absci®

```
from absci import de_novo_model
model = de_novo_model.load_latest()
antigen = model.load_pdb("7olz.pdb",
chain="A")
antibodies = model.predict(antigen, N=300000)
```

```
from absci_library import codon_optimizer
library
= codon_optimizer.reverse_translate(library)
library.to_csv("covid-antibody-designs.csv")
library.to_wet_lab(assay="ACE")
```

```
from absci import lead_opt_model
lead_optimizer = lead_opt_model.load_latest()
library.naturalness =
lead_optimizer.naturalness(library)
lead_optimizer.optimize(library).to_wet_lab(as
say="SPR")
```

DRUG CREATION

CORPORATE PRESENTATION
SPRING 2024

```
from absci import genetic_algorithm; parameters=["maximize|binding_affinity:pH=7.5", "minimize|binding_affinity:pH=6.0",
"maximize|human_naturalness"]; library = genetic_algorithm.multiparametric_optimization(library, parameters, evolutions=100);
library.to_wet_lab(assays=["ACE", "SPR", "Bioassays"])
```

Disclaimers

Forward-Looking Statements

Certain statements in this presentation that are not historical facts are considered forward-looking within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended, including statements containing the words "will," "may," "anticipates," "plans," "believes," "forecast," "estimates," "expects," "predicts," "advancing," "aim," "potential," and "intends," or similar expressions. We intend these forward-looking statements, including statements regarding our strategy, estimated speed, cost advantages, improved success rates, and expanded intellectual property opportunities from developing therapeutics leveraging our AI drug creation platform, potential milestone and royalty payments due under our collaboration agreements, projected costs, prospects, plans and objectives of management, our technology development efforts and the application of those efforts, including the generalizability of our platform, accelerating drug discovery and development timelines, increasing probability of successful drug development and developing better product candidates, our drug discovery and development activities related to drug creation partnerships and our internal therapeutic asset programs, the progress, milestones and success of our internal asset programs, including the timing for various stages of candidate selection, IND enabling studies, initiating clinical trials, the generation and disclosure of data related to these programs, the translation of preclinical results and data into product candidates, and the significance of preclinical results for our internal asset programs, including in comparison to competitor molecules and in leading to differentiated clinical efficacy, to be covered by the safe harbor provisions for forward-looking statements contained in Section 27A of the Securities Act and Section 21E of the Securities Exchange Act, and we make this statement for purposes of complying with those safe harbor provisions. These forward-looking statements reflect our current views about our plans, intentions, expectations, strategies, and prospects, which are based on the information currently available to us and on assumptions we have made. We can give no assurance that the plans, intentions, expectations, or strategies will be attained or achieved, and, furthermore, actual results may differ materially from those described in the forward-looking statements and will be affected by a variety of risks and factors that are beyond our control, including, without limitation, risks and uncertainties relating to our ability to secure milestone payments and royalties, obtaining and maintaining necessary approvals from the FDA and other regulatory authorities, replicating in clinical trials positive results found in preclinical studies, our dependence on third parties to support our internal development programs, including for the manufacture and supply of preclinical and clinical supplies of our product candidates or components thereof, our ability to effectively collaborate on research, drug discovery and development activities with our partners or potential partners, our existing and potential partners' ability and willingness to pursue the development and commercialization of programs or product candidates under the terms of our partnership agreements, and overall market conditions and regulatory developments that may affect our and our partners' activities under these agreements; along with those risks set forth in our most recent periodic report filed with the U.S. Securities and Exchange Commission, as well as discussions of potential risks, uncertainties, and other important factors in our subsequent filings with the U.S. Securities and Exchange Commission. Except as required by law, we assume no obligation to update publicly any forward-looking statements, whether as a result of new information, future events, or otherwise.

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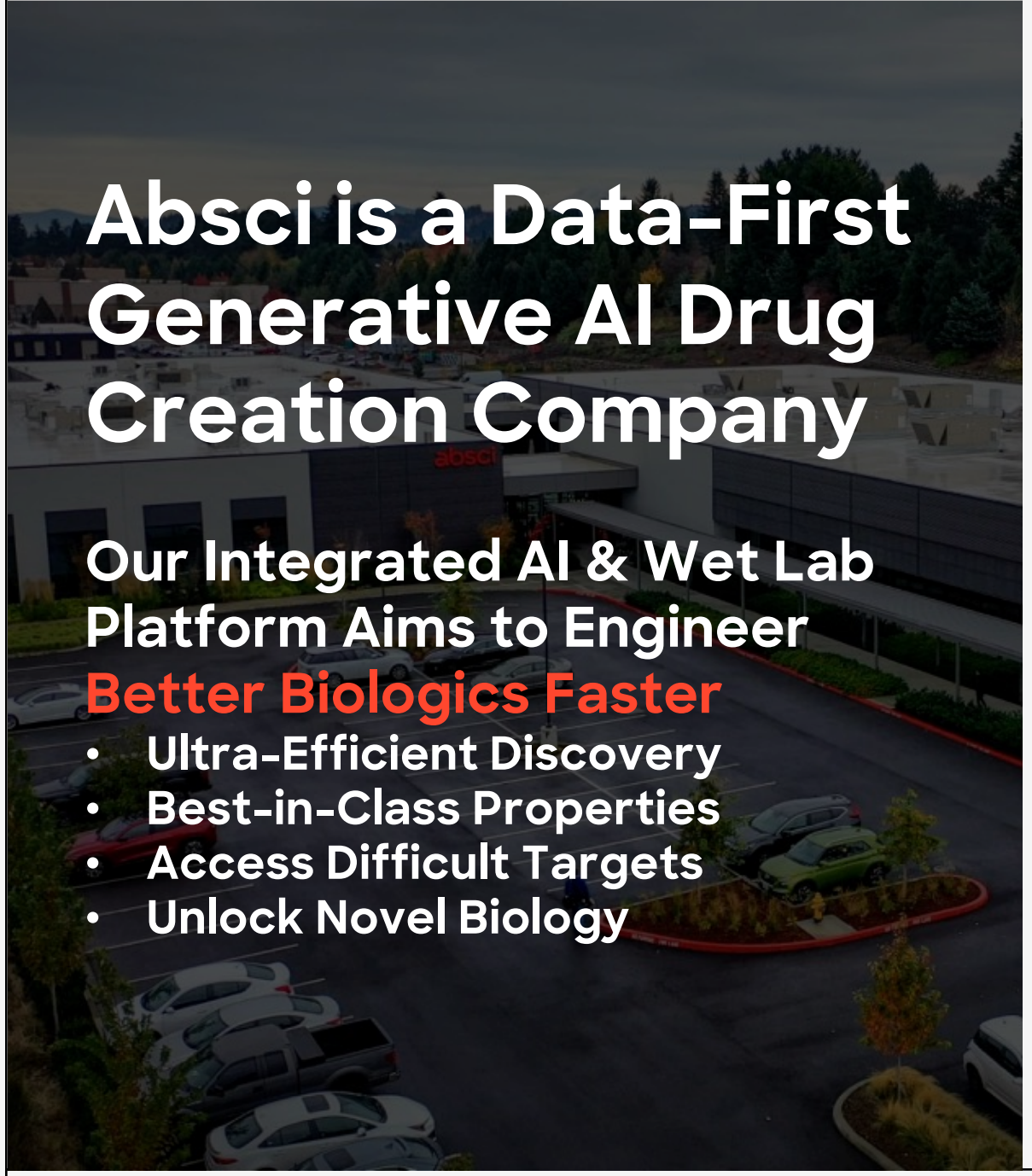


Absci is a Data-First Generative AI Drug Creation Company

Our Integrated AI & Wet Lab Platform Aims to Engineer Better Biologics Faster

- Ultra-Efficient Discovery
- Best-in-Class Properties
- Access Difficult Targets
- Unlock Novel Biology

DIFFERENTIATED LAB-IN-A-LOOP: ‘DATA TO TRAIN’, ‘AI TO CREATE’, & ‘WET LAB TO VALIDATE’ IN RAPID 6-WEEK CYCLES

PLATFORM VALIDATED THROUGH INDUSTRY-LEADING PARTNERSHIPS INCLUDING WITH ASTRAZENECA, MERCK AND NVIDIA

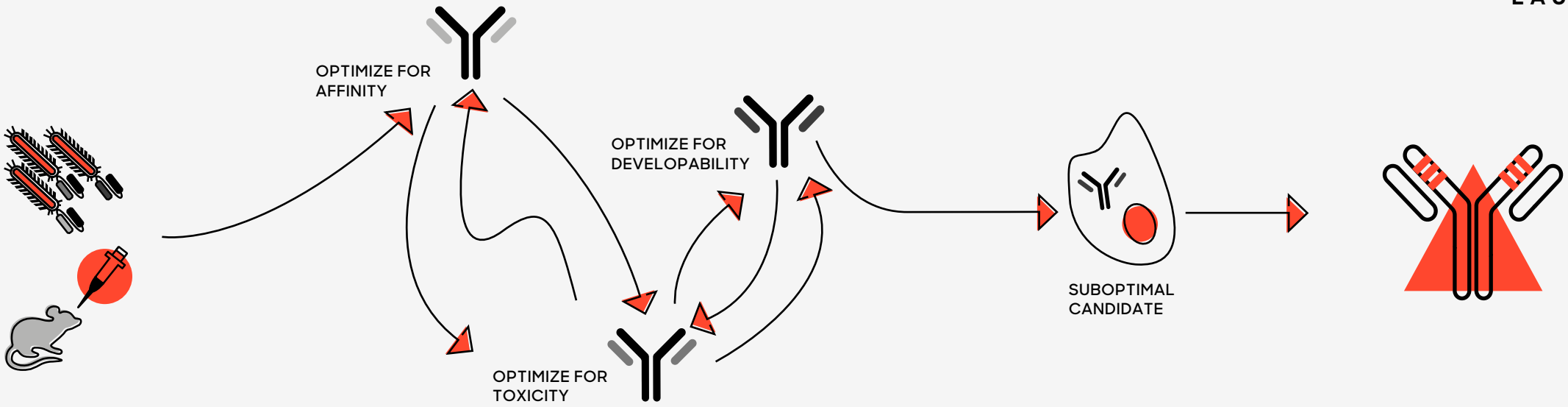
INTERNAL PIPELINE OF POTENTIALLY ‘BEST-IN-CLASS’ & ‘FIRST-IN-CLASS’ ASSET PROGRAMS FOCUSED ON CYTOKINE BIOLOGY

LEAD ASSET ABS-101, A DIFFERENTIATED TL1A ANTIBODY DESIGNED USING ABSCI’S *DE NOVO* AI ADVANCING TOWARDS CLINIC IN EARLY 2025

The Drug Discovery Paradigm is Ripe for Disruption

5.5 YEARS FROM DISCOVERY TO IND

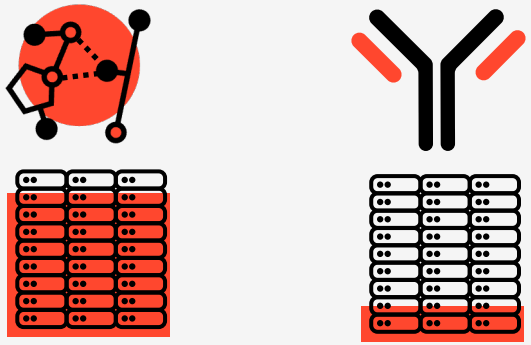
<5% SUCCESS RATE FROM DISCOVERY TO LAUNCH



LONG ITERATIVE PROCESS RESULTING IN DRUG CANDIDATES WITH SUBOPTIMAL ATTRIBUTES
LIMITED CONTROL OF ATTRIBUTES OF THERAPEUTICS
NO ABILITY TO SELECT EPITOPE

Unlocking the Potential of Generative AI in Biology Requires Scalable Biological Data

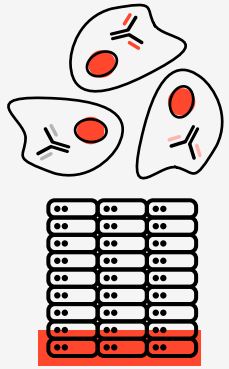
SMALL MOLECULE v. BIOLOGIC



Extensive Libraries

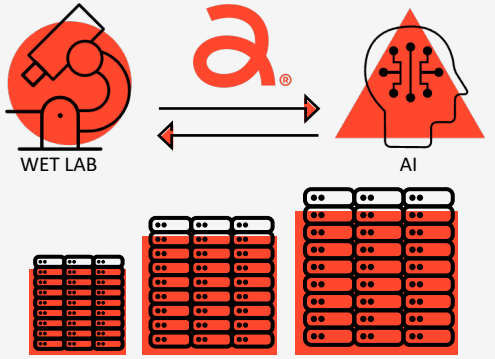
Limited Public Data and technologies to scale data

BIOLOGICS REQUIRE LIVING ORGANISMS TO PRODUCE DRUG VARIANTS FOR TESTING



Consistent and accurate data is limited

UNLOCKING THE POTENTIAL OF GENERATIVE AI IN BIOLOGY…



…requires generating scalable biological data

THE SOLUTION

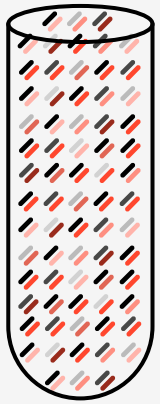
Absci is Solving the Problem of Scalable Biological Data to Enable True Generative AI for Biology

Absci's *E. coli* SoluPro cell line generates billions of cells, expressing proteins of interest

Absci's ACE Assay™ generates data at >4,000x the throughput of traditional HT assays

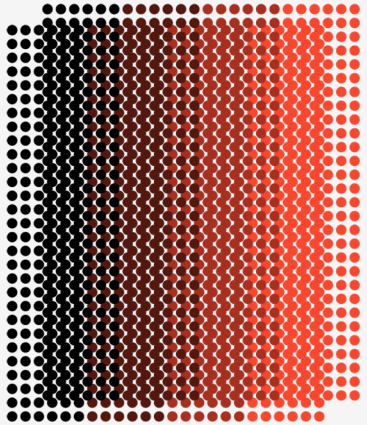
Massive and Growing Training Data Sets

SOLUPRO™ CELL LINE



Billions of cells, expressing proteins of interest

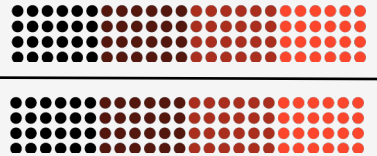
ACE ASSAY™

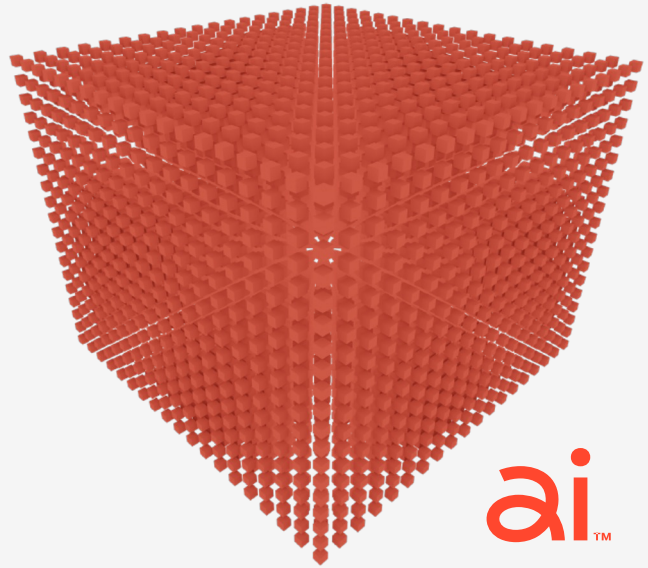


Millions of antibody sequence variants + billions of parameters in weeks

PUBLIC DATA SETS

PROPRIETARY ASSAYS



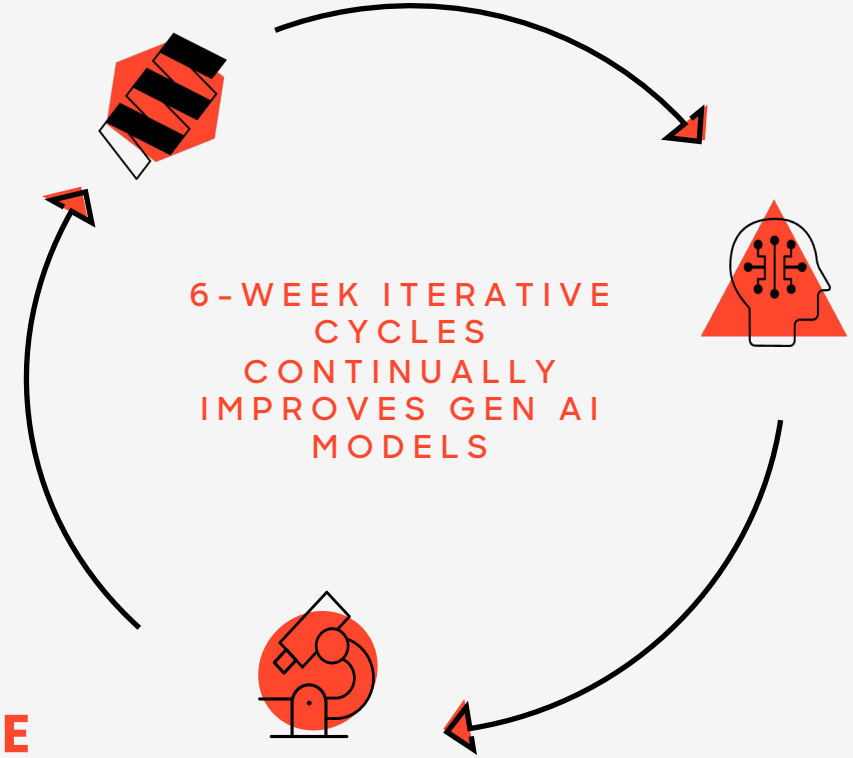


Integrated Drug Creation™ Platform: Lab-in-a-Loop + Proprietary Data + Advanced Generative AI Models

DATA TO TRAIN

Wet lab assays generate massive quantities of high-quality data for generative AI model training

- ACE Assay™ measures binding affinity and target specificity of millions of antibody sequences in a single week.
- ACE Assay™ data is combined with additional proprietary generated data and public data sets.



AI TO CREATE

Advanced generative AI models used to create antibodies and next-gen biologics through *de novo* design and optimization

- *De novo* antibody creation is prompted with antigen structure, epitope location, and framework sequences and returns designed CDRs
- Proprietary generative AI models use architectural innovations to access a massive sequence search space, up to ~20^{55}, to design antibody-antigen complex structures and sequences *in silico*

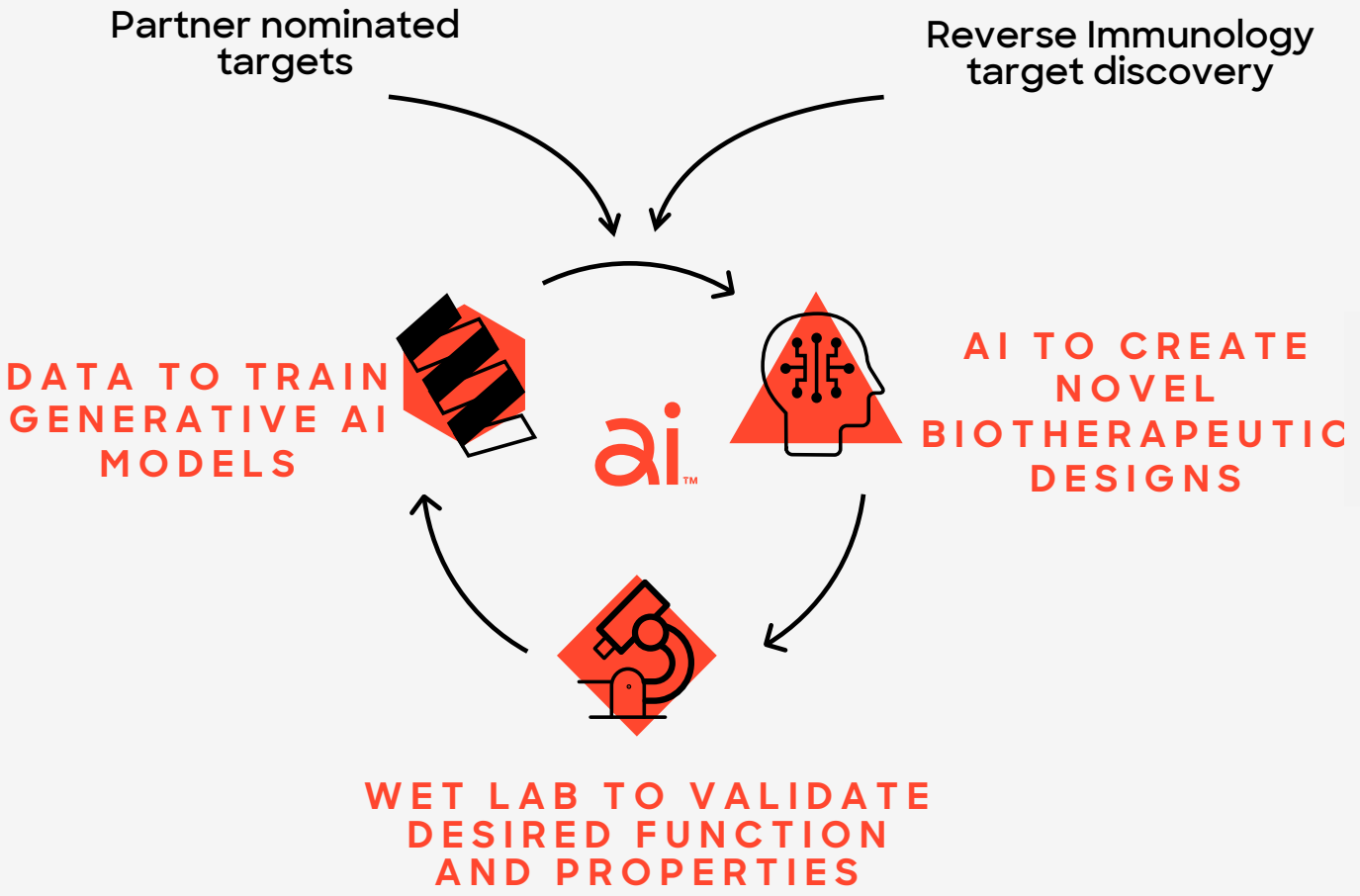
WET LAB TO VALIDATE

77,000 sq ft+ lab to validate AI-generated designs

- Assess binding affinity and target specificity for up to 3 million of ranked antibody sequences from billions of AI-designed antibodies.
- Lower throughput assays confirm other predicted properties for lead designs:

Potency	Self-association	Polyreactivity
FcRn recycling	Hydrophobicity	Solubility
Thermostability	Resistance to stress	

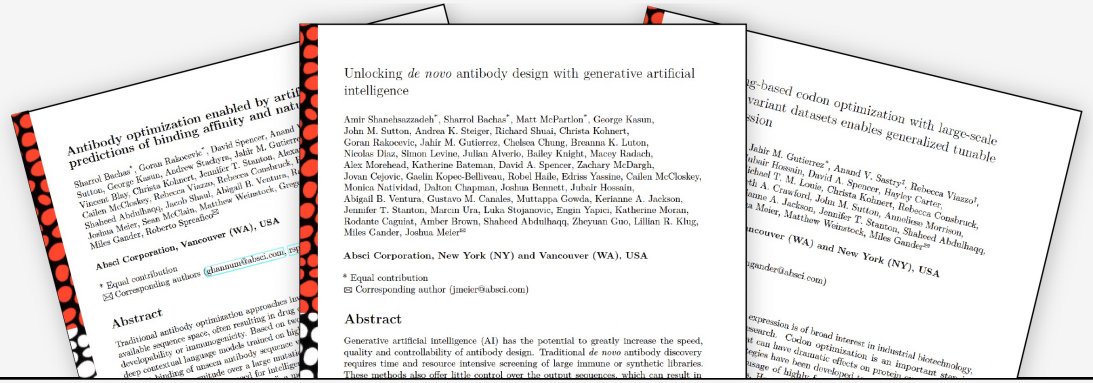
Absci's Integrated Drug Creation™ Platform to Engineer Optimal Drug Attributes



ENGINEER-IN OPTIMAL ATTRIBUTES OF THERAPEUTIC ANTIBODIES

- EPITOPE SPECIFICITY
- OPTIMIZE EPITOPE INTERACTION
  - DESIRED MOA
- ENHANCED POTENCY
- ENHANCED DEVELOPABILITY
- DIFFERENTIATED FEATURES

Absci is the first to design and validate novel antibodies* using zero-shot generative AI



***MAR 2023- UPDATED JAN 2024**

Functional wet-lab validation of novel antibodies designed using zero-shot generative AI - demonstrating the potential to go from target to therapeutic antibody at a click of a button

(Shanehsazzadeh et al. 2024)

DEC 2023

in vitro validated antibody design against multiple therapeutic antigens using generative inverse folding model

(Shanehsazzadeh et al. 2023)

AUG 2022

Used artificial intelligence to simultaneously optimize multiple parameters important to drug discovery and development

(Bachas et al. 2022)

Leveraging Generative AI Capabilities to Access Novel Biology and Rapidly Design Therapeutics with Best-in-Class Properties

Design of therapeutic antibodies to novel and challenging targets

- Novel targets including GPCRs and ion channels

Rapid design of fast follower therapeutic antibodies to validated targets

- 12-14 months to Drug Candidate
- Best-in-class Potential

- ✓ Epitope specificity
- ✓ Global epitope landscaping to identify epitopes with desired MoA
- ✓ Local epitope landscaping to identify desired epitope interactions for potentially improved potency and MoA

- ✓ Local epitope interface evolution to improve desired epitope interactions for potentially improved potency and desired MoA
- ✓ Multi-parametric developability optimization

Novel Features:
- ✓ pH depending binding
- ✓ Half-life extension
- ✓ Multi-valency / multiple targets

Integrated Drug Creation™ Platform

Leveraging AI Throughout the End-to-End Drug Discovery Process

TARGET DISCOVERY WITH NOVEL APPROACHES

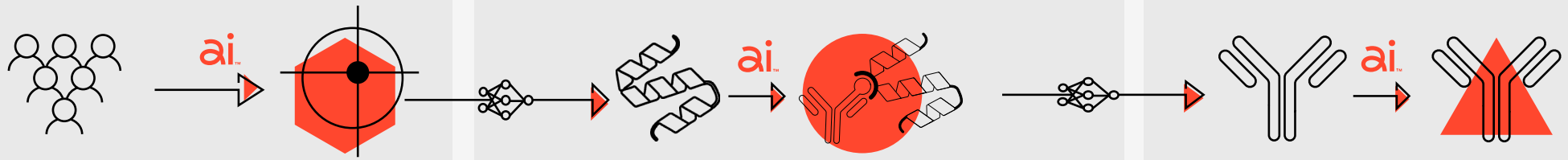
Reverse Immunology for target discovery

AI-GUIDED ANTIBODY DRUG CREATION

De novo antibodies designed by AI

AI-GUIDED LEAD OPTIMIZATION

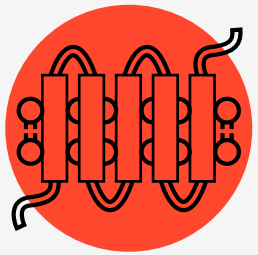
Multi-parameteric optimized antibodies



VALUE DRIVERS

Platform Enables the Potential to Deliver Differentiated Biologics, Faster at Lower Cost

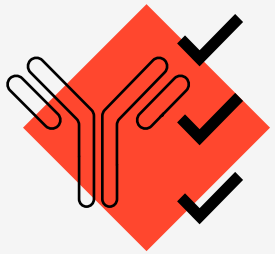
ACCESS NOVEL DISEASE BIOLOGY



Ability to address elusive drug targets, e.g. GPCRs, Ion Channels

ENABLING FIRST-IN-CLASS

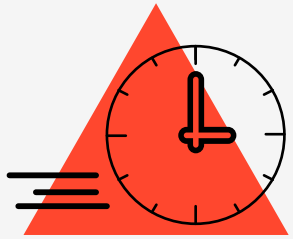
INCREASED PROBABILITY OF SUCCESS



Superior Drug Attributes and Multidimensional optimization creates higher quality biologics

ENABLING BEST IN CLASS & HIGHER PROGRAM NPVS

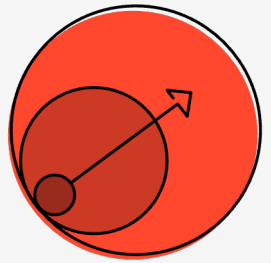
REDUCED TIME & COST TO CLINIC



2 years and $14-16M from Target to IND; significant reduction compared to industry estimates

FASTER TIME TO IND

EXPANDED INTELLECTUAL PROPERTY SPACE



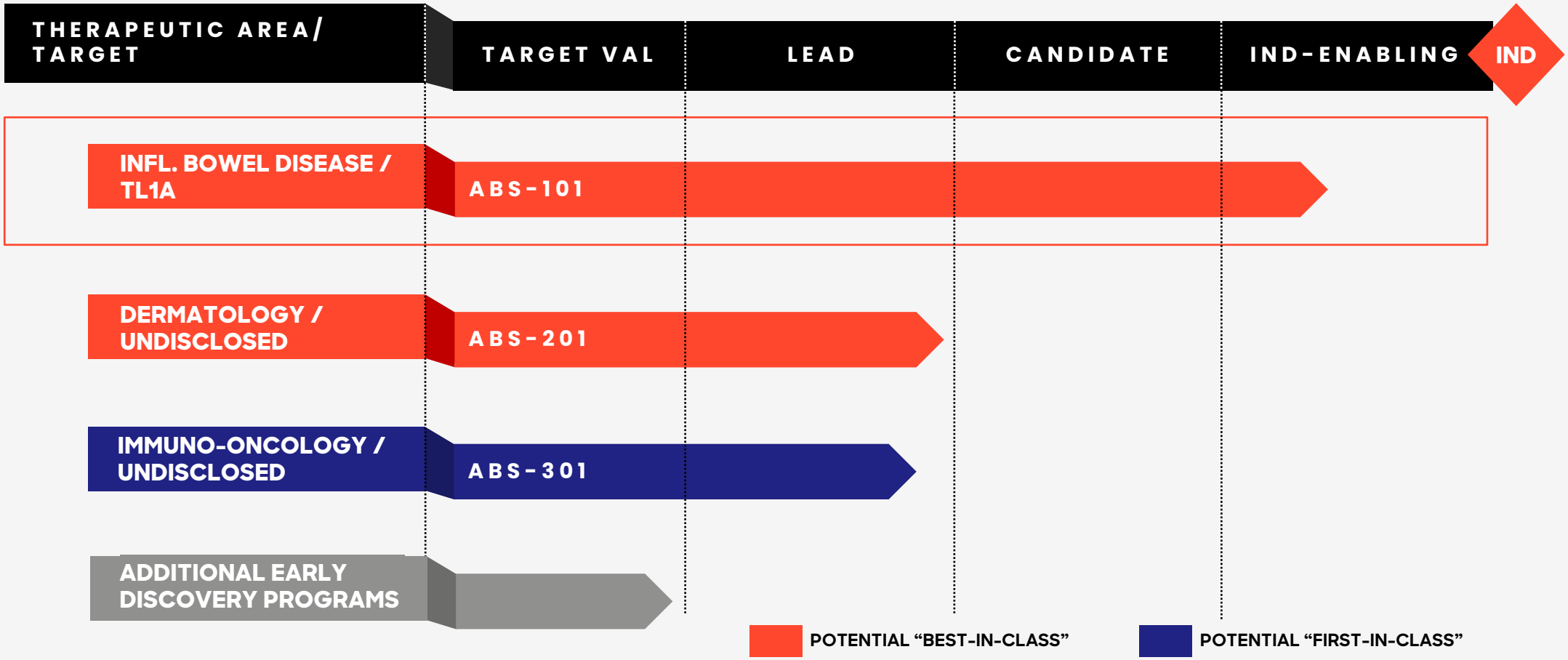
Generates broader IP for First-in-Class therapies and finds new IP for Best-in-Class therapies

ENHANCED IP PROTECTION

PIPELINE HIGHLIGHTS

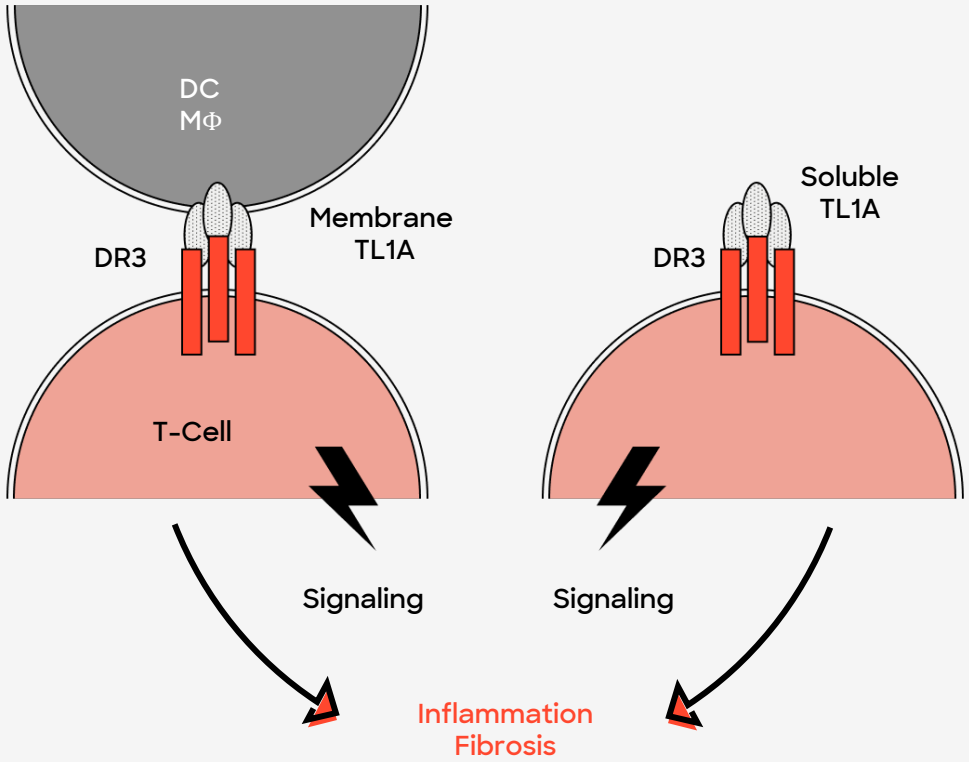
Internal Pipeline of Potential First-in-Class and Best-in-Class Assets

Focus on cytokine biology - first frontier of AI-driven disruption



Clinically Validated Mechanism of Action in Large Underserved Market

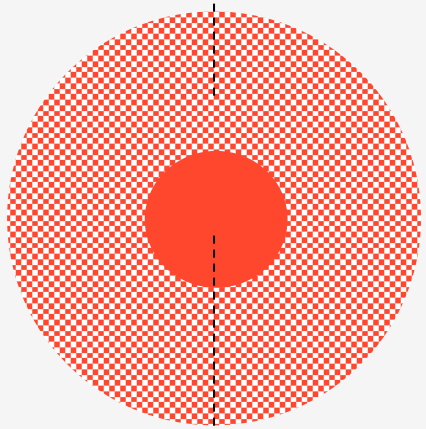
TL1A: DR3 SIGNALING CLINICALLY SHOWN TO INDUCE PRO-INFLAMMATORY RESPONSES[1]



[1] Adapted from Takedatsu 2008 doi: 10.1053/j.gastro.2008.04.037

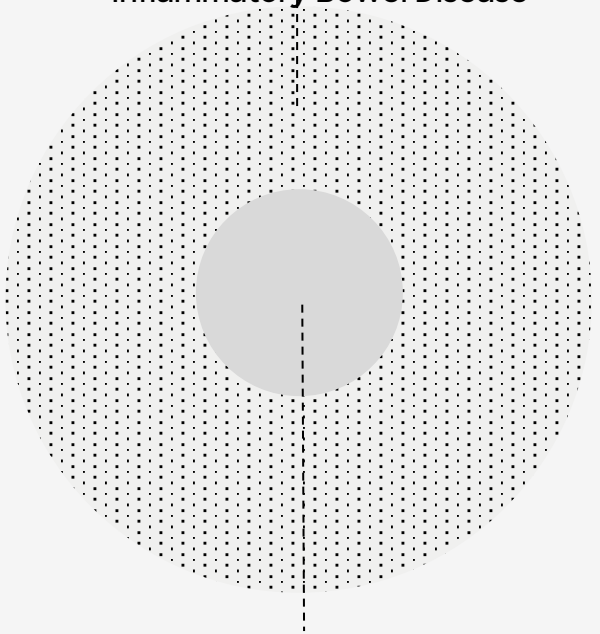
POTENTIAL RELEVANCE IN WIDE RANGE OF AUTOIMMUNE INDICATIONS

5M Global Inflammatory Bowel Disease (IBD) Prevalence[2]



0.8- 3M U.S. Inflammatory Bowel Disease Prevalence[3]

Significant market opportunities beyond Inflammatory Bowel Disease



$22B+ Global Market[4]
$4.5B for TL1A

[2] Wang 2023 http://dx.doi.org/10.1136/bmjopen-2022-065186
[3] Dahlhamer, James M., et al. "Prevalence of inflammatory bowel disease among adults aged≥ 18 years—United States, 2015." Morbidity and mortality weekly report 65.42 (2016): 1166-1169.
[4] Evaluate Pharma Oct 2023.

ABS-101 TL1A DATA HIGHLIGHTS

Potential Best-in-Class TL1A mAb Designed using Generative AI

DE NOVO AI-DESIGNED AND AI-OPTIMIZED

- Target to promising candidates in just over 1 year

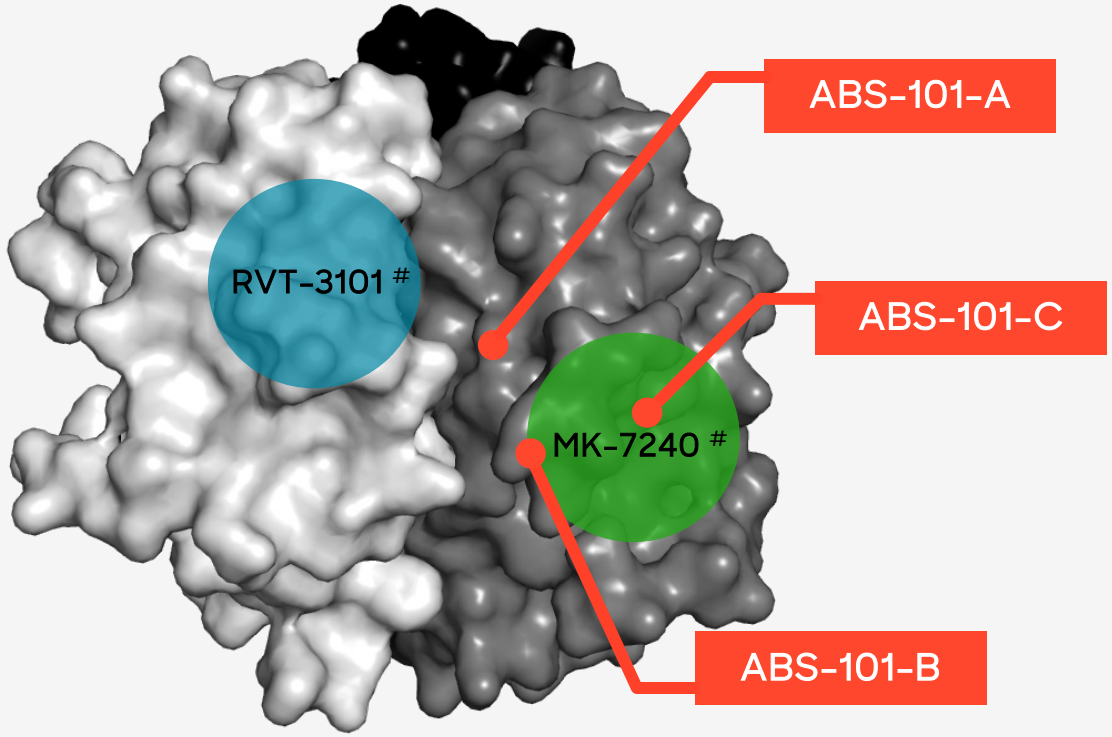
SUPERIOR PRE-CLINICAL PROFILE AND POTENTIAL FOR SUPERIOR CLINICAL PROFILE

- High Affinity & Potency
  - High affinity to both the TL1A trimer and monomers
- Extended Half life & Longer Dosing Intervals
  - Q8W to once quarterly
- Low immunogenicity
- Sub-Q Dosing
  - High bioavailability
- Favorable Developability

DIFFERENTIATED INTELLECTUAL PROPERTY

AI Platform Designed Leads Span Diverse Set of Epitopes Leading to IP Differentiation and Superior Preclinical Profile

Epitope bins* on TL1A



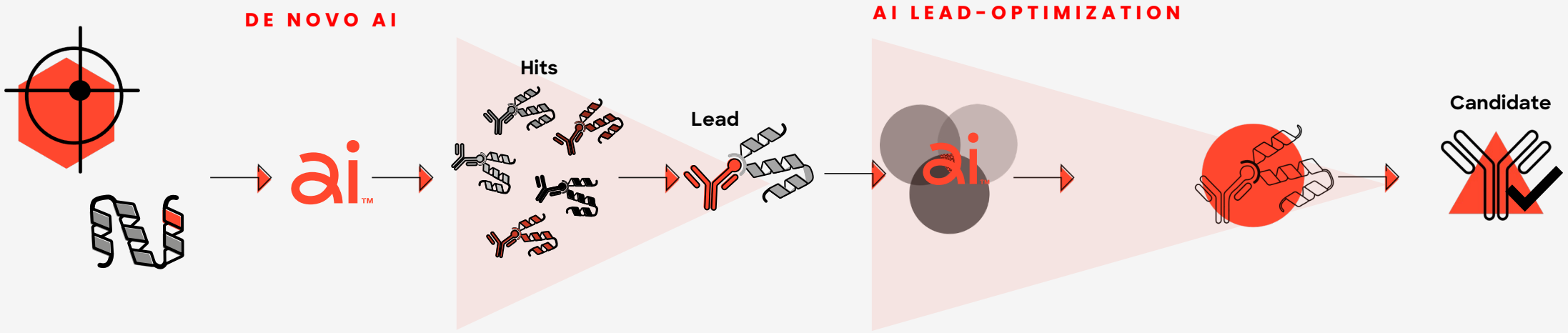
- Absci selected hypothesized immuno-privileged epitope for de novo model. Epitope also selected to enable both TL1A monomer and trimer binding
- De novo model performed local epitope landscaping
- AI Lead Optimization model performed further local epitope evolution
- 3 lead candidates identified with novel epitope interactions → improved affinity and potency

* Epitope binning by BLI competition experiment

Estimated performance of clinical competitor reagent generated for comparison

ABS-101 TL1A

Potential Best-in-Class TL1A mAb Designed by Generative AI

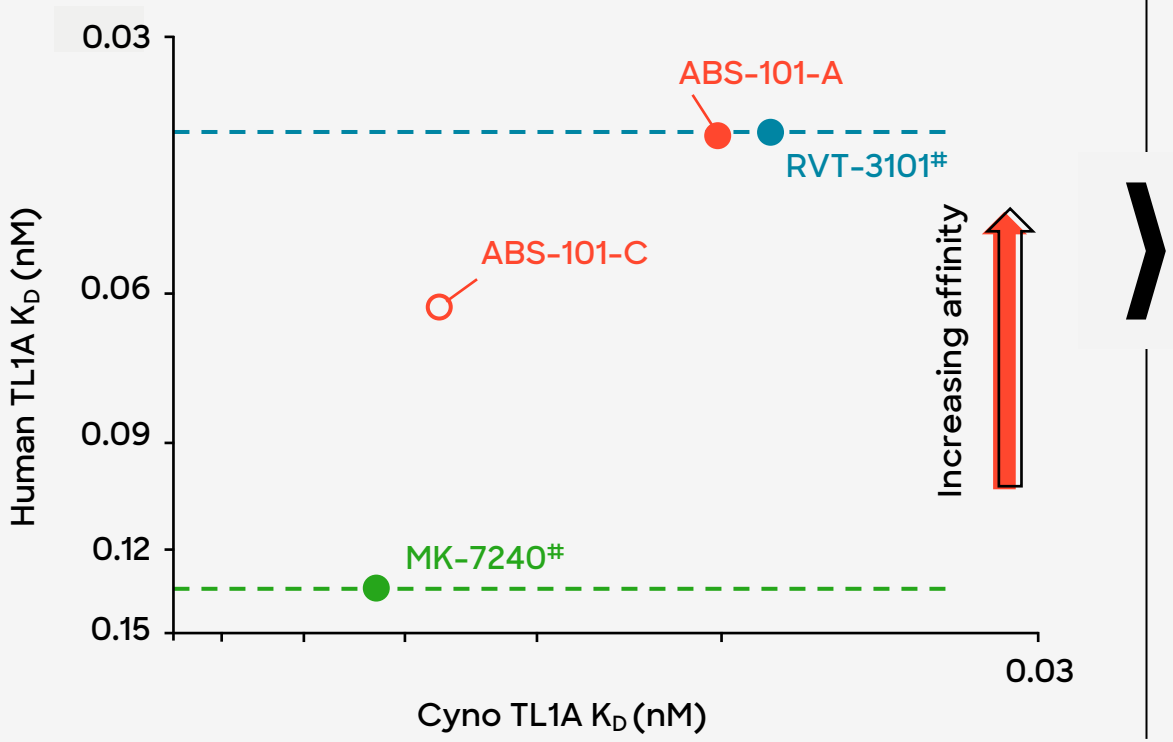


ABS-101 TL1A DATA HIGHLIGHTS

AI Platform Designed Advanced Leads with High Affinity and Superior Potency

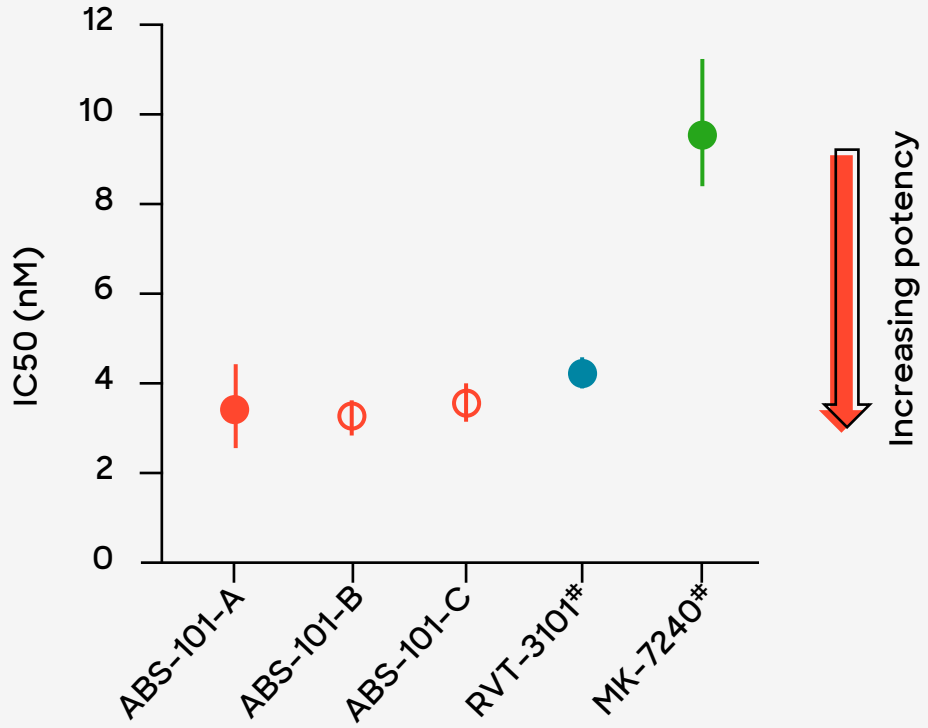
HIGH AFFINITY mABs WITH PRESERVED CROSS-REACTIVITY

AFFINITY BY SURFACE PLASMON RESONANCE (SPR)



AI-OPTIMIZED LOW pM AFFINITY TRANSLATES TO SUPERIOR OR EQUIVALENT POTENCY

APOPTOSIS INHIBITION ASSAY IN TF-1 CELLS

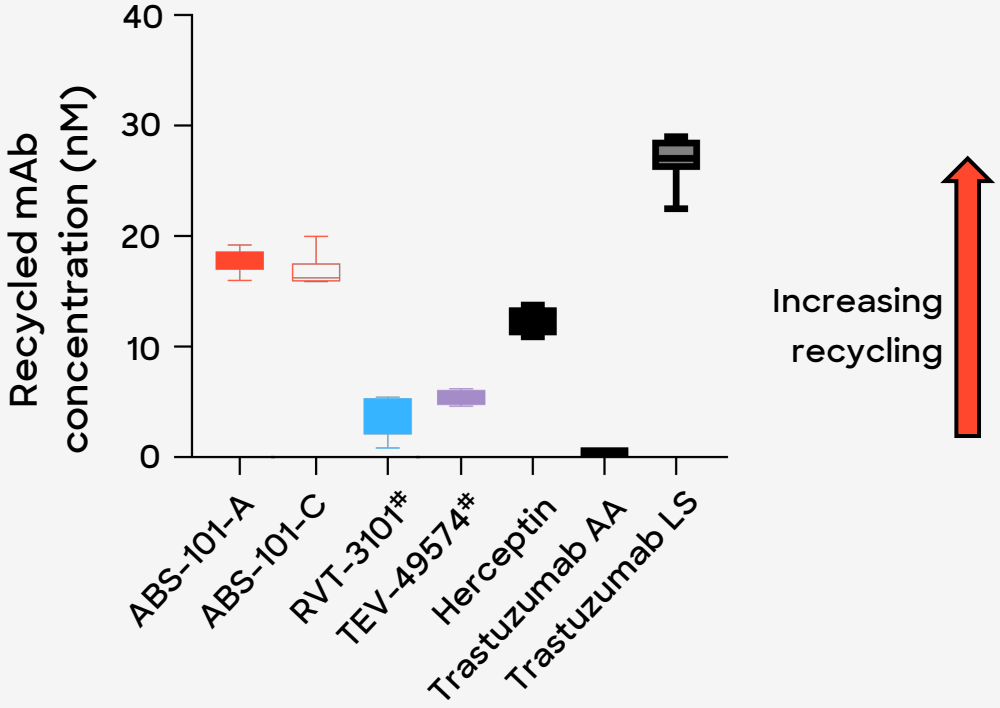


#Estimated performance of a putative clinical competitor molecule generated for in house comparison.

Favorable in vitro profile and favorable PK profile for longer dosing intervals

Increased recycling in *in vitro* FcRn Assay[1]

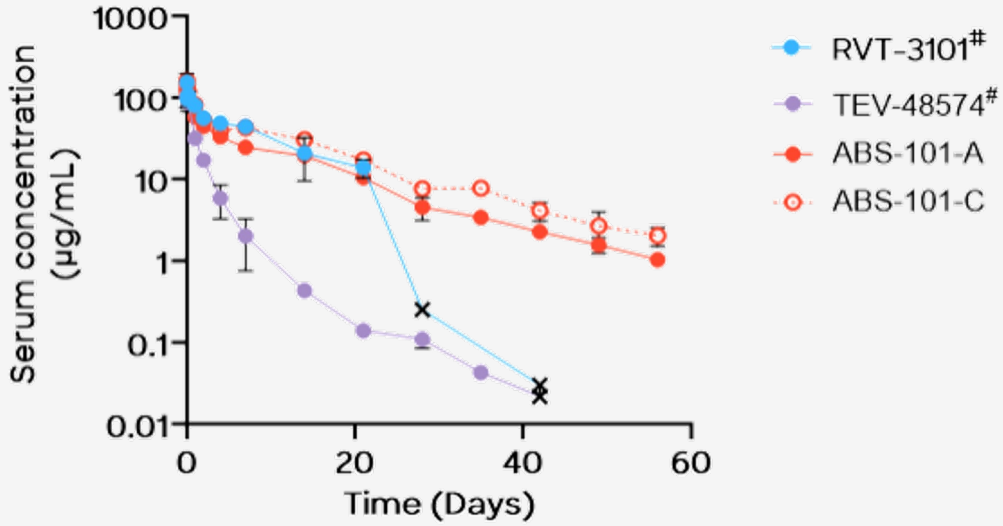
Extended half-life in vitro compared to competitors#



[1] Cell-based FcRn recycling assay in HMEC-1 cells. Grevys 2018
[2] Homozygous hFcRn Tg32 mouse model, single dose i.v.

#Estimated performance of a putative clinical competitor molecule generated for in house comparison

PK data in Tg32 mice show lead candidates with extended half-life *in vivo* relative to RVT-3101# and TEV-48574#

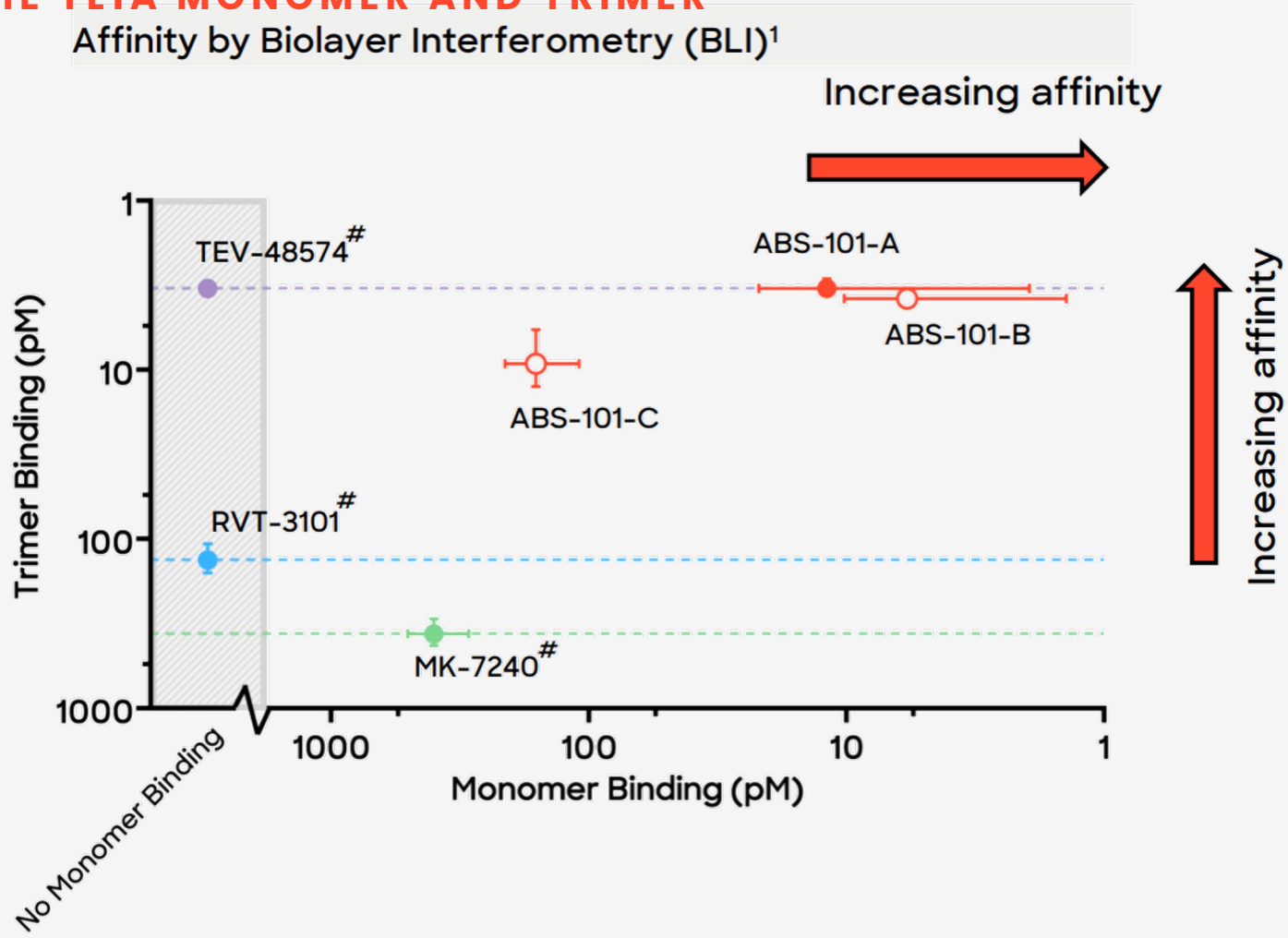


PK Parameters	ABS-101-A	ABS-101-C	RVT-3101#	TEV-48574#
$t_{1/2}$ (d)	12	14	9	5
CL (mL/hr/kg)	0.61	0.39	0.52	3.26
$AUC_{0-\infty}$ (µg.d/mL)	688	1060	805	128
Vss (mL/kg)	198	148	121	197

ABS-101 TL1A DATA HIGHLIGHTS

AI Epitope Selection Enables High Affinity to Both the TL1A Monomer and Trimer

EPITOPE SELECTED ENABLED HIGH AFFINITY BINDING TO BOTH THE TL1A MONOMER AND TRIMER



#Estimated performance of clinical competitor reagent generated for in-house comparison.

[1] We used BLI values for comparing monomer and trimer binding and not as absolute values due to sensitivity limits for the instrument at high affinity. SPR-based absolute affinities reported in the previous slide are considered more accurate. For samples, such as RVT-3101#, the observed difference in affinities measured by SPR and BLI are within the error expected for picomolar binders by BLI.

AI Platform Designed ABS-101 Aims for Optimal Therapeutic Profile

ATTRIBUTE	ABS-101 PROGRAM*	MERCK (PROMETHEUS) MK-7240	ROCHE (ROIVANT) RVT-3101	SANOFI (TEVA) TEV-48574
Low Immunogenicity**	✓	✓[1]	✗[1, 4]	–
High Bioavailability	✓	✓[1]	✗[1, 5]	–
Sub-Q autoinjector	✓	✗	✓[2]	✓[6]
Q8W to once quarterly dosing	✓	✗[1, 3]	✗[1, 3]	✗[7]

*ABS-101 parameters projected from *in silico* and *in vitro* metrics and modeled exposure with ½-life extension.
** Low score by *in silico* immunogenicity metrics and low results in *ex vivo* T-cell assay

[1] Based on Phase 2 data
[2] Expected commercial form factor
[3] Once monthly dosing regimen
[4] 82% of Ph2a participants developed ADA, likely due to formation of large immune complexes. Danese *et al.* 2021 https://doi.org/10.1016/j.cgh.2021.06.011
[5] 45% BA at 100 mg/mL based on Ph2 data
[6] Projected based on corporate/investor presentations
[7] Based on Phase 2b protocol, NCT05668013

ABS-101 TL1A DATA HIGHLIGHTS

Projected Timeline to Potential Best-in-Class Molecule

JAN 2024

AI-Designed Advanced Leads have Demonstrated:

- ✓ High Affinity
- ✓ High Potency
- ✓ Long Half-Life
- ✓ Favorable Manufacturability

INITIATED FEB ‘24

IND-enabling studies to evaluate

- Sub-Q formulation
- Favorable PK and long Hal-Life
- Low ADA
- High Bioavailability
- High Tolerability (low tox)

1H25

Initiating Phase 1 Trial

2H25

Phase 1 Interim Data Readout

RECENT PARTNERSHIPS

Over $900M + Royalties of Deal Value in H2 2023

AstraZeneca

"This collaboration is an exciting opportunity to utilize Absci's de novo AI antibody creation platform to design a potential new antibody therapy in oncology."

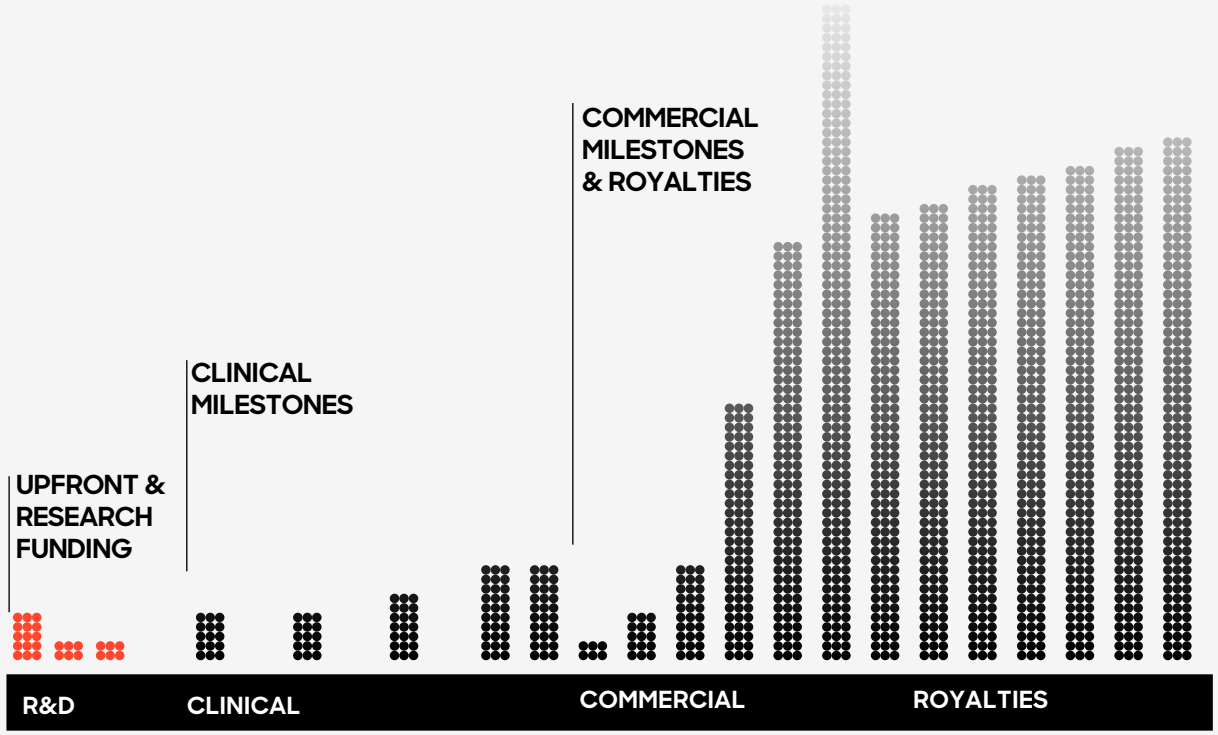
DR. PUJA SAPRA
AstraZeneca, SVP, Biologics Engineering & Oncology Targeted Delivery

almirall

"Almirall chose Absci because their de novo platform brings truly novel innovation in solving the industry's most challenging targets facing high unmet medical need."

DR. KARL ZIEGELBAUER
Almirall, Chief Scientific Officer and EVP of Research & Development

ILLUSTRATIVE ECONOMIC STRUCTURE OF A SUCCESSFUL DRUG DISCOVERY PARTNERSHIP



PARTNERSHIPS

Driving Growth Through Industry-Leading Collaborations

DATA & COMPUTE COLLABORATIONS

Aster Insights™

NVIDIA

Saint John's Health Center
Providence

UNIVERSITY OF OXFORD

AI DRUG DISCOVERY COLLABORATIONS

MERCK

almirall

precisionlife

AstraZeneca

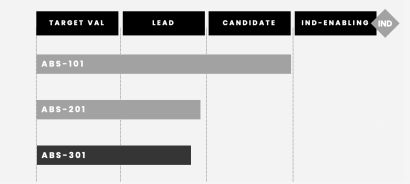
Caltech

THE UNIVERSITY OF CALIFORNIA UCLA

BILL & MELINDA GATES foundation

INTERNAL ASSET PIPELINE COLLABORATIONS

3 Internal Programs with Potential Best-in -Class or First-in -Class Profile



WORLD CLASS TEAM

Leadership Team of Innovators Across AI and Biotech to Transform Drug Discovery

LEADERSHIP TEAM

SEAN MCCLAIN
Founder, CEO & Director

ANDREAS BUSCH, PHD
Chief Innovation Officer

ZACH JONASSON, PHD
Chief Financial Officer, Chief Business Officer

KARIN WIERINCK
Chief People Officer

AMARO TAYLOR-WEINER, PHD
SVP, Chief AI Officer

CHRISTIAN STEGMANN, PHD
SVP, Drug Creation

CHRISTINE LEMKE, DVM
SVP, Portfolio & Growth Strategy

JENS PLASSMEIER, PHD
SVP, Biologics Discovery Technologies

PENELOPE
Chief Morale Officer

BOARD OF DIRECTORS

FRANS VAN HOUTEN
Chairperson of the Board
Former CEO,
Royal Phillips

KAREN MCGINNIS, CPA
Former CAO,
Illumina

SIR MENE PANGALOS, PHD
Former EVP R&D
AstraZeneca

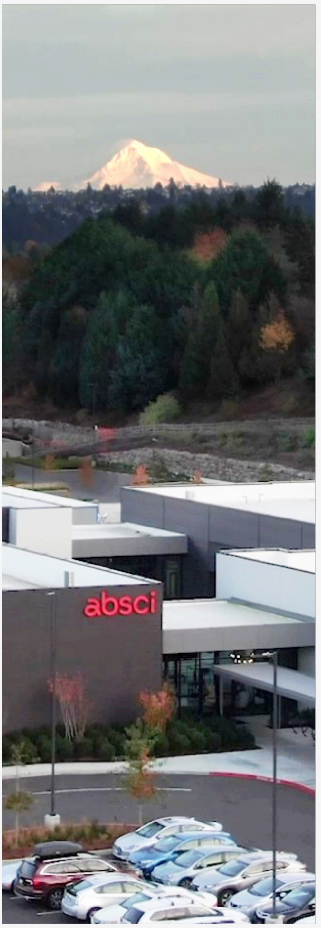
AMRIT NAGPAL
Managing Director,
Redmile Group

DAN RABINOVITSJ
Vice President
Connectivity, Meta

JOSEPH SIROSH, PHD
Former CTO, Compass
VP, Amazon & Microsoft

WELL-POSITIONED TO DELIVER

Absci's Talent and Infrastructure for Better Biologics Faster, at Lower Cost



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~160

Unlimiters with deep experience in AI, drug discovery, immunology, and synthetic biology

Leading AI team with expertise from:

NVIDIA, Google, MIT, Microsoft Research, Harvard University, OpenAI, X, Stanford University

Biologics drug discovery expertise from:

Bayer, Takeda, Pfizer, AstraZeneca, novo nordisk, Broad Institute, Shire, University of Oxford

77,000+ Square Feet

State-of-the-art drug creation and wet lab space in Vancouver WA, Absci AI Research (AAIR) lab in NYC, and the Innovation Centre in Zug Switzerland

>$520M

Capital raised to date

Integrated Drug Creation™ Platform

Leveraging AI Throughout the End-to-End Drug Discovery Process

TARGET DISCOVERY WITH NOVEL APPROACHES

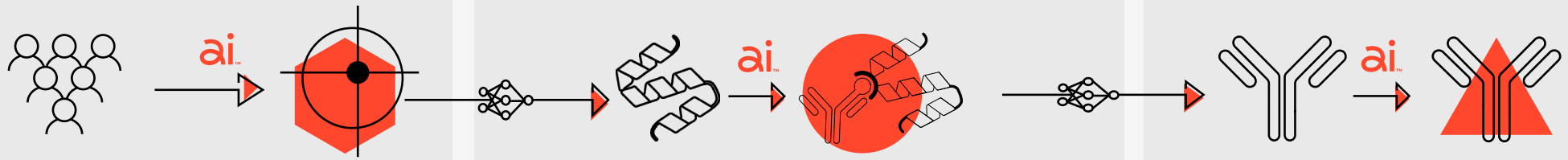
Reverse Immunology for target discovery

AI-GUIDED ANTIBODY DRUG CREATION

De novo antibodies designed by AI

AI-GUIDED LEAD OPTIMIZATION

Multi-parameteric optimized antibodies



de novo Designed Antibodies

de novo antibody design using generative AI

TARGET DISCOVERY WITH NOVEL APPROACHES

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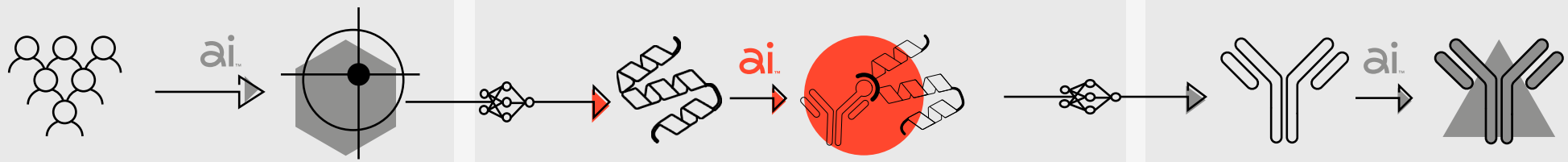
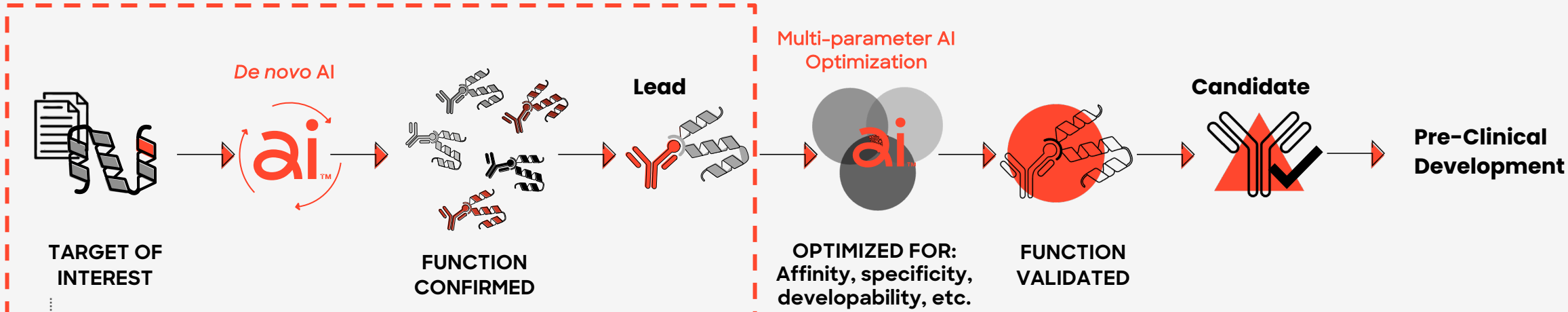


Generative AI Drug Creation™ Workflow



Absci works with its partners to set the goals of partnership programs:

(1) Target antigen

(2) Target antigen epitope(s) if known OR global epitope landscaping to identify optimal epitope / MOA

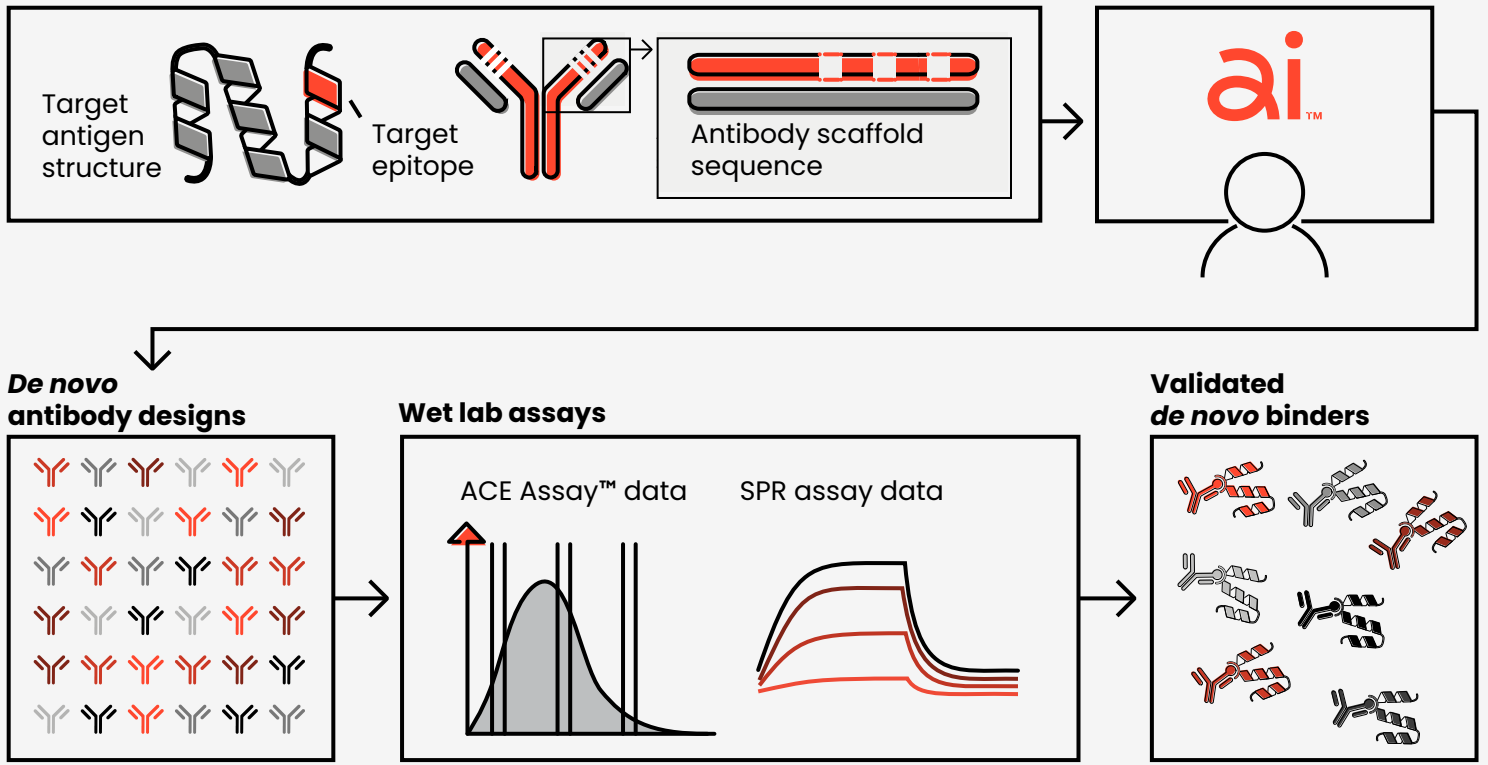
(3) Drug modality, e.g. mAb, bi-specific, fusion protein

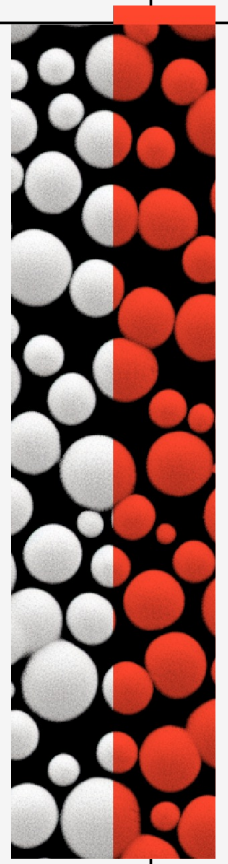
(4) Target TPP parameters

De novo drug creation with 'zero-shot' generative AI

Zero-Shot: Model has never seen an antibody that binds to the target or homologs

Binders were identified straight out of the model – no lead optimization was performed





DE NOVO DESIGN

Example: *de novo* design of HER2 antibodies

POC MODEL

Demonstration of ‘zero shot’ model by designing HCDR3 and HCDR123 for HER2

Assessed multiple parameters:

- Binding rates
- Sequence diversity
- Immunogenicity
- Functionality
- Developability

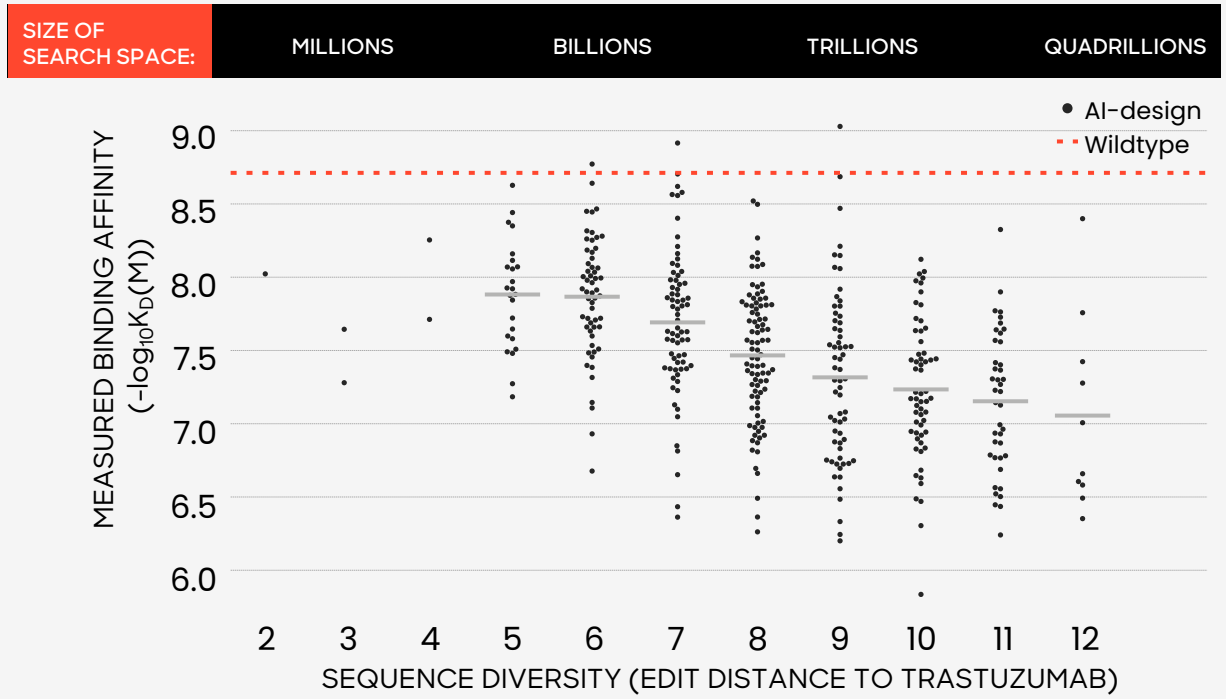
POC DEMONSTRATED

1. *De novo* models generated diverse, novel, and high affinity variants superior to baseline
2. Demonstrated high level of specificity
3. Demonstrated higher potency vs Trastuzumab *in vitro*
4. Achieved multi-dimensional lead optimization
   - Desired cross-species reactivity and specificity
   - Optimal developability

AI Generated Diverse, Novel & High Affinity Binders that Outperforms Biological Baseline

1 Diverse, novel, high affinity binders

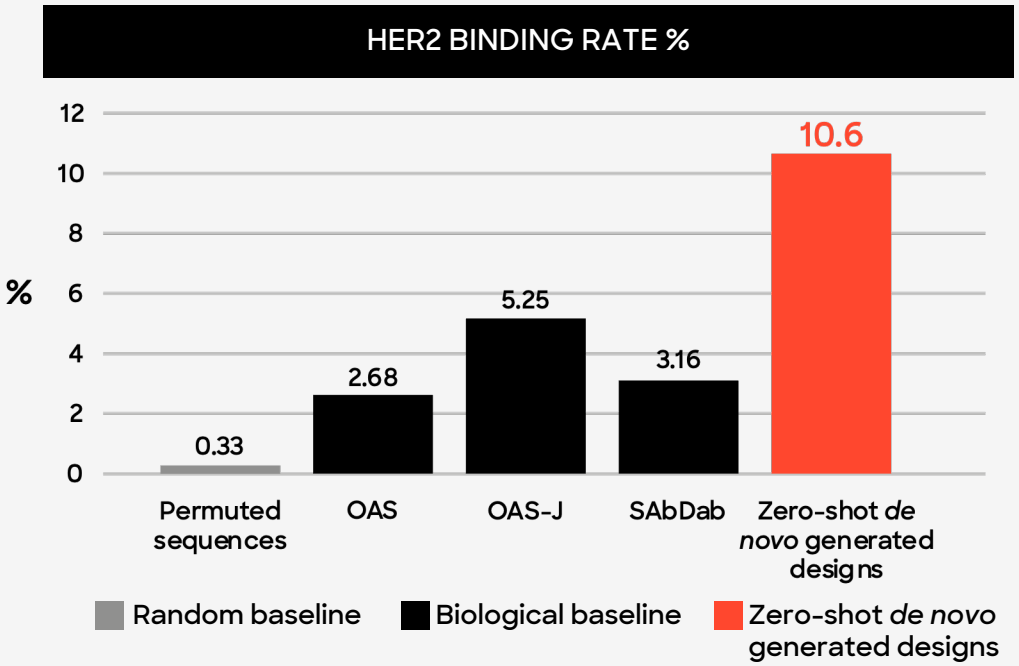
- Up to 12 mutations in a CDR region of 13 amino-acids (Search space of 20^{13})



Affinity of novel binders up to 3.4 nM measured by SPR in mAb format

Outperforms biological baseline

- *De novo* designed HCDR3s achieve a 4-fold improvement over random OAS baseline



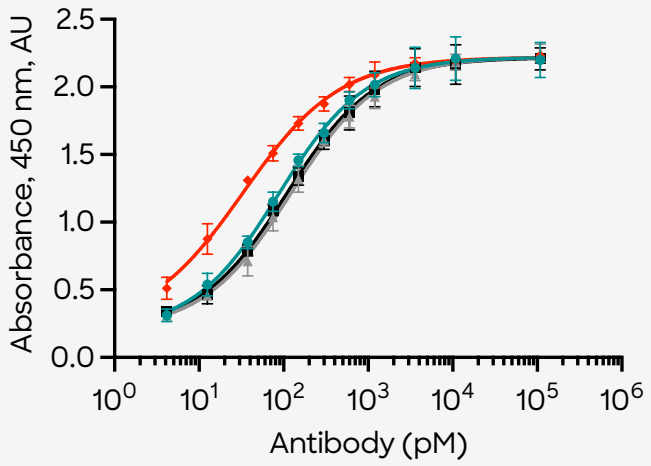
Functional Validation of AI-Generated Variants with Higher Potency

3 Created higher potency binder than trastuzumab

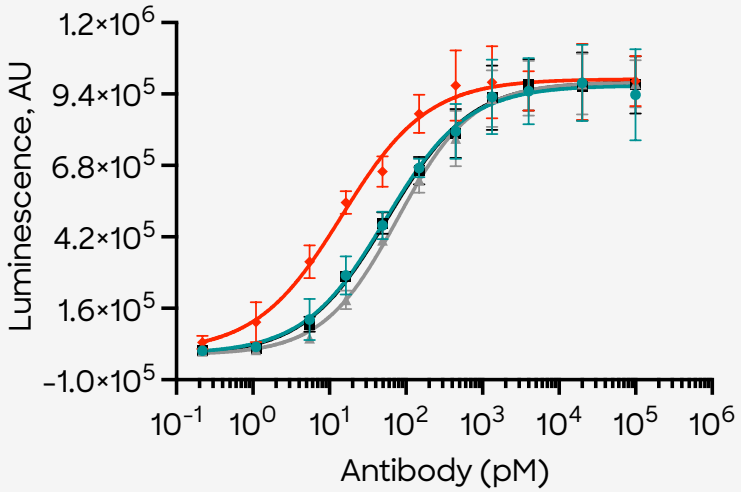
- Verified binders form biologically relevant interactions and possess desired functional attributes

SK-OV-3 (HER2 +ve) cell-based assays

Cell Surface Binding



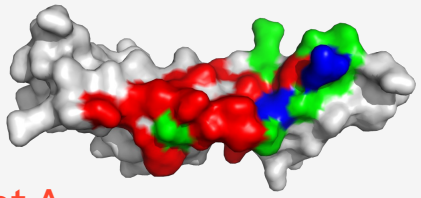
ADCC



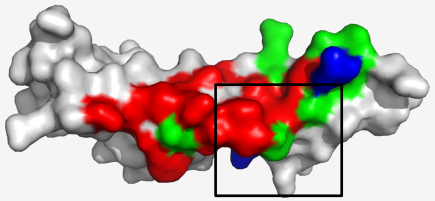
WT trastuzumab · Variant A · Variant B · Variant C

Epitope mapping

Trastuzumab WT



Variant A



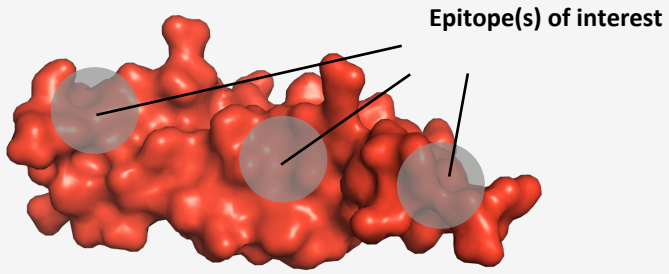
Epitope controls potency

Not critical · Partial · Critical

De novo and Lead Optimization AI models further enable global and local epitope landscaping

Epitope landscaping and interface evolution can be used to improve affinity, potency and to potentially uncover novel Mechanisms of Action (MoAs)

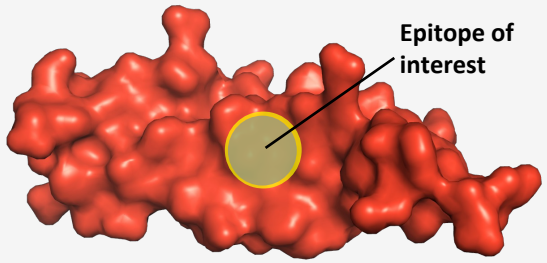
GLOBAL EPITOPE LANDSCAPING



de novo AI model

De novo AI model allows sampling multiple epitope interfaces across the antigen to locate desired MoA

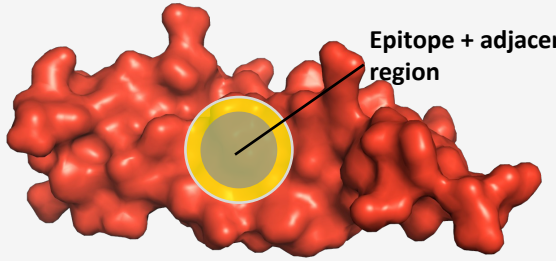
LOCAL EPITOPE LANDSCAPING



de novo AI model

Once an epitope is selected the *de novo* model exhaustively samples the interface contacts with the designated epitope to further refine potency and MoA

LOCAL INTERFACE EVOLUTION



AI lead optimization model

In addition to optimizing antibody variants for developability, the AI lead optimization model samples the epitope interface with its surrounding adjacent region to further improve potency and MoA

AI-Guided Lead Optimization

From de novo design to multiparametric lead optimization using AI

TARGET DISCOVERY WITH NOVEL APPROACHES

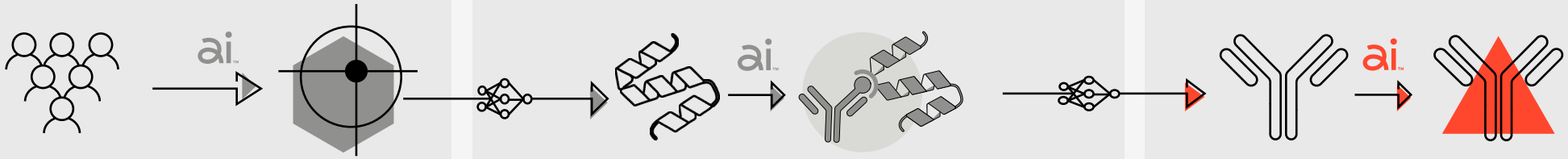
Reverse Immunology for target discovery

AI-GUIDED ANTIBODY DRUG CREATION

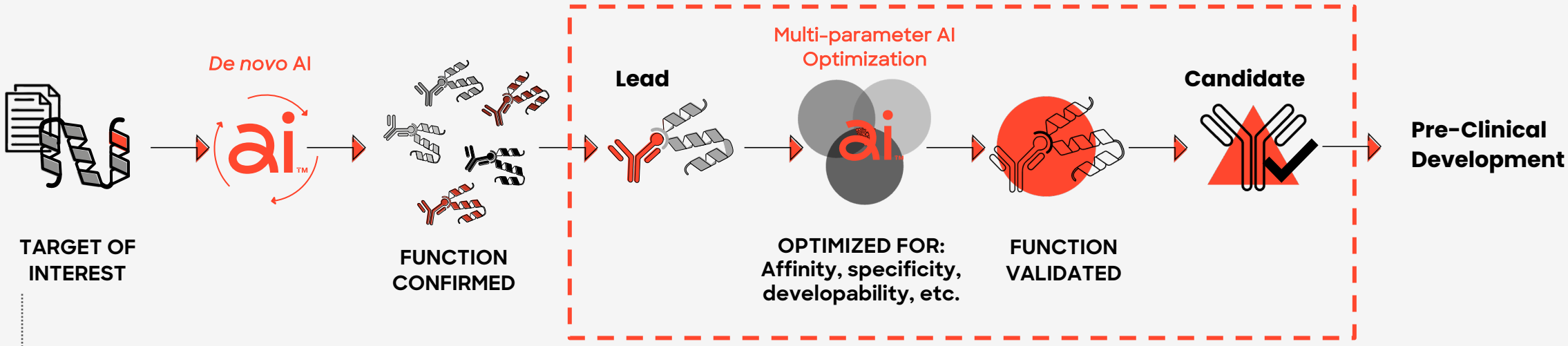
De novo antibodies designed by AI

AI-GUIDED LEAD OPTIMIZATION

Multi-parameteric optimized antibodies



Generative AI Drug Creation™ Workflow



Absci works with its partners to set the goals of partnership programs:

(1) Target antigen

(2) Target antigen epitope(s) if known OR global epitope landscaping to identify optimal epitope / MOA

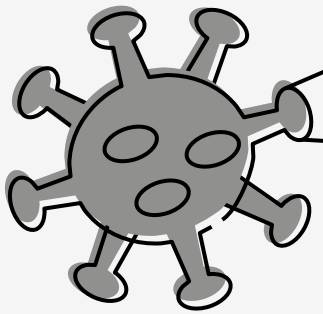
(3) Drug modality, e.g. mAb, bi-specific, fusion protein

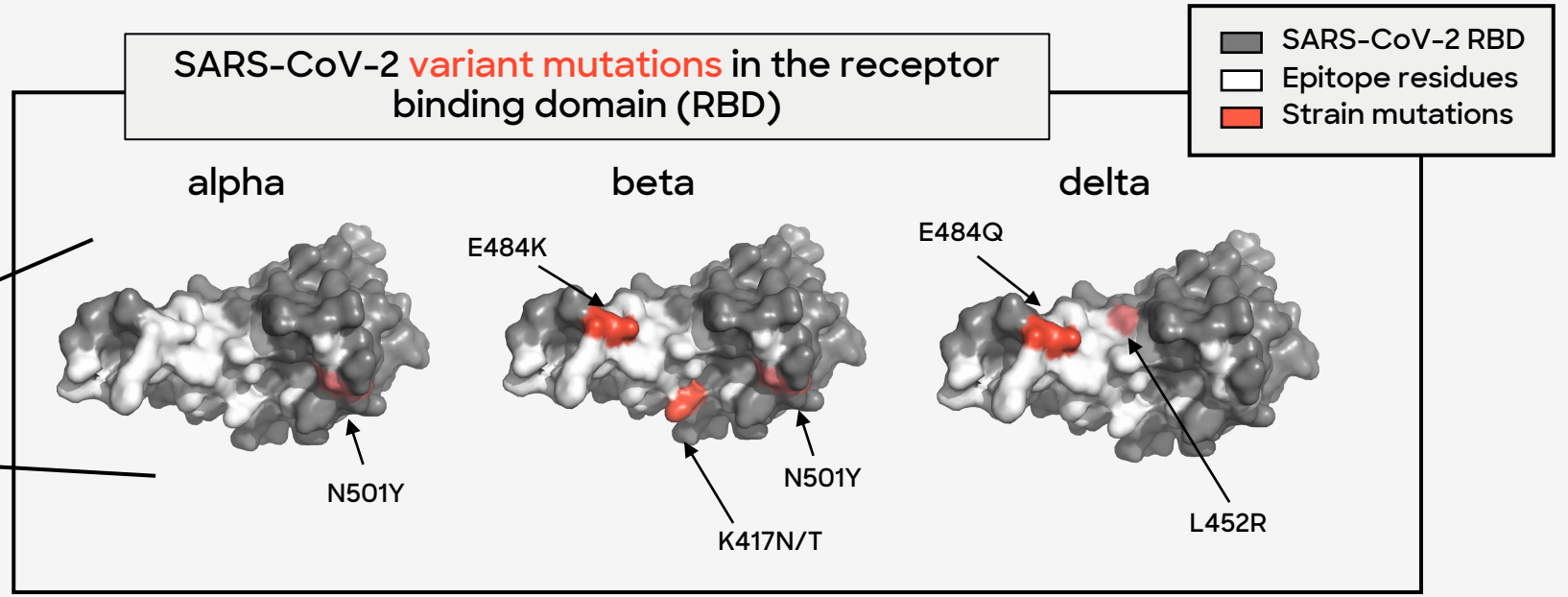
(4) Target TPP parameters

AI multi-valent co-optimization of a broad-spectrum SARS-CoV-2 antibody

Case study goals

Re-engineer clinically approved antibody for binding towards three SARS-CoV-2 variants





Improve binding towards beta without loss of binding towards alpha and delta

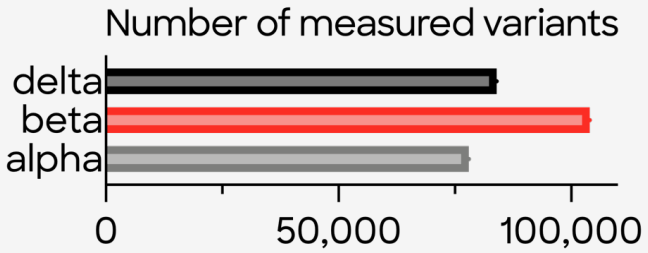
Fab	K_D (nM) WT RBD	alpha RBD	beta RBD	delta RBD
Parental Antibody	8.5	8.0	607	5.4

AI-GUIDED LEAD OPTIMIZATION

Absci's ACE Assay™ Platform Generates Large, High Quality Training Data Enabling in silico Affinity Predictions

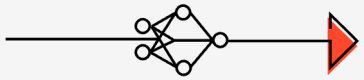
1

>75k ACE Assay™ data points per training set

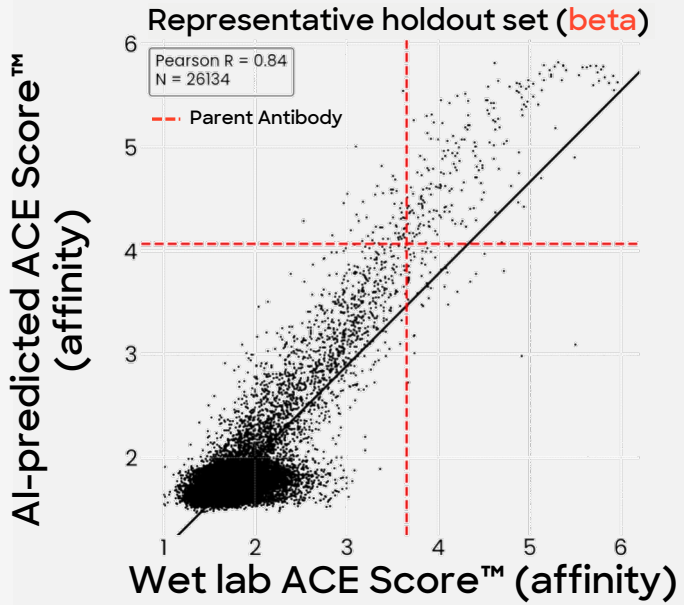


2

Model training



Hold out data sets demonstrate strong model performance following training with AI-predicted affinity correlating well with experimental measurements



Pearson R

alpha	beta	delta
0.75	0.84[1]	0.78

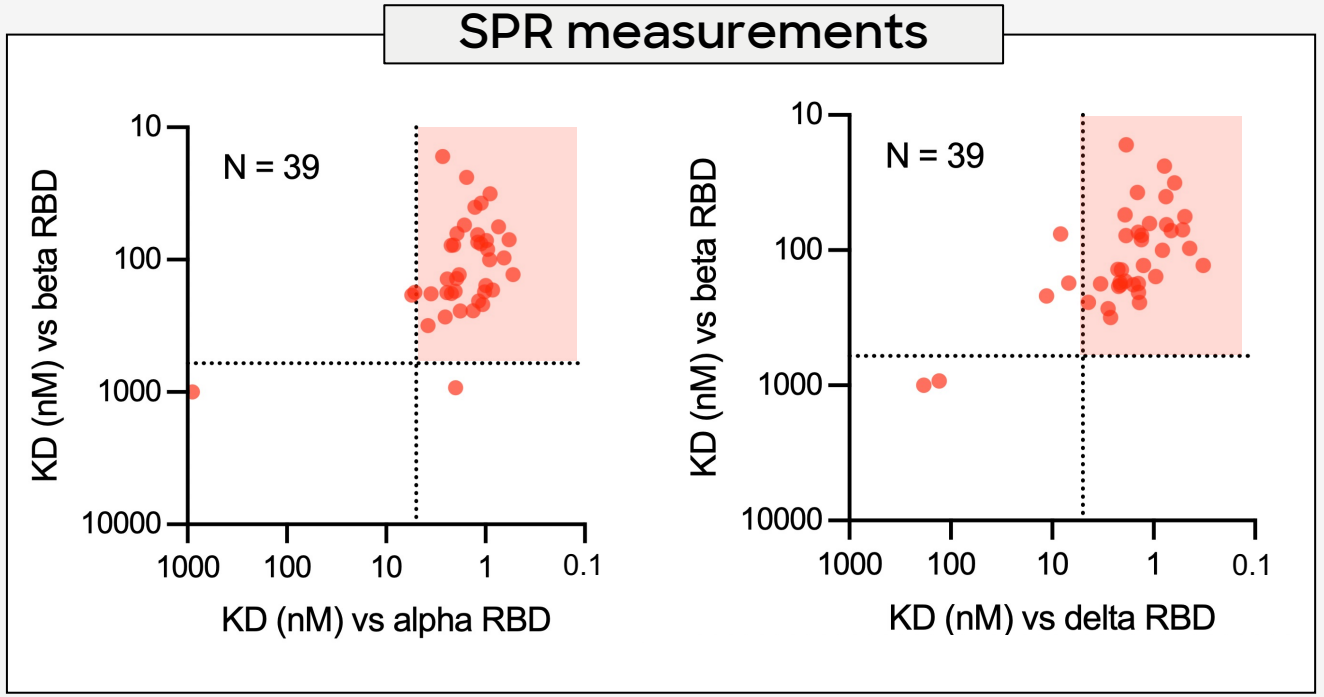
1 High correlation between ACE Score™ and SPR-measured -log10 KD values observed

AI Model Searches Mutational Space and Top Predictions are Validated

3

Binders predicted to have the best binding towards all three SARS-CoV-2 variants are assessed in the lab by SPR

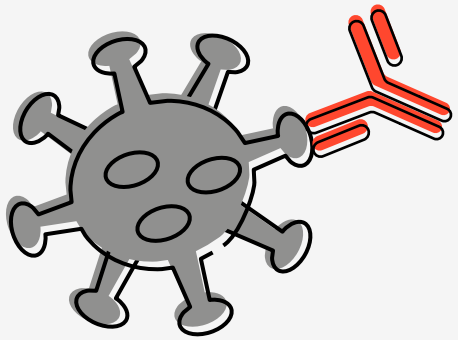
79% (31/39) of evaluated predictions exhibit higher binding affinity than parent antibody to alpha and beta and delta

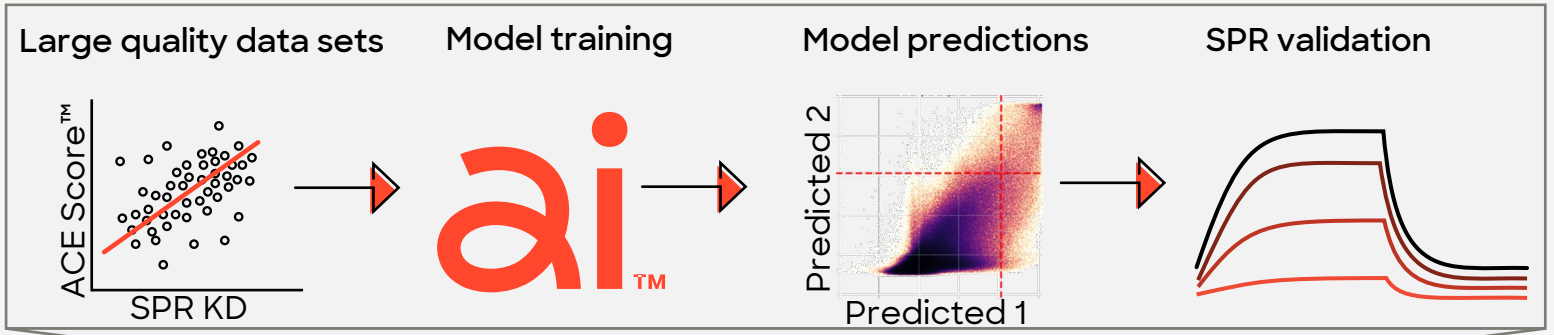


AI co-optimized binding to multiple SARS-CoV-2 variants

Case study outcome

AI-guided lead optimization platform delivers antibodies with improved binding towards all three desired variants



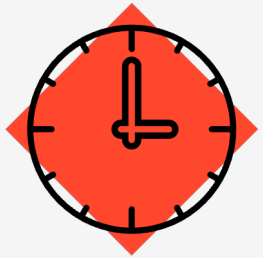


Fab	nM KD (fold improvement)		
	alpha RBD	beta RBD	delta RBD
Parental antibody	*8.0*	*607*	*5.4*
ABSCI001	*2.7 (3x)*	16 (37x)	1.9 (3x)
ABSCI002	1.5 (5x)	24 (25x)	0.8 (7x)
ABSCI003	0.9 (9x)	32 (19x)	0.6 (9x)
ABSCI004	1.1 (7x)	37 (16x)	1.4 (4x)
ABSCI005	1.3 (6x)	40 (15x)	0.8 (7x)

Novel AI-designed functionalities

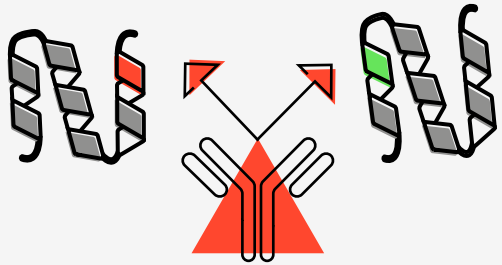
DE NOVO DESIGN & AI-GUIDED LEAD OPTIMIZATION FOR IMPROVED THERAPEUTIC FUNCTIONALITIES

Half-life extension



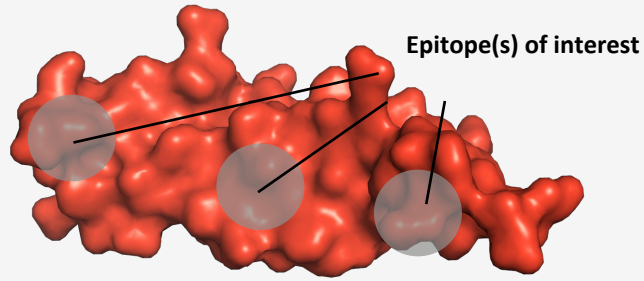
- **Extend half-life** through augmenting Fc-mediated recycling
- **Reduces dosing** intervals and lowers risk of C_{max} driven adverse events
- **Improves** pharmacokinetic profile

Multi-valency



- **Increased efficacy** by simultaneous binding to multiple desired isoforms
- **Broad spectrum antibodies** with simultaneous binding to multiple viral variants for infectious diseases
- **Cross-species binding** for improved success rates and speed

Epitope selection



- **Global landscaping** assess multiple epitopes of interest for the desired functionality
- **Local landscaping** evaluates a diverse set of interfaces of a specific epitope
- **Interface refinement** with lead optimization models for improved potency and / or developability

Target Discovery

Reverse Immunology platform unifies target and antibody discovery in a single workflow enabling potential “first-in-class” biotherapeutics

TARGET DISCOVERY WITH NOVEL APPROACHES

Reverse Immunology for target discovery

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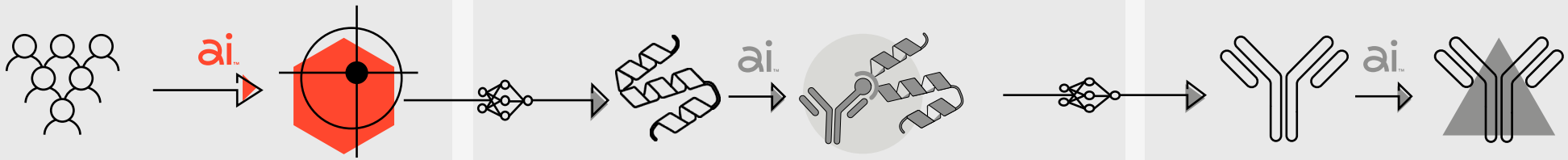
De novo antibodies designed by AI

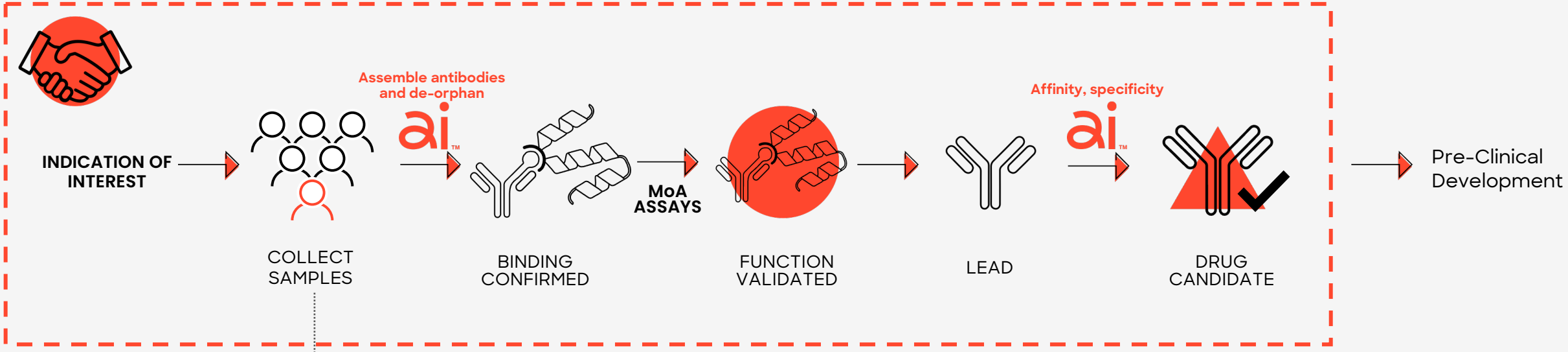
AI-GUIDED LEAD OPTIMIZATION

Multi-parameteric optimized antibodies



TARGET DISCOVERY

Reverse Immunology: Target and Antibody Discovery Simultaneously

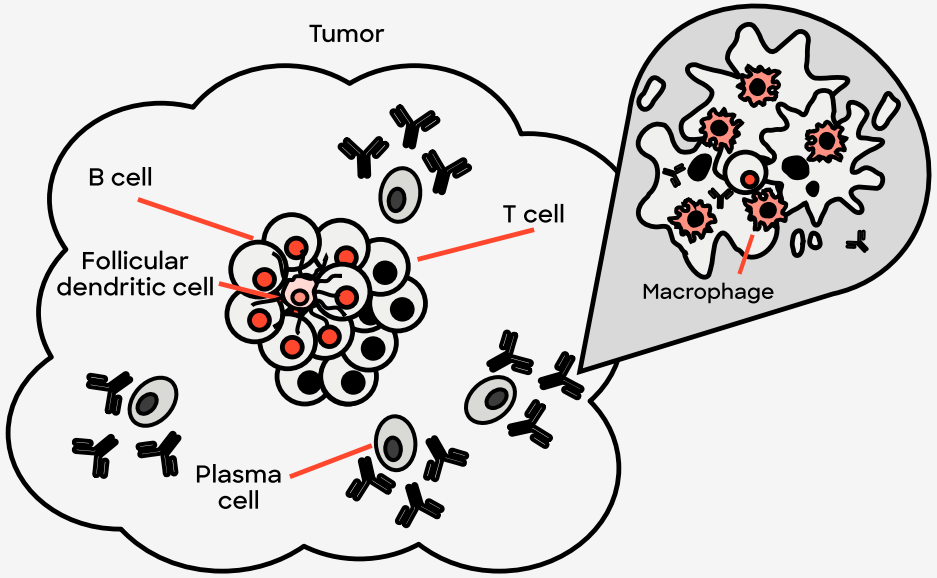


Absci partners with leading health institutions for patient samples:

- Aster Insights
- Avera Health
- Saint John's Cancer Institute
- University of Oxford, Kennedy Institute of Rheumatology

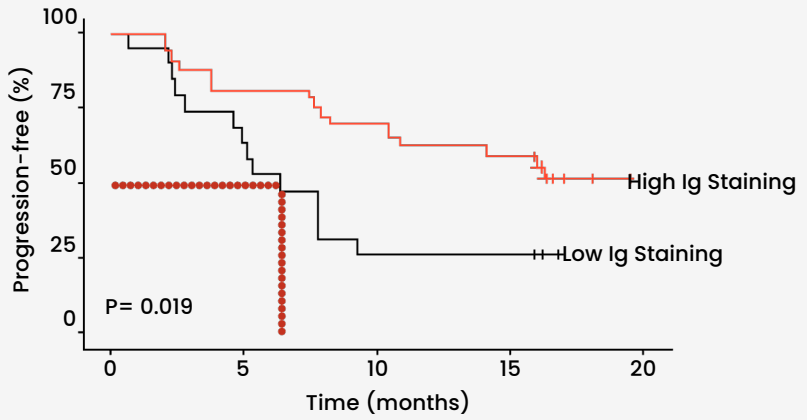
TARGET DISCOVERY

Tertiary lymphoid structures (TLS): the cornerstone of Absci's Reverse Immunology approach



TLS are centers of immune activity (B-cell proliferation and antibody production) that develop in chronically inflamed tissues [1].

Antibodies from TLS are specialized for local antigens and play a significant role in the progression of chronic diseases and cancer, setting them apart from the general population of antibodies in the peripheral blood [2].



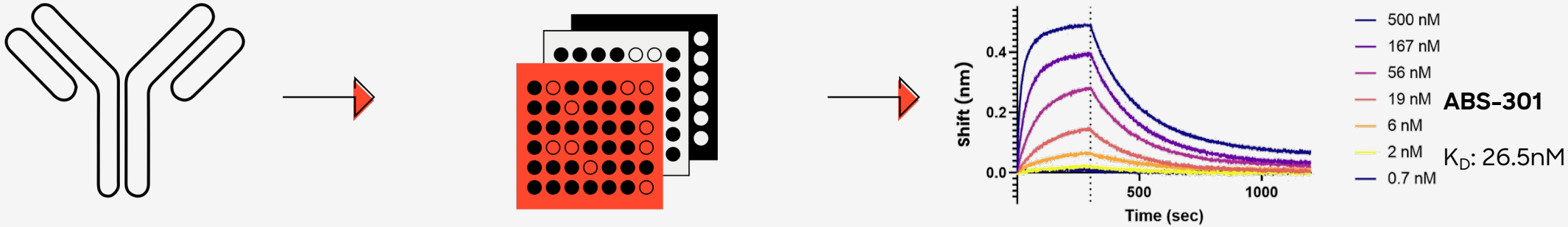
The presence of TLS is associated with longer progression-free survival and better response to immune checkpoint inhibitors [2,3].

- Rapidly growing evidence illustrates correlation between TLS-derived antibodies in the tumor microenvironment and positive clinical outcomes [2].
- TLS-derived antibodies have been shown to be associated with apoptosis of cancer cells in patients [2].

[1] Pipi *et al.* "Tertiary lymphoid structures: autoimmunity goes local." Frontiers in immunology (2018)
[2] Meylan *et al.* "Tertiary lymphoid structures generate and propagate anti-tumor antibody-producing plasma cells in renal cell cancer." Immunity (2022)
[3] Helmink *et al.* "B cells and tertiary lymphoid structures promote immunotherapy response." Nature (2020)

TARGET DISCOVERY: ABS-301

Identification of a Novel Immunomodulatory Antibody ABS-301



Computationally reconstructed antibodies from human TLS biopsies

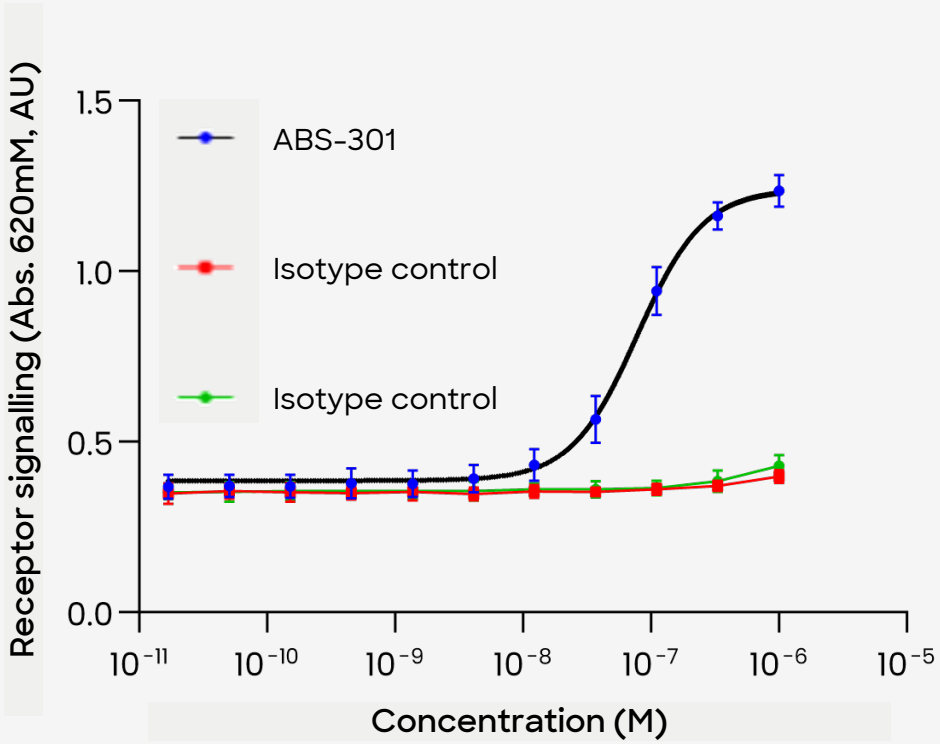
High-throughput proteomics screening technology covering the human proteome close to completeness

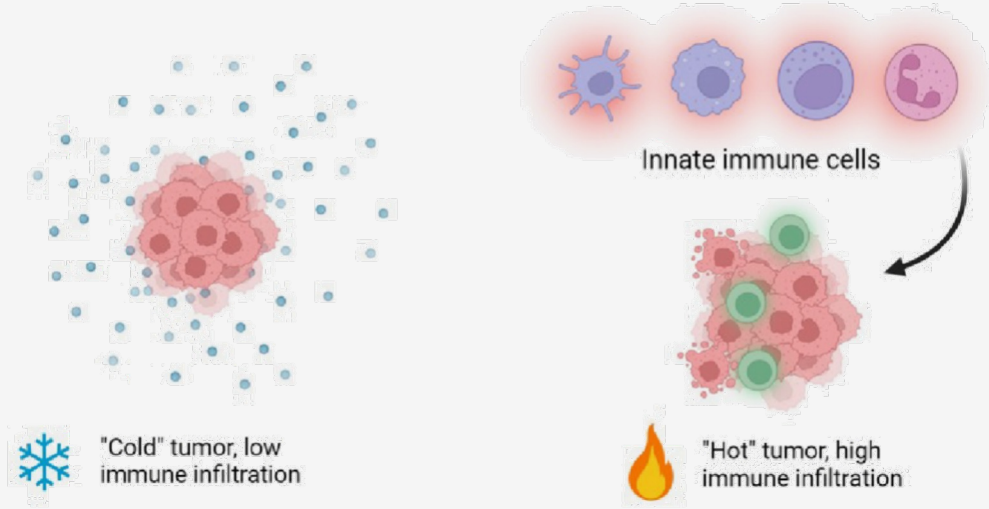
Biolayer interferometry validates potent and specific binding against a novel, undisclosed target

ABS-301: RECONSTRUCTED PATIENT-DERIVED ANTIBODY SHOWS HIGHLY SPECIFIC AND POTENT BINDING TO A NOVEL TARGET WITH POTENTIAL IN IMMUNO-ONCOLOGY.

ABS-301: Patient-derived Antibody Blocks a Novel Immunosuppressive Target

ABS-301 blocks a novel immunosuppressive target in human cells

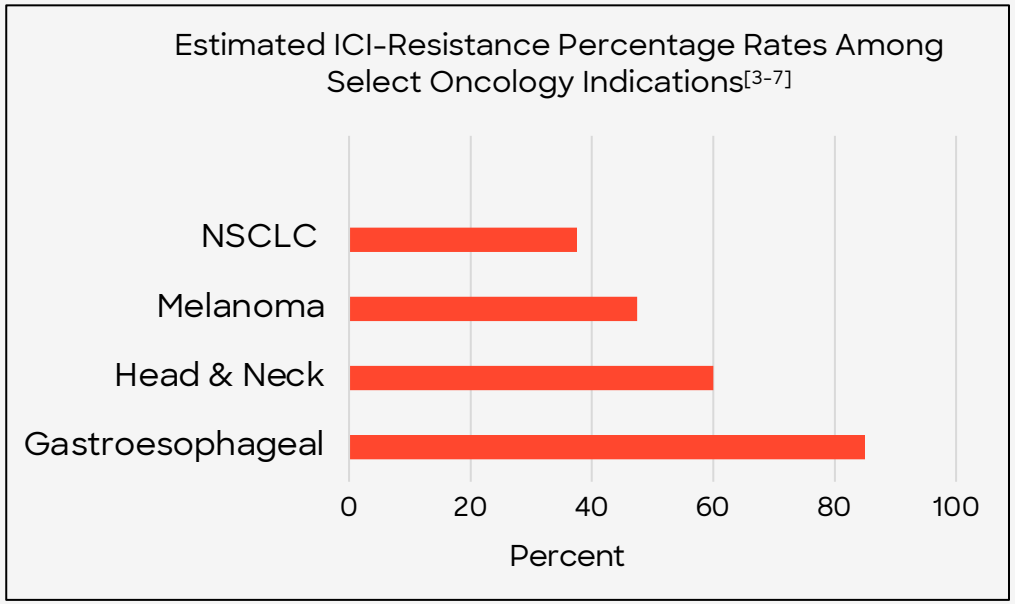




Hypothesis: Tumors upregulate ABS-301's target as an immune evasion strategy to limit immune infiltration. ABS-301 treatment in cancer may release immune suppression and permit immune cells to infiltrate the tumor, allowing for a robust anti-tumor response.

Preliminary evidence suggests that this immune escape mechanism might be independent of known immune checkpoints such as the PD1/PD-L1 axis.

ABS-301 has Broad Potential in Immuno-oncology



Comprehensive profiling of ABS-301's immuno-oncological potential in progress.

Indication	US Estimated New Cases in 2023 [1]	Estimated Global Therapeutics Market (2028)[2]
NSCLC	238K	$56B
Melanoma	98K	$14B
Head & Neck	54K	$5B
Gastroesophageal	48K	$3B

1. Siegel et al, CA, 2023, 73 (1), 17-48
2. Evaluate Pharma
3. Baxter et al, Br J Cancer 125, 1068–1079 (2021)
4. Lim, S.Y. et al, Nat Commun 14, 1516 (2023)
5. Zhou S et al, Front Immunol., 2023, 14:1129465
6. Huang Y et al, Cancers (Basel), 2023, 15(10):2733
7. Oualla K et al, Cancer Control, 2021, 10732748211004878

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