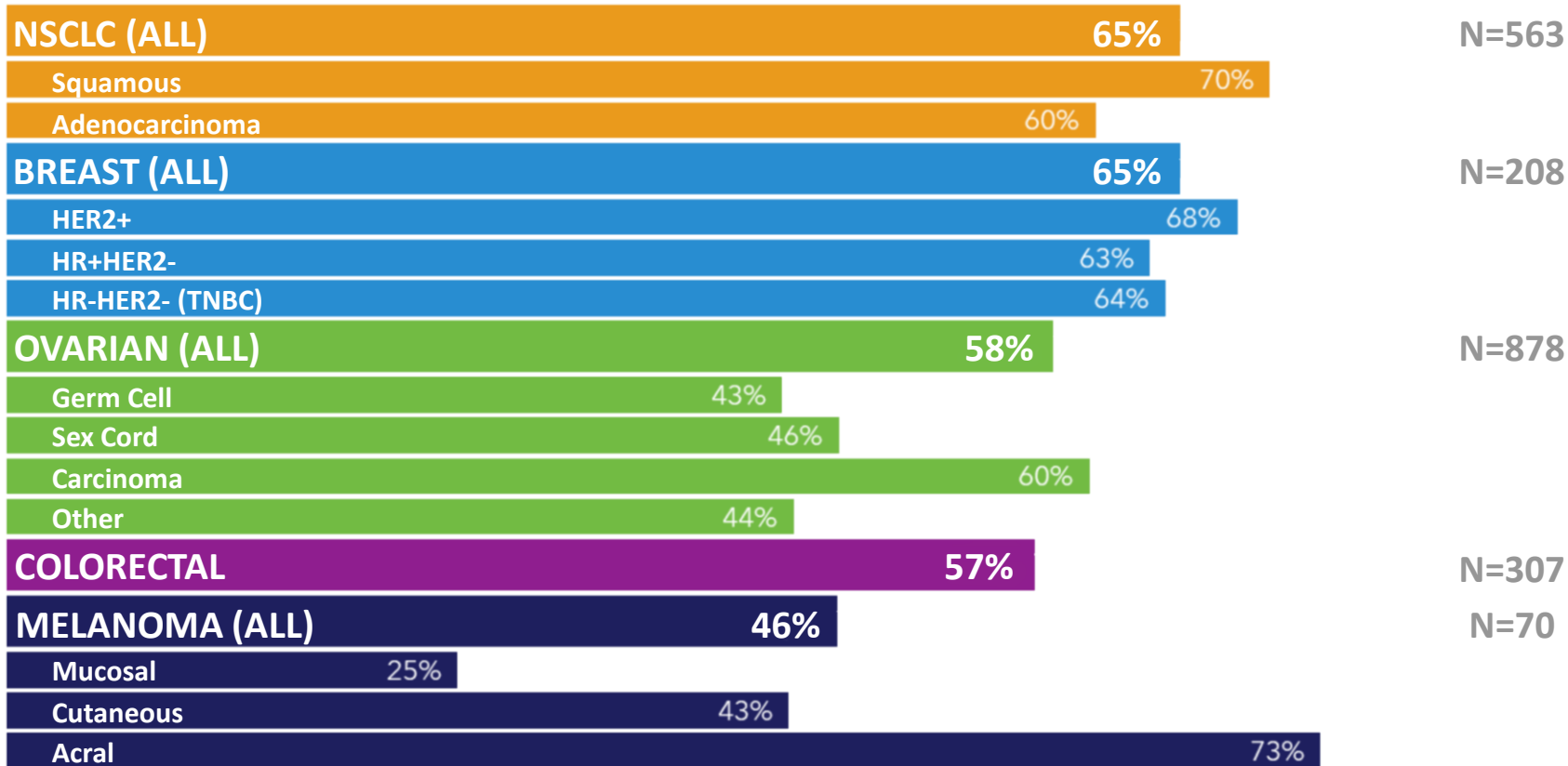
\*ATRC-101 human Fc substituted with mouse Fc

\*\*Timeline from project initiation to IND clearance substantially reduced vs. examples of traditional drug development - including ipilimumab, nivolumab and pembrolizumab



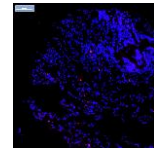
# ATRC-101 Has Potential to Treat Large Groups of Patients

## % of ATRC-101 Reactive\* Tumor Samples for Selected Cancers

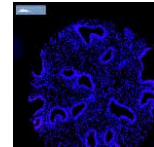


## ATRC-101 Is Selective for Malignant Tissue

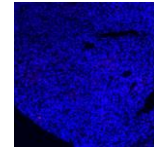
### ATRC-101



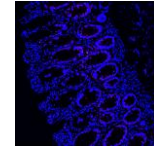
**NORMAL**  
Adjacent Lung



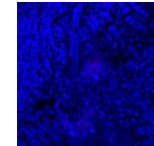
**BENIGN**  
Breast  
Fibroadenoma



**NORMAL**  
Adjacent Ovary



**NORMAL**  
Adjacent Colon

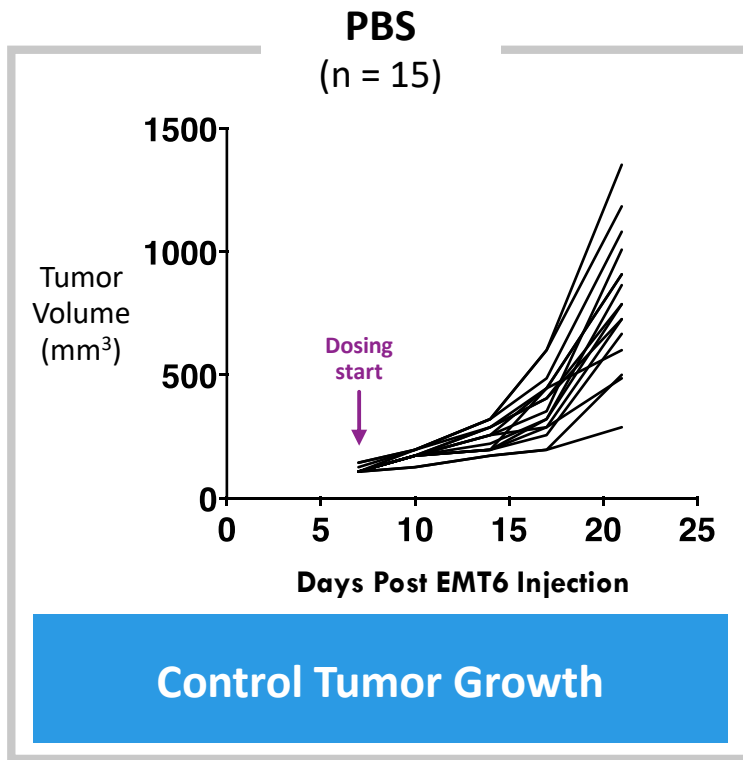


**NORMAL**  
Benign Nevus

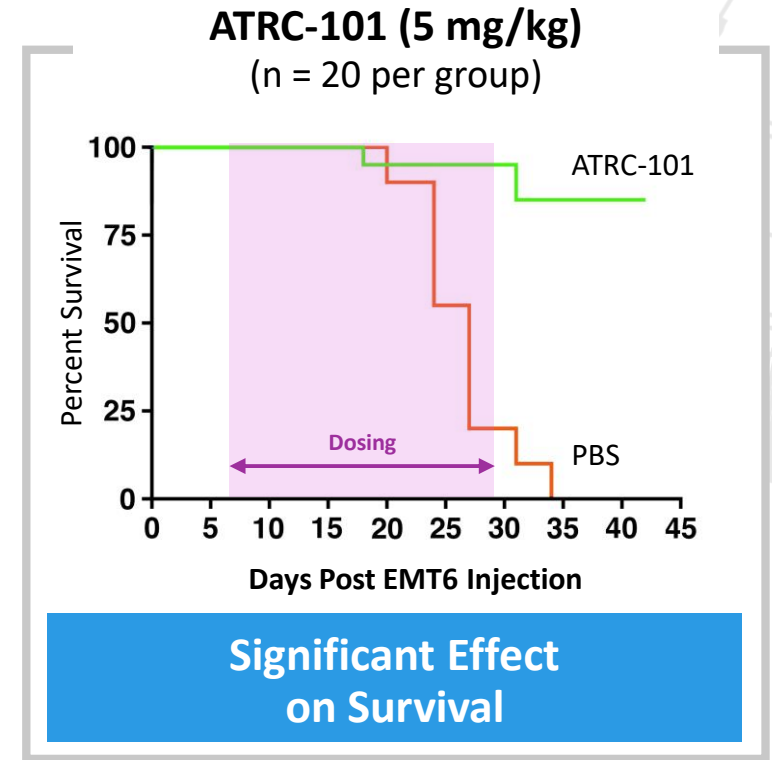
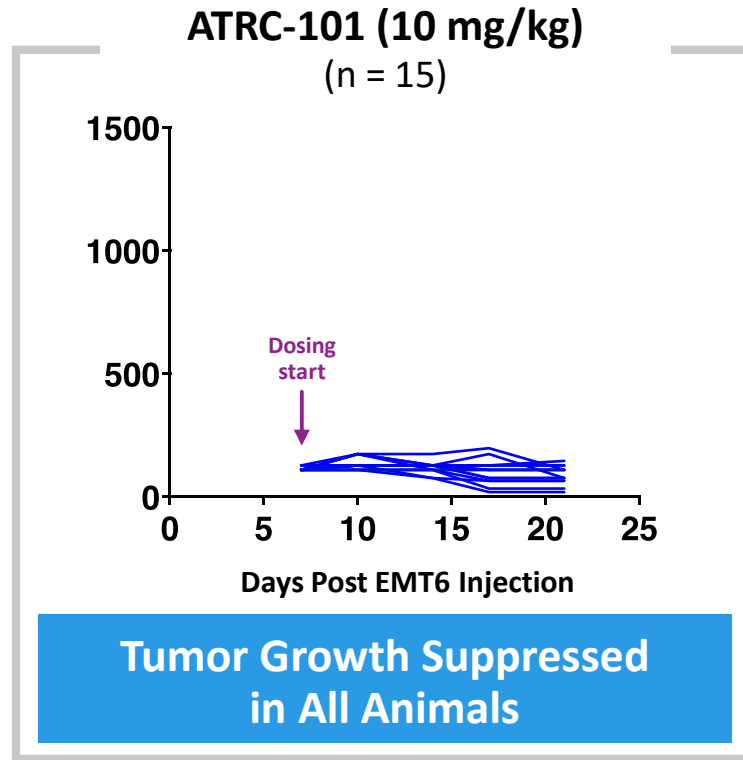
ATRC-101 human Fc substituted with mouse Fc

\*moderate or greater reactivity with  $\geq 40\%$  of malignant cells estimated positive

# ATRC-101 Antibody Monotherapy Active *in Vivo*



Dosing: 2x per week starting at Day 7 (at randomization)  
Last dose: Day 21



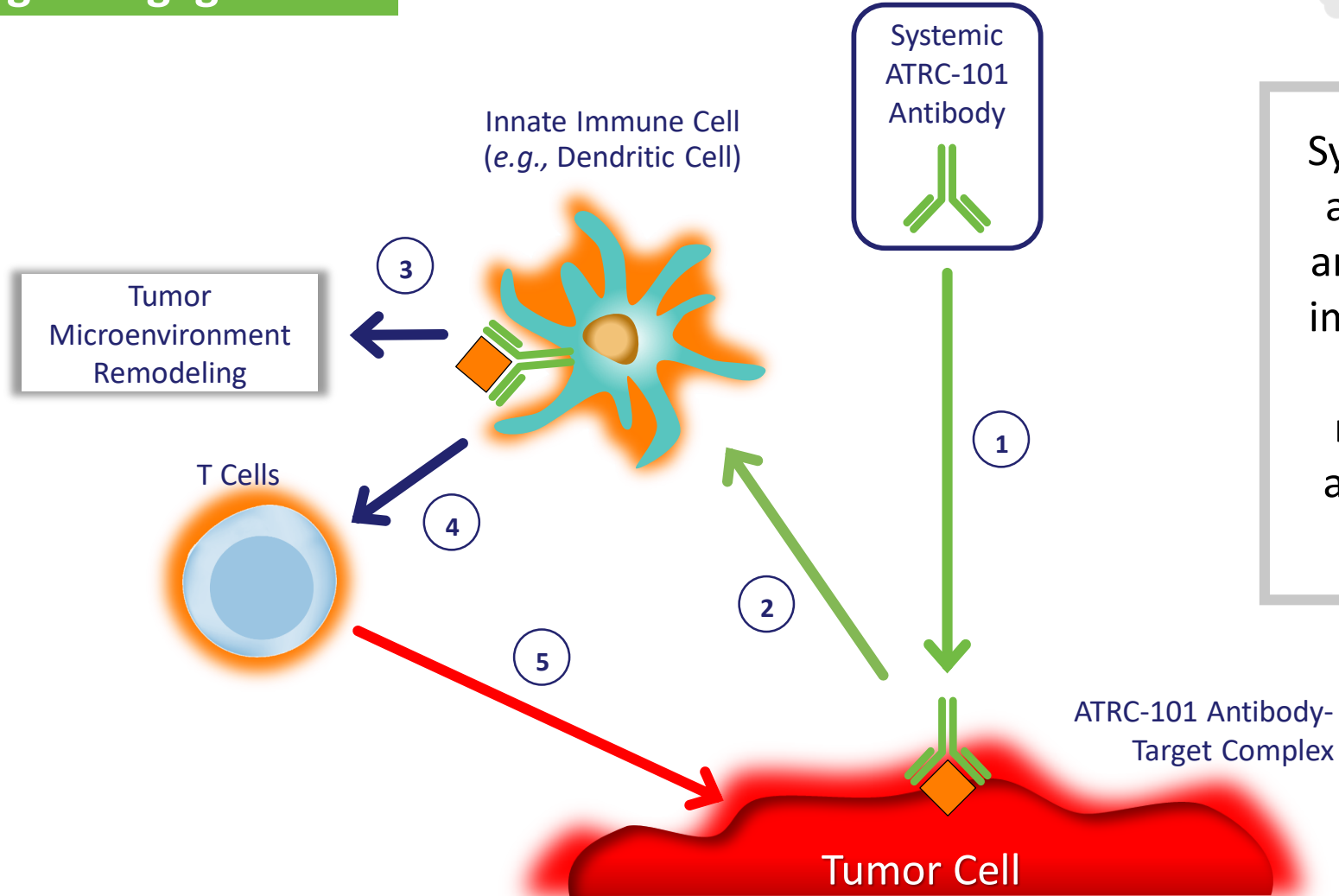
Dosing: 2x per week starting at Day 7 (at randomization)  
Last dose: Day 29

ATRC-101 human Fc substituted with mouse Fc

**PD-1 Checkpoint Inhibitors Display Only Modest Efficacy in EMT6 Model**  
**ATRC-101 Antibody Monotherapy Also Active in CT26 Model**

# ATRC-101: A Novel Way to Target Cancer

## Driver Antigen Engagement



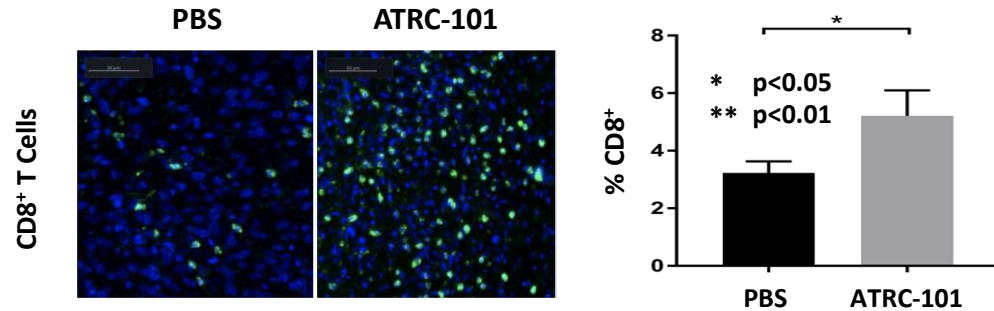
Systemically dosed ATRC-101 antibody delivers its tumor antigen to cells of the innate immune system, leading to a remodeling of the tumor microenvironment and an adaptive immune response against tumor

# ATRC-101 Preclinical Data Supporting MOA

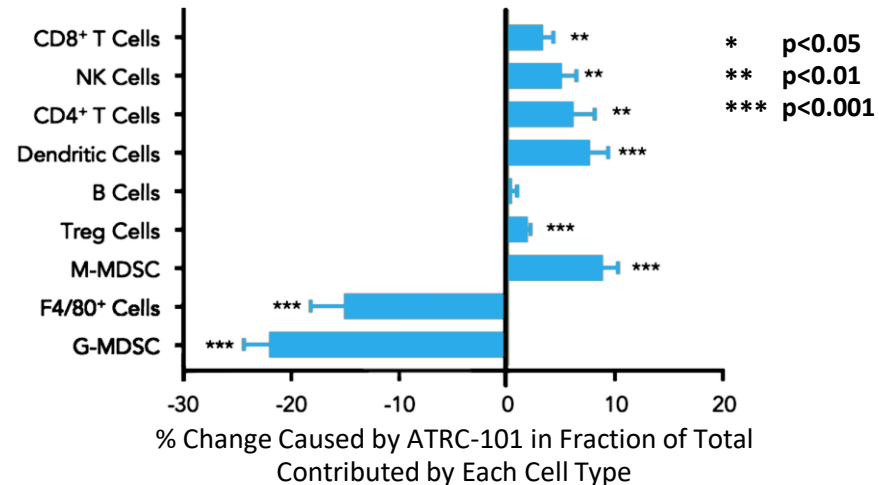


## Change in the Tumor Microenvironment

ATRC-101 dosing increases CD8<sup>+</sup> T Cells in EMT6 tumor



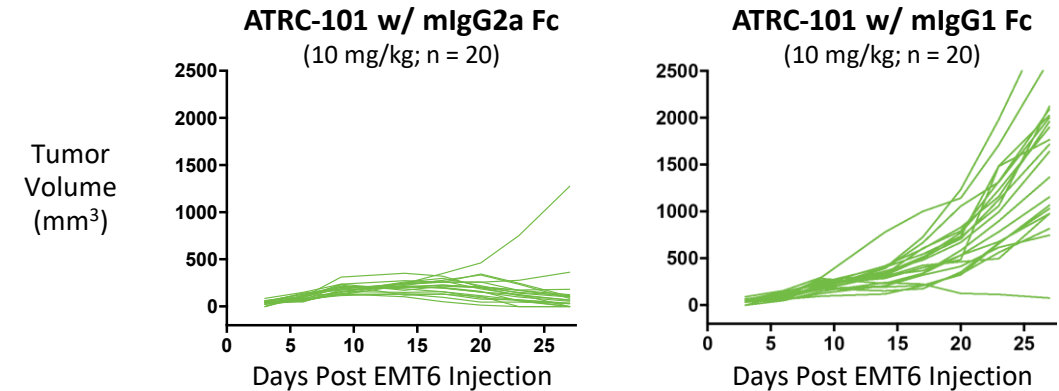
ATRC-101 dosing shifts lymphoid and myeloid populations in EMT6 tumor



Studies used antibody having original, non-engineered Fv and a mouse Fc

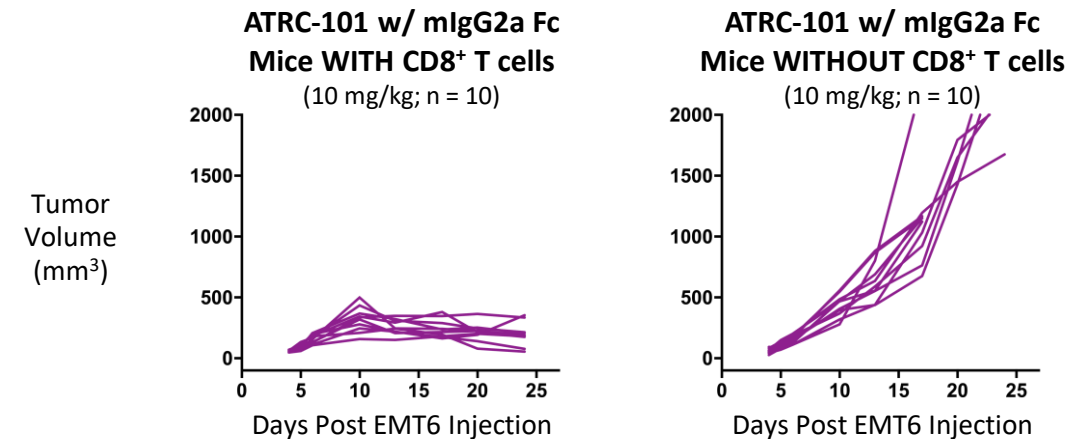
## Requirement for Innate Immune System

ATRC-101 activity requires interactions with innate immune cell FcRs



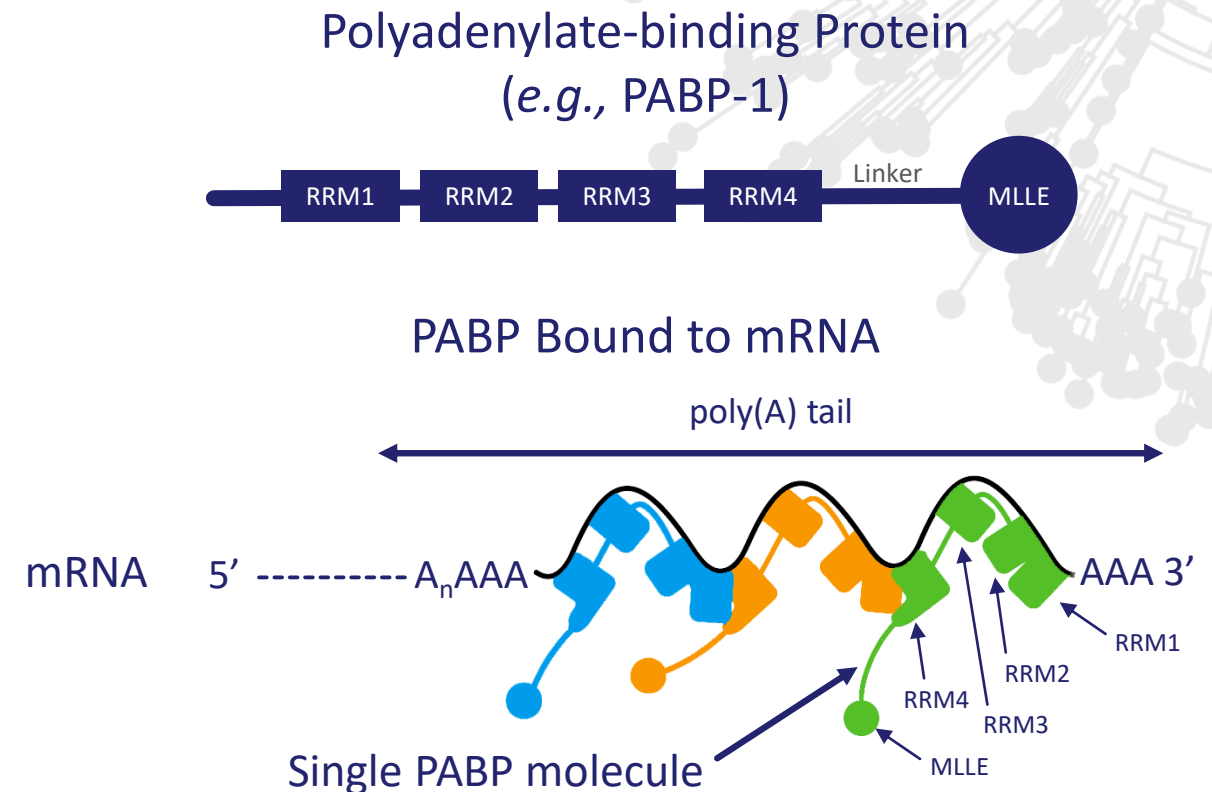
## Requirement for Adaptive Immune System

ATRC-101 activity requires CD8<sup>+</sup> T Cells



# ATRC-101 Binds Selectively to a Tumor-Specific Version of a Ribonucleoprotein (RNP) Complex

- ATRC-101 binds to target reconstituted *in vitro* using a single recombinant protein, **polyadenylate-binding protein 1 (PABP-1)**, and *in vitro* transcribed **poly(A) RNA**
- PABPs bind poly(A) tails of mRNA molecules and play a vital role in mRNA biology via facilitating protein-protein interactions
- ATRC-101 target complex typically present intracellularly at high concentrations in normal tissues



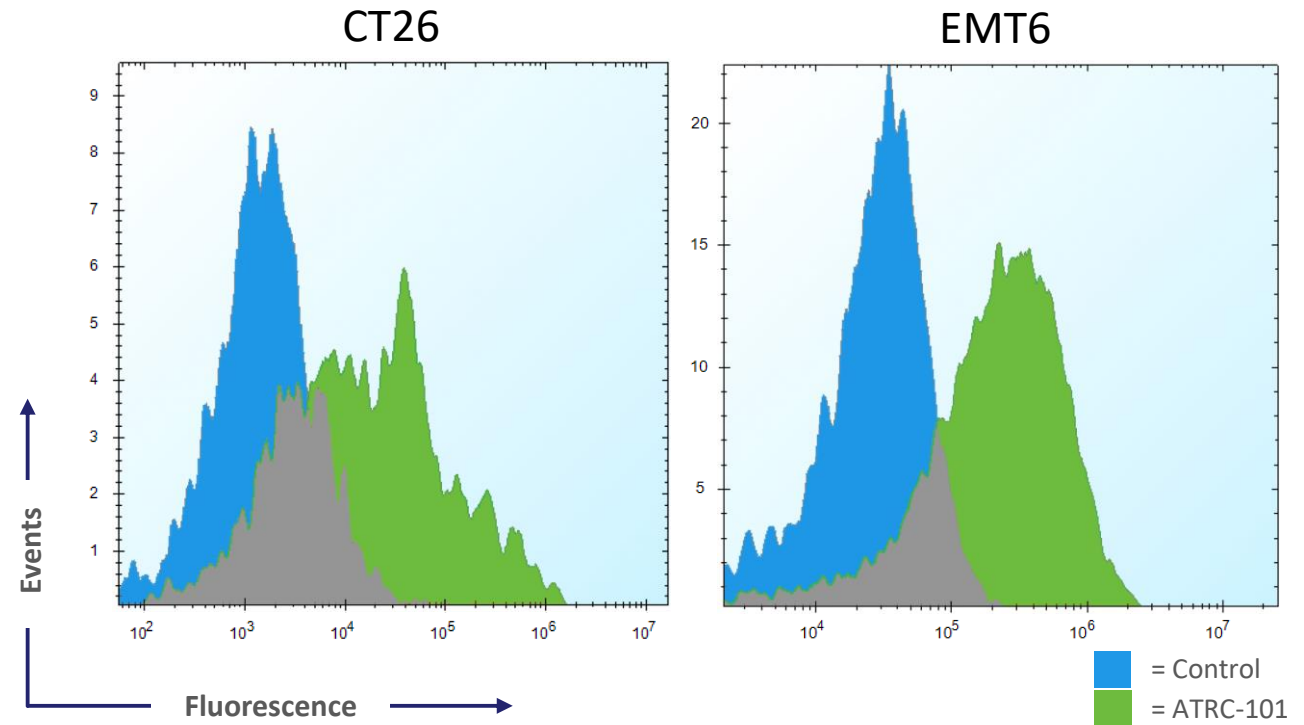
Target components were identified through experiments involving immunoprecipitation, crosslinking, RNase treatment and mass spectrometry

# ATRC-101 RNP Complex Presents Extracellularly

## Target Complex Externalizes

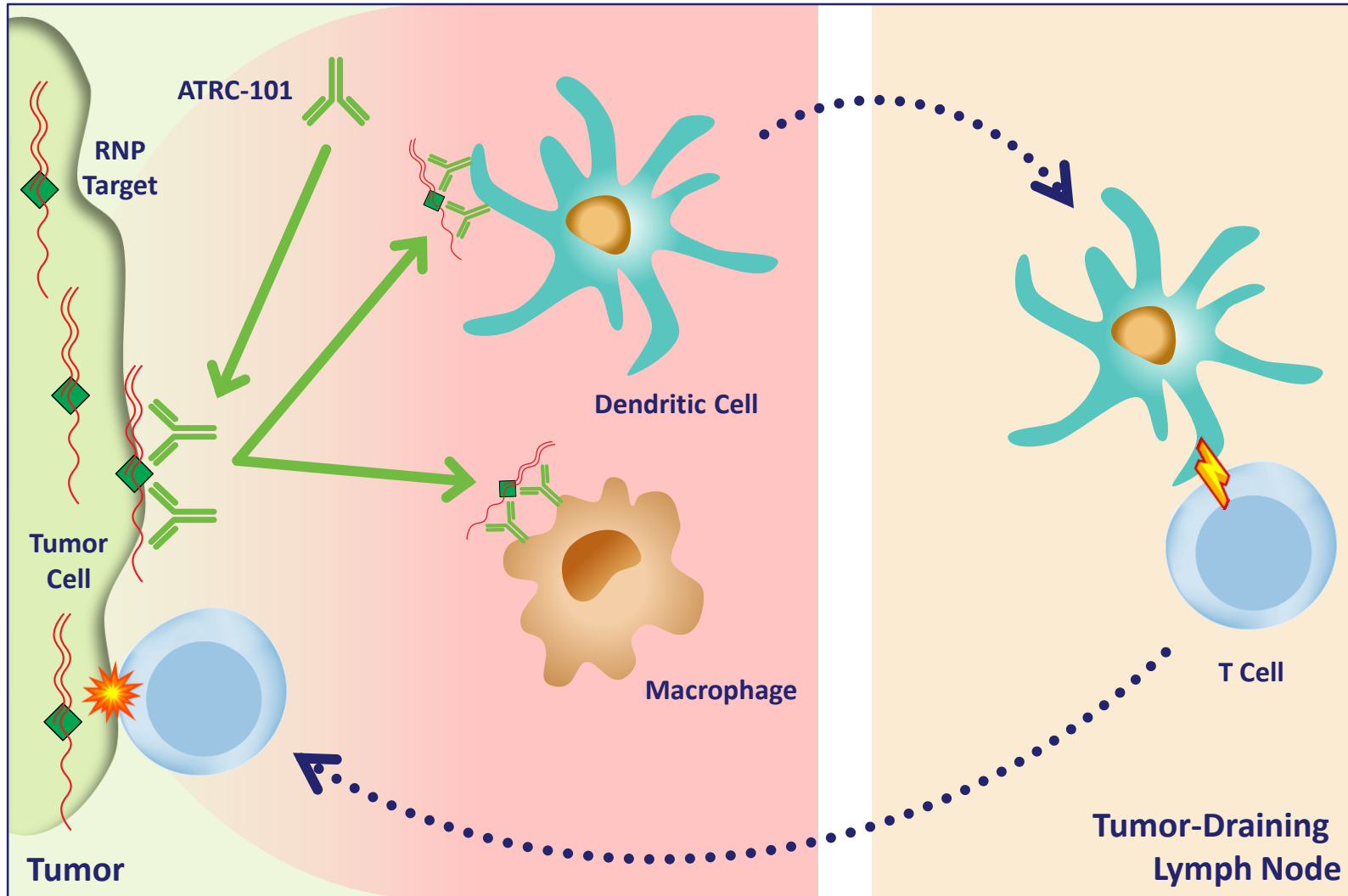
- While RNP complexes are typically considered intracellular, the RNP target of ATRC-101 is also present extracellularly (*e.g.*, as demonstrated by flow cytometry, *right*)
- Passive or active mechanisms (*e.g.*, necrosis or secretory autophagy) can lead to externalization of target
- Precedent for extracellular RNA-binding protein serving as driver antigen in autoimmune diseases

## Flow Cytometric Measurement of Surface Target Found on Tumor Cells Grown *in Vivo*



Study used antibody having original, non-engineered Fv and a mouse Fc

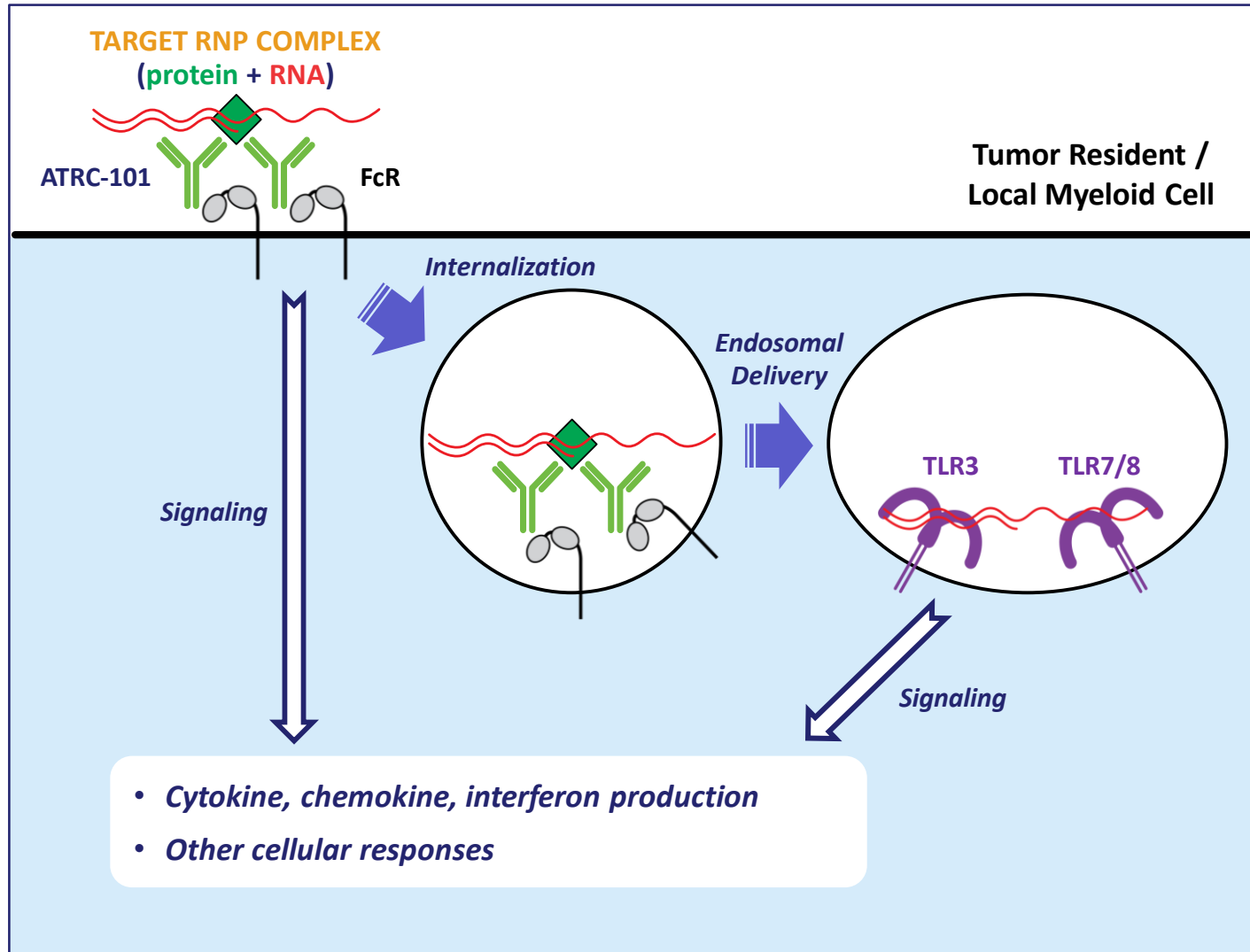
# ATRC-101 Proposed Cellular Mechanism of Action



- Systemically delivered ATRC-101 antibody binds to its RNP target in tumor tissue
- Innate immune cells are activated by the immune complex
- Activated innate immune cells modify the tumor microenvironment and promote an adaptive immune response
- Cytotoxic CD8<sup>+</sup> T cells enter tumor and attack tumor cells



# Hypothesis: Dual FcR and TLR Activation Delivers Activity



- Interaction of ATRC-101 Fc with innate immune system (likely myeloid) FcRs required for activity *in vivo*
- ATRC-101 target on surface of tumor cells drives signaling in immune cells via FcγRIIIa *in vitro*
- Observed remodeling of tumor microenvironment consistent with TLR activation (via RNA)
- Work in progress to validate

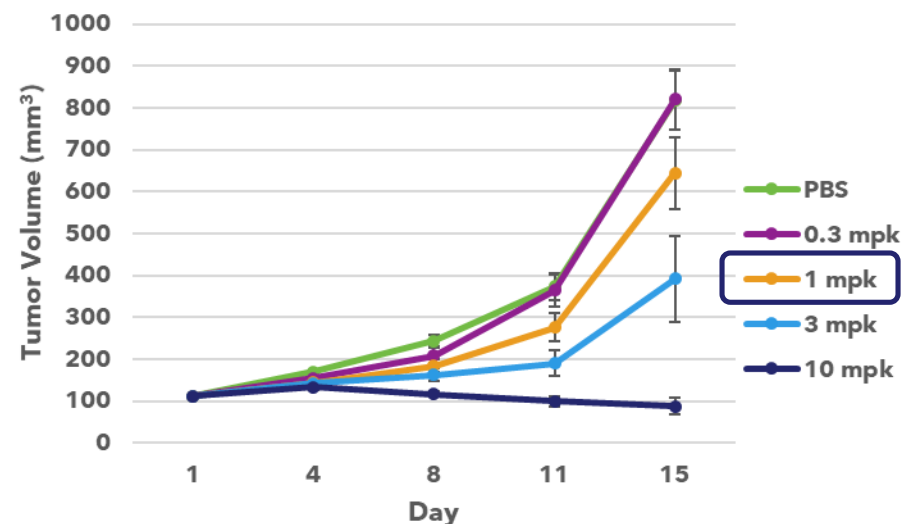
# ATRC-101: Dose-Dependent Tumor Growth Inhibition and Safety Summary



## Dose-Dependent Tumor Growth Inhibition and Activity

### Phase 1b Dosing

- Correlation between dose and anti-tumor activity demonstrated in preclinical studies
- Starting dose in the Phase 1B trial (0.3 mg/kg) approximates (by allometric scaling) the 1 mg/kg dose evaluated in the EMT6 mouse model



Approximate to dose level 1 in Phase 1b study

## Safety Studies Summary

### Normal Tissue Binding

- No signal of toxicological significance observed across a wide range of normal human tissues in a GLP tissue cross-reactivity study

### *In Vivo* Safety Assessments

- Four repeat doses over 4 weeks of up to 100 mg/kg in NHPs were well-tolerated and no definitive safety signals were observed
- No definitive safety signals observed in repeat dose safety studies in normal and tumor bearing mice (EMT6)

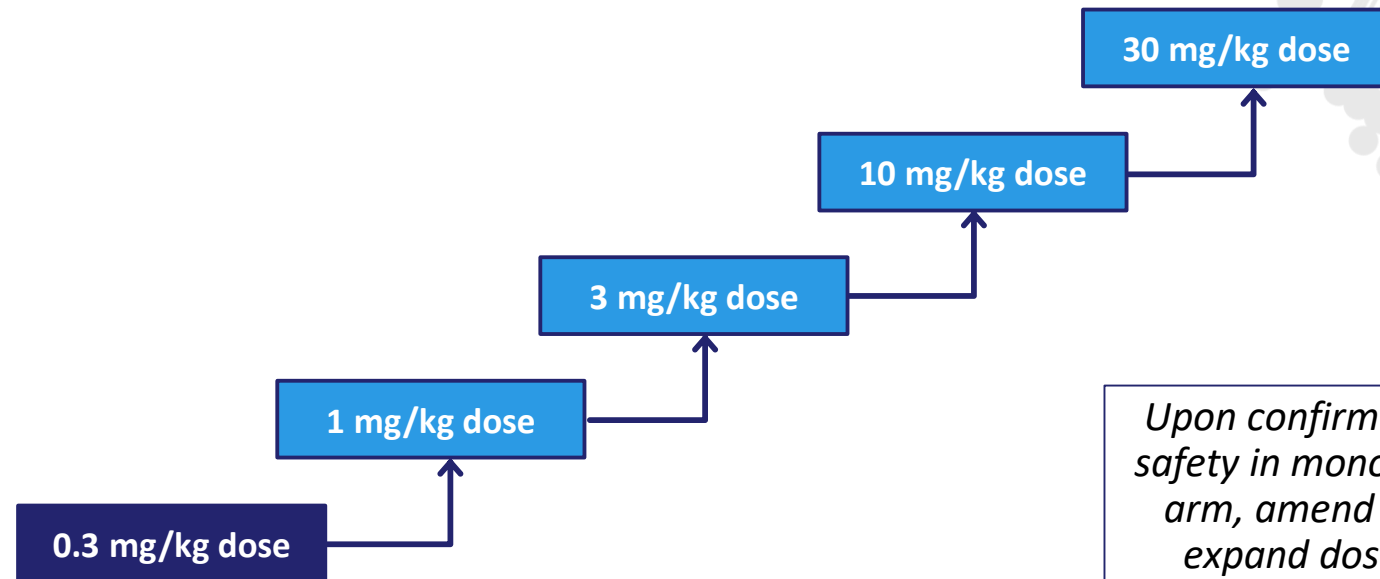
# IND Cleared in late 2019, Phase 1b Initiated in Early 2020

## OBJECTIVES

- Determine MTD or Phase 2 dose
- Characterize safety
- Analyze target expression retrospectively
- Measure initial clinical activity
- Characterize tumor lymphocyte infiltration and other potential markers of biological activity

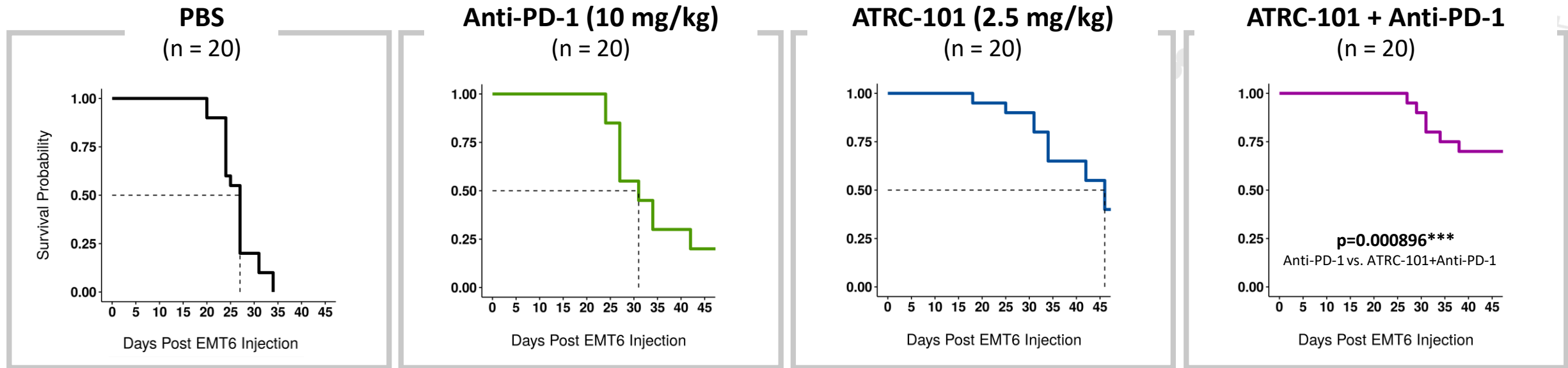
## MONOTHERAPY ARM

- Open-label, dose escalation, adaptive 3+3 design
- Dosing cycle: IV infusion q21d
- Enrolling patients with advanced solid tumors that demonstrated >50% reactivity to ATRC-101 in preclinical studies, including:
  - Ovarian
  - NSCLC
  - Colorectal
  - Breast
  - Acral Melanoma



*Upon confirmation of safety in monotherapy arm, amend IND to expand dosing in combination with PD-1 inhibitor and/or select chemotherapeutics*

# ATRC-101 Enhances Anti-PD-1 Activity *in Vivo*



Anti-PD-1: Dosing 2x per week x 2 weeks (last dose Day 21)

ATRC-101 Antibody: Dosing 2x per week x 3.5 weeks (last dose Day 28)

ATRC-101 human Fc substituted with mouse Fc

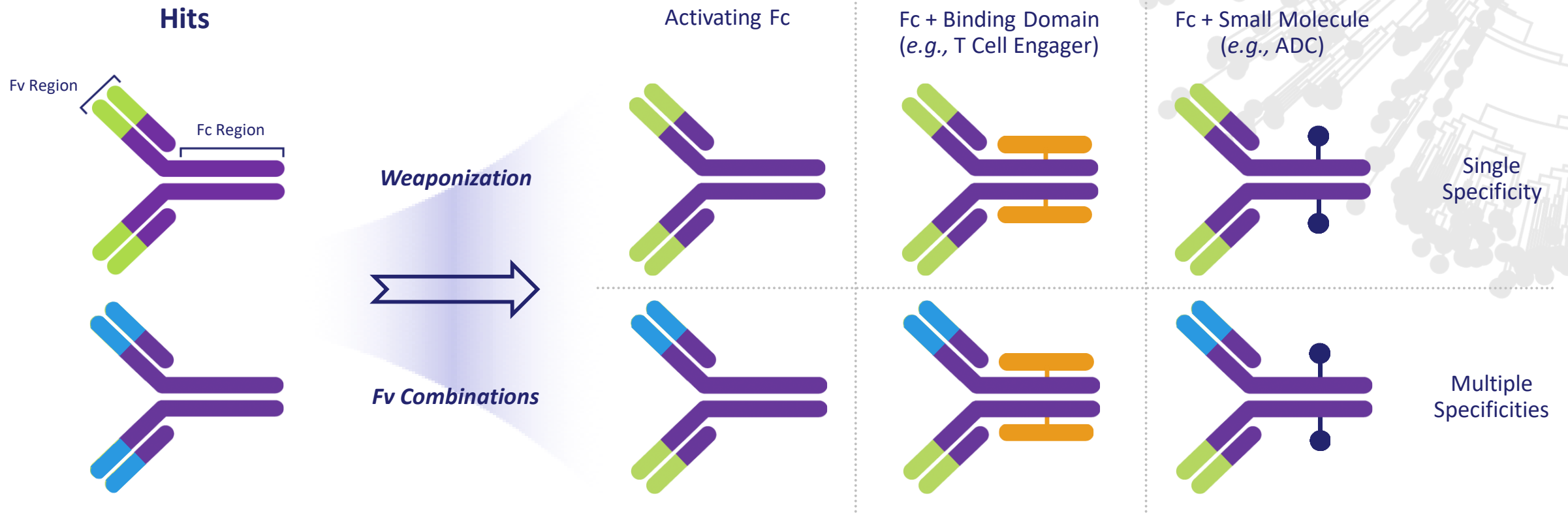
## ATRC-101 Mechanism of Action Provides Rationale for Enhanced Activity of Combination



## Future Programs

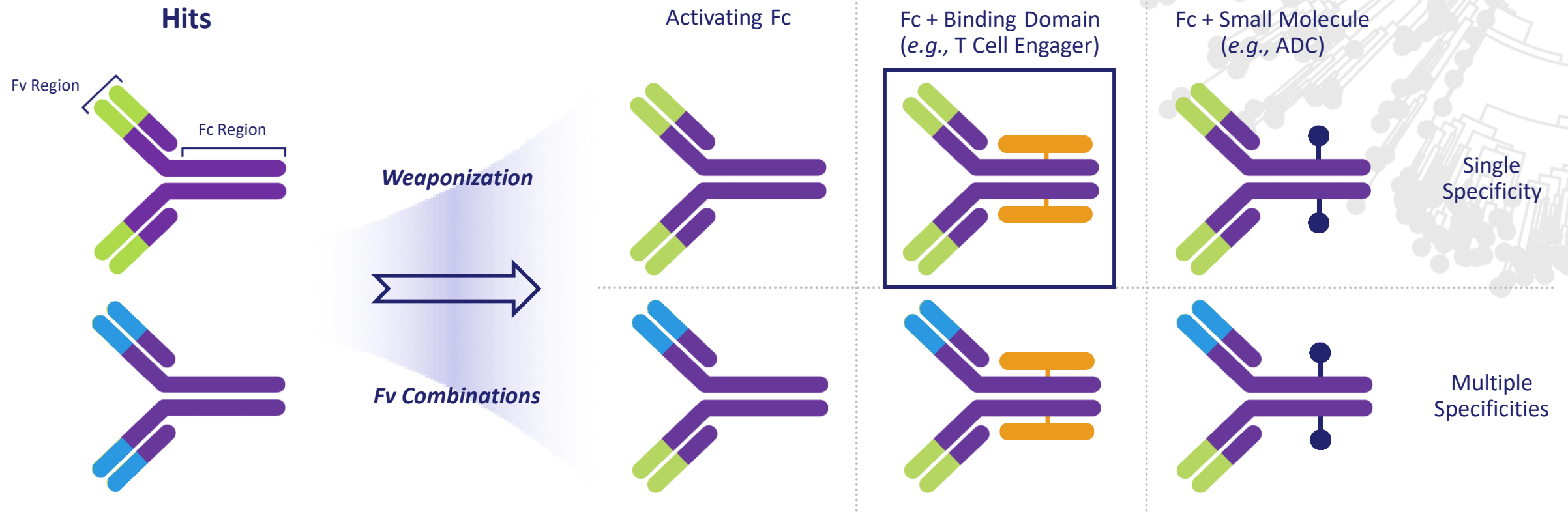
## Multiple Mechanisms of Action

# Multiple Approaches to Pipeline Development



**Hit Antibody Fv's Screened *in Vitro* and *in Vivo* in Drug Format**

# Pipeline Development Approaches: T Cell Engagers



## T Cell Engagers

“Bispecific” simultaneously activates and directs T cells to the tumor for cell killing via T cell-dependent cellular cytotoxicity (TDCC)

- ~6% of our hit antibody Fv regions test positive in a single bispecific format in TDCC assays
- >375 hit antibodies analyzed

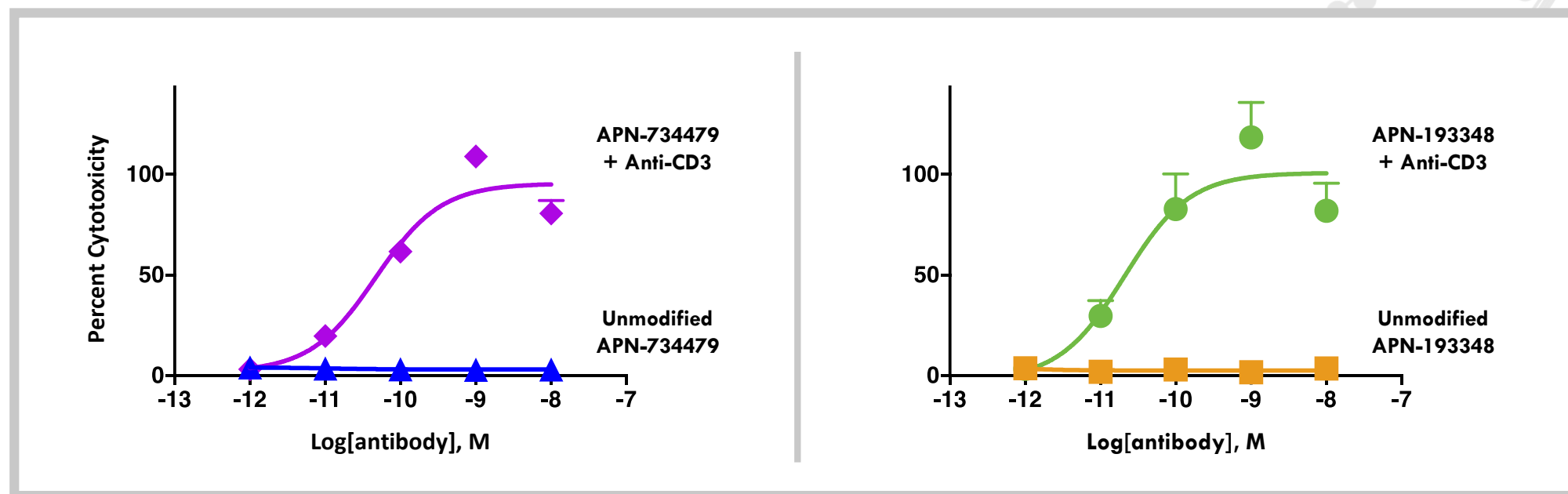


# Atreca Antibodies Direct T Cells to Kill Tumor Cells When Engineered into T Cell Engager Format

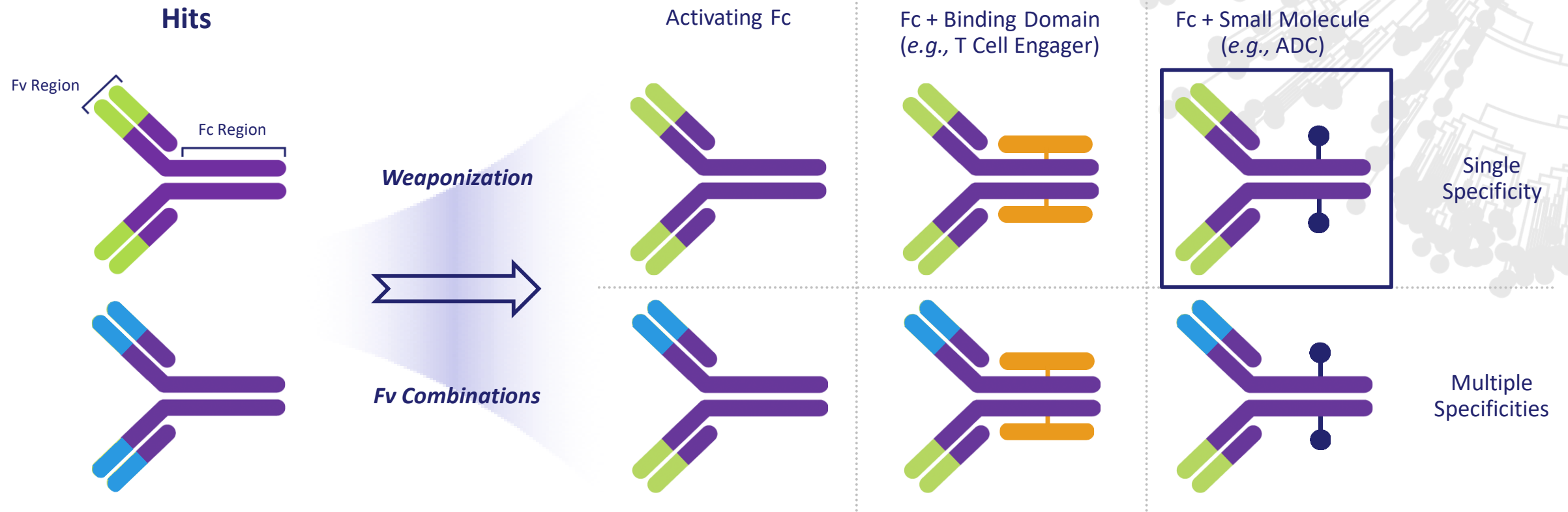


## T Cell Engagers

### Examples of Hit Antibodies with Potent Activity as Bispecifics *in Vitro*



# Pipeline Development Approaches: Toxin Conjugates



## Toxin-Conjugates (ADCs)

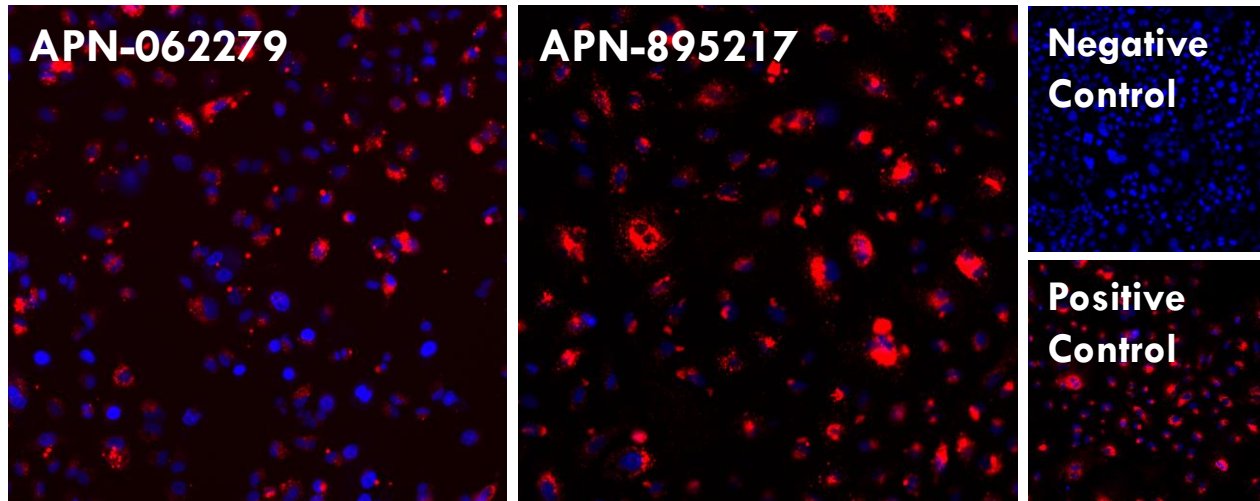
Cellular toxins are conjugated to internalizing tumor targeting antibodies to generate cytotoxicity

- ~2% of our hit antibodies test positive in internalization assays
- >700 hit antibodies analyzed

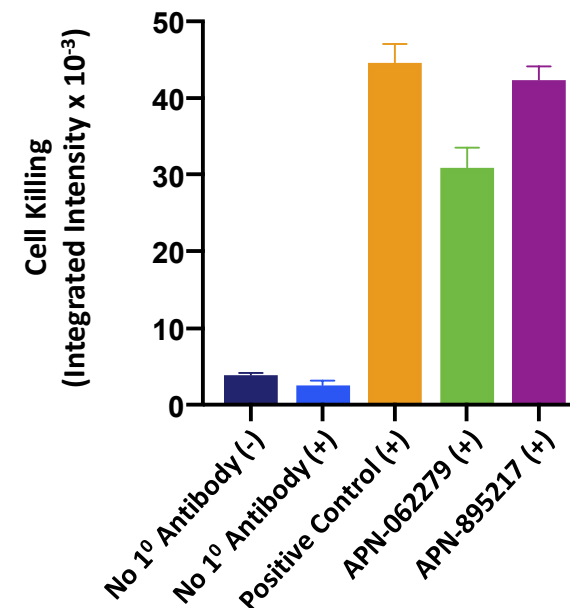
# Atreca Antibodies Internalize and Deliver Toxins into Tumor Cells

## Toxin-Conjugates (ADCs)

### Antibody Internalization into Tumor Cells



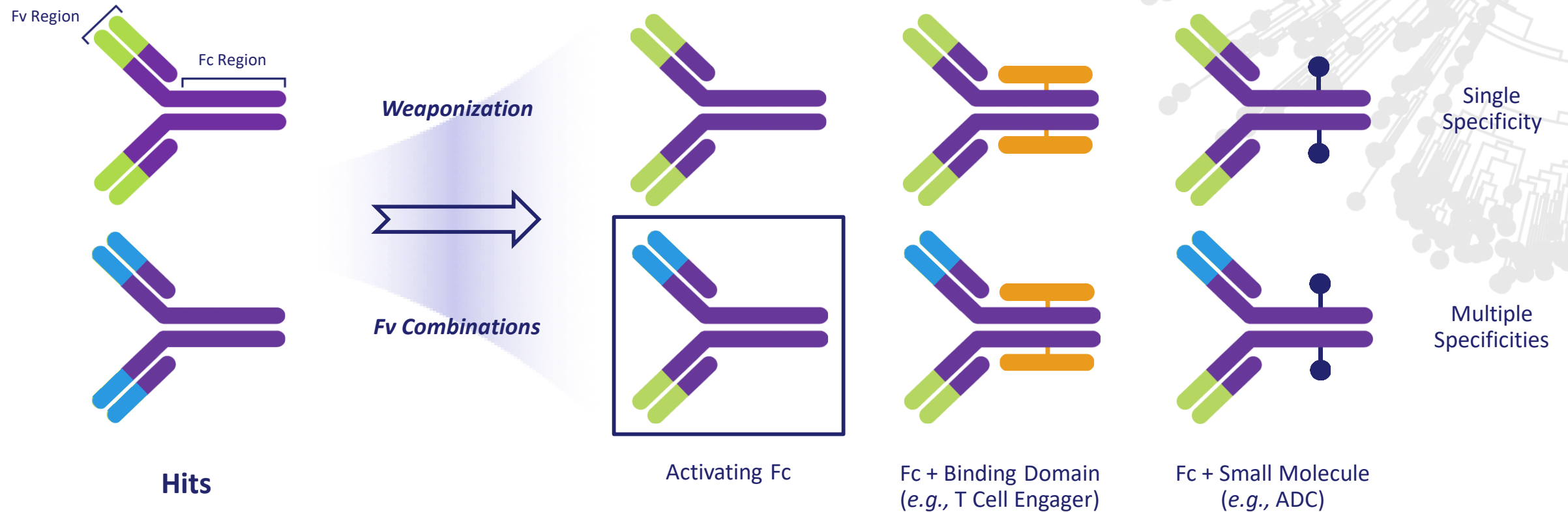
### Cytotoxic Payload Delivery



(+): Pre-incubated with toxin-conjugated secondary antibody

(-): No pre-incubation with toxin-conjugated secondary antibody

# Pipeline Development Approaches: Multi-Target Specificity



## Multi-Target Specificity

Leverage Hit Library to build antibodies targeting multiple tumor targets simultaneously

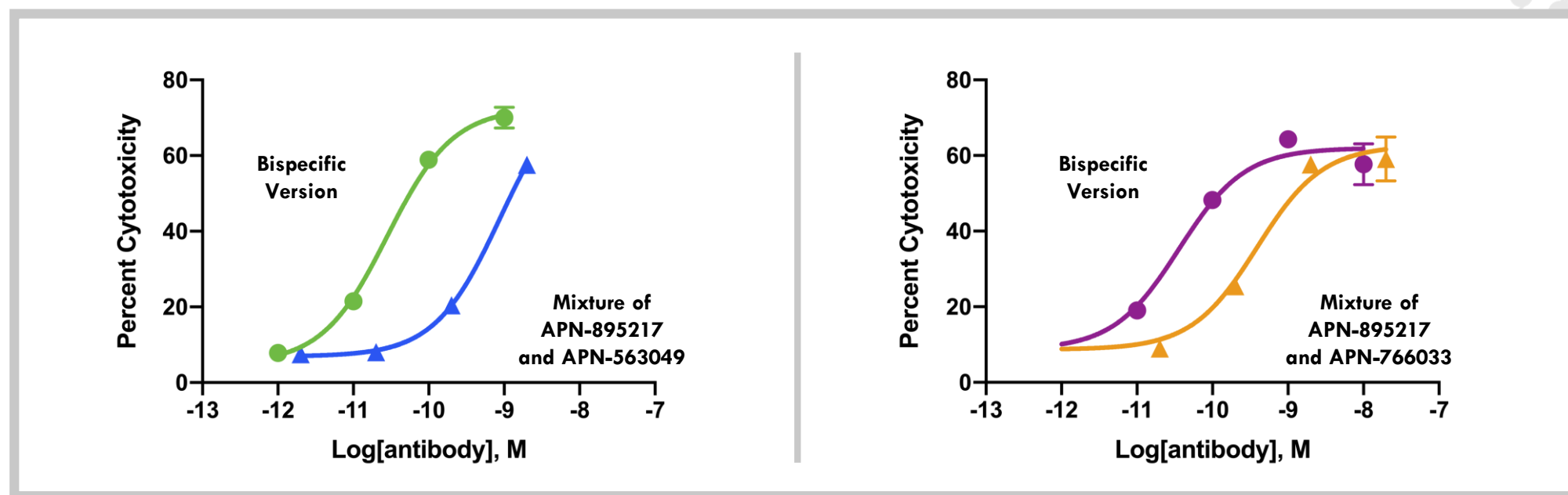
- Enhanced ADCC activity observed over mixture of independent antibodies

# Atreca Antibodies Kill Tumor Cells More Potently When Engineered to Possess Specificity for Multiple Targets



## Multi-Target Specificity

Examples of Hit Antibodies with Greater ADCC Activity *in Vitro* as Multi-Target Bispecifics than as Mixtures





## Key Milestones and Financial Overview

# Anticipated Milestones and Financial/IP Overview

## Upcoming Milestones

- ✓ **2020:** ATRC-101 Phase 1b Trial Initiated
- **2020:** Potential Strategic Drug Discovery Partnership
- **2021:** Target IND filing for Second Product Candidate

## Financial Overview

- IPO completed in June 2019 raising \$130.8M in net proceeds
- Cash, cash equivalents & investments of \$201.0M as of September 30, 2019

## Intellectual Property

- **2019:** Patents issued in multiple jurisdictions covering key aspects of Atreca technologies and platform
- **2020:** Patent applications covering compositions of matter and methods of use for ATRC-101 and related antibodies filed internationally



# Investment Highlights

Discovering and Developing Novel Antibody-based Cancer Immunotherapeutics



## Differentiated Discovery Approach

- First-mover advantages in accessing a potentially large and underexploited target space via interrogation of the human active anti-tumor immune response
- Delivers novel antibodies binding to targets otherwise unlikely discoverable by traditional approaches
- Scalable and industrialized platform

## Large Opportunities

- Approach leads to antibodies that bind to “public” tumor targets
- Potential treatments for large patient populations across multiple tumor types

## Lead Candidate: ATRC-101

- Monoclonal antibody with a novel mechanism of action and target
- Demonstrated potent single-agent anti-tumor activity in multiple preclinical solid tumor models
- Dosed First Patient in Phase 1b trial in early 2020

## Pipeline Expansion

- Growing hit library of >1,600 human antibodies that bind to non-autologous tumor tissue preferentially
- Potential for additional product candidates with distinct mechanisms of action

## Foundational Excellence

- Experienced management team with deep scientific, R&D and operational expertise
- Support from leading institutional investors and SAB



# Delivering the Potential of Immunotherapy

**Corporate Overview**

March 2020