Adaptive biotechnologies™

Powering the Age of Immune Medicine

JPM 2022 Healthcare Conference

Safe Harbor

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T-cells taking center role in immunity to COVID-19

*"Our findings underscore the fact that we need to look at **T cells**, not just antibodies, if we want a **complete picture** of the vaccine response for those who have not had COVID-19 and for those who have recovered from the disease,"*
-E. John Wherry, PhD, Perelman School of Medicine at the University of Pennsylvania.

Immunity | JCI The Journal of Clinical Investigation | CellPress | medRxiv THE PREPRINT SERVER FOR HEALTH SCIENCES | nature immunology

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Comment | Published: 08 September 2021

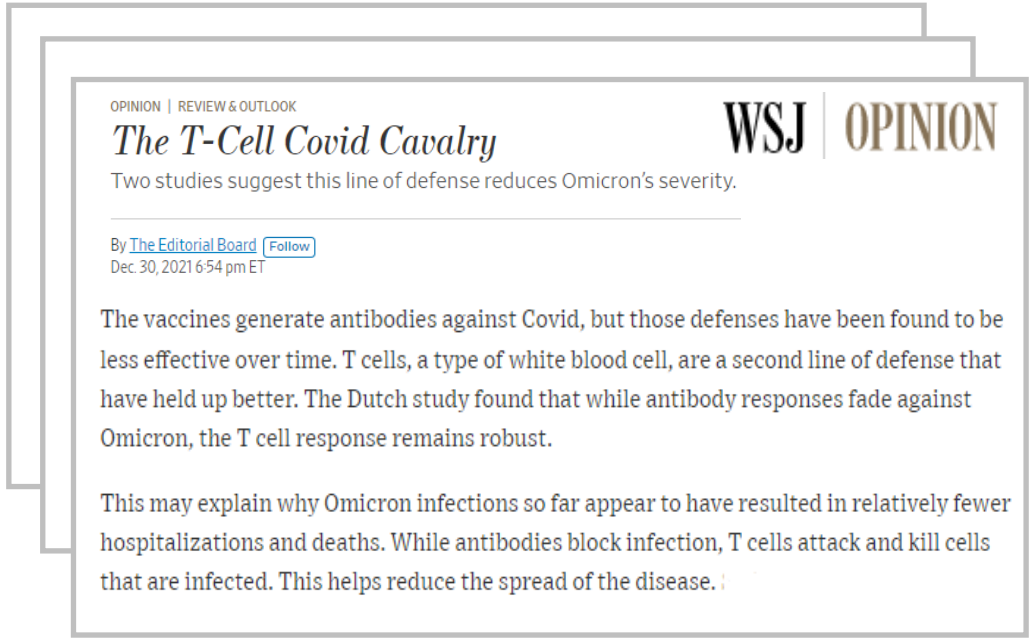
T cell-oriented strategies for controlling the COVID-19 pandemic

Ji Yun Noh, Hye Won Jeong, Jerome H. Kim & Eui-Cheol Shin

Nature Reviews Immunology **21**, 687–688 (2021) | Cite this article

15k Accesses | **2** Citations | **136** Altmetric | Metrics

NEWS | npr | CNN | Bloomberg | The Economist | REUTERS | The New York Times



OPINION | REVIEW & OUTLOOK

The T-Cell Covid Cavalry

WSJ | OPINION

Two studies suggest this line of defense reduces Omicron's severity.

By The Editorial Board Follow
Dec. 30, 2021 6:54 pm ET

The vaccines generate antibodies against Covid, but those defenses have been found to be less effective over time. T cells, a type of white blood cell, are a second line of defense that have held up better. The Dutch study found that while antibody responses fade against Omicron, the T cell response remains robust.

This may explain why Omicron infections so far appear to have resulted in relatively fewer hospitalizations and deaths. While antibodies block infection, T cells attack and kill cells that are infected. This helps reduce the spread of the disease.

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Key Catalysts 2022 -- Multiple levers to drive value

Immune Medicine

- **T-Detect COVID**: Enhance product profile (semi-quant data, correlate of protection)
- **T-Detect AI**: Increase sensitivity/specificity in MS, IBD, RA for market readiness
- **GNE collaboration**:
  - Advance lead shared candidate to development
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- **Nykode collaboration**: phase 1/2 data

MRD

- Obtain Medicare **coverage of DLBCL**
- Read-out data for use in **blood in MM/DLBCL**
- Expand adoption of MRD status as a co-/primary **clinical endpoint**

Using the immune system as the source-code for immune medicine

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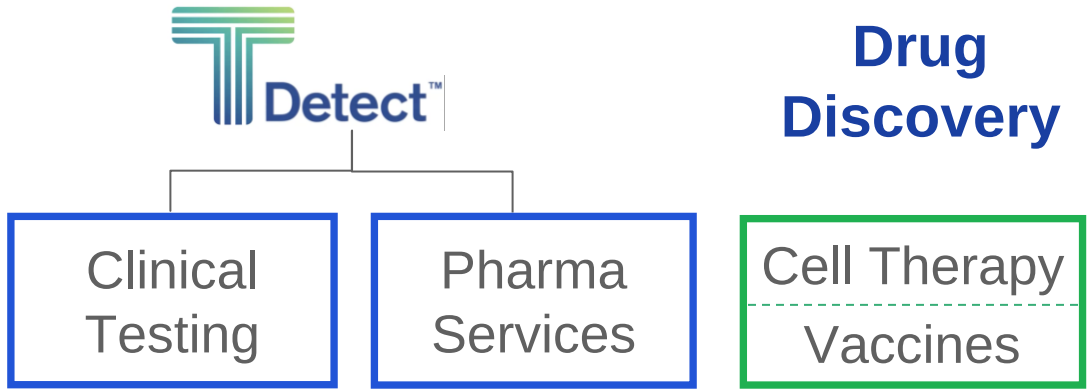
Business areas of focus

Immune Medicine

Driven by immune receptor data opportunities

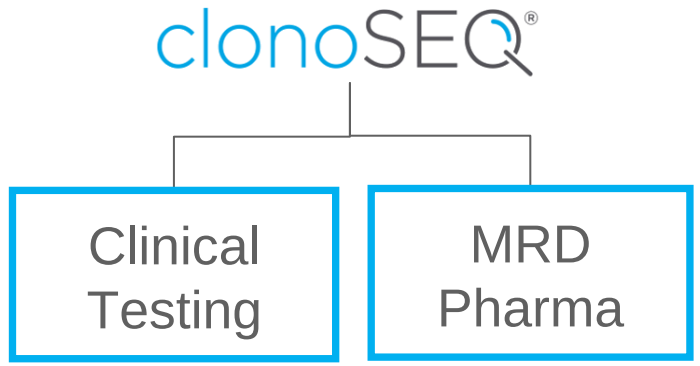
TAM ~$48B*



MRD

Driven by clonoSEQ/MRD assay applications

TAM ~$6B



* Illustrative TAM for 3 indications for T-Detect (one infectious disease, one autoimmune disease, one oncology) and drug discovery in cell therapy oncology

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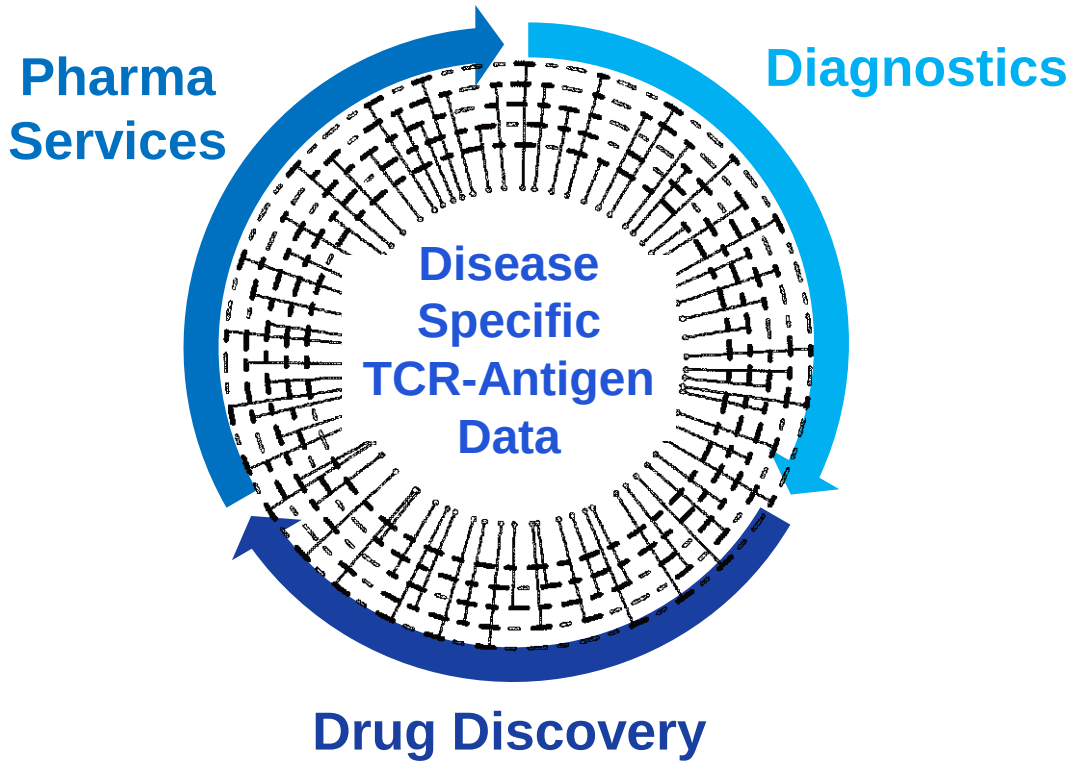
Immune Medicine

Unique ability to map & identify disease specific TCR sequences



Immune Medicine Strategy

Create multiple value opportunities stemming from the **same core disease data**

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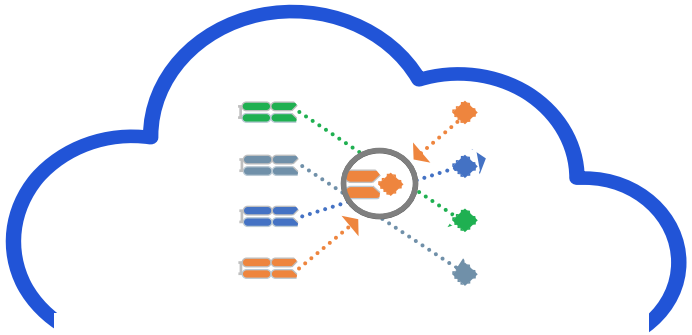
T-Detect

T-Detect: one blood test that reads T cells to diagnose many diseases

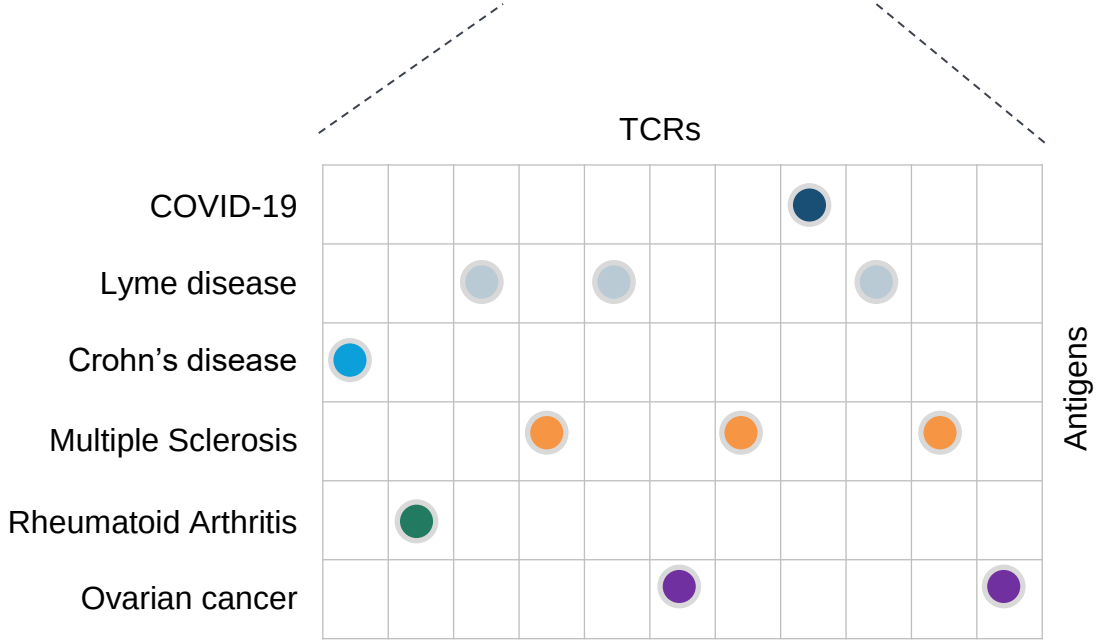
One Blood Sample



Scale TCR- Antigen Map

T-Detect™

T-Cell Based Diagnostic



Microsoft

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T-Detect most advanced indications

COVID

Only FDA authorized test

Medicare **coverage** for immunocompromised patients

AUTOIMMUNE

Clinical signals in **five** diseases

Crohn’s, colitis, celiac, MS, RA

LYME

Study **Completed**

Lyme season readiness

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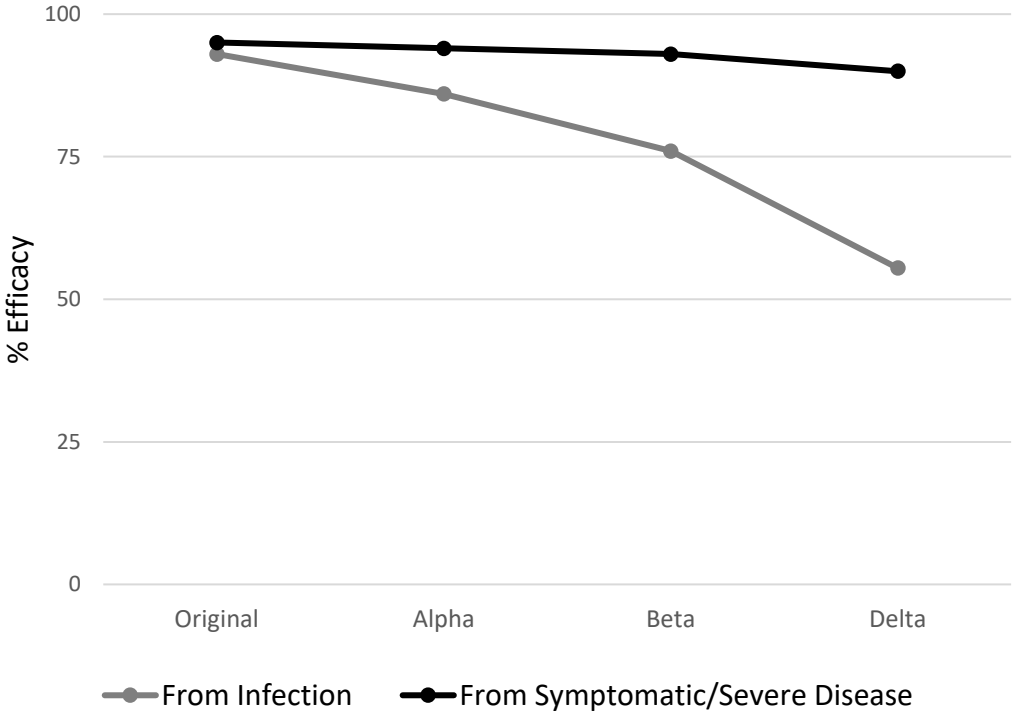
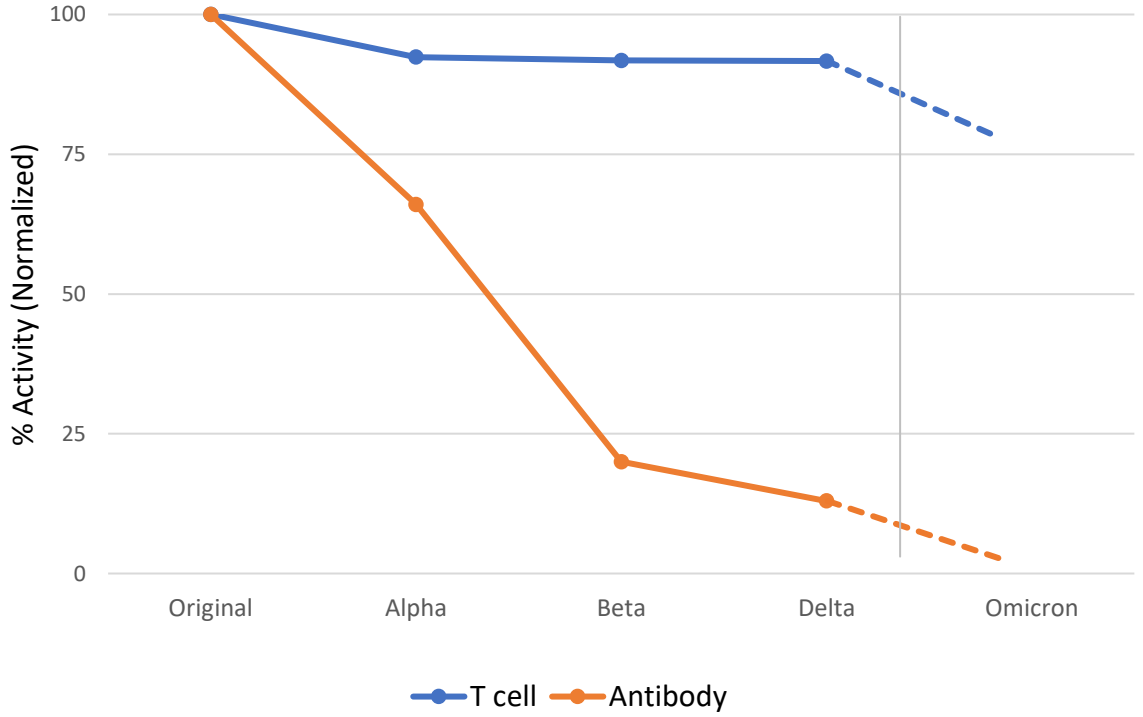
T-cells correlate with real world vaccine efficacy

Impact of Variants on Vaccine Response



Impact of Variants on Immune Response



Manuscript: “Omicron variant partially escapes the T-cell response induced by SARS-CoV-2 vaccines” Damon H. May, Benjamin Rubin, Sudeb C. Dalai, Krishna Patel, Shahin Shafiani, Rebecca Elyanow, Matthew T. Noakes, Thomas M. Snyder and Harlan S. Robins.
Adaptive Biotechnologies, Seattle, Washington, USA; Stanford University School of Medicine, Stanford, California, USA

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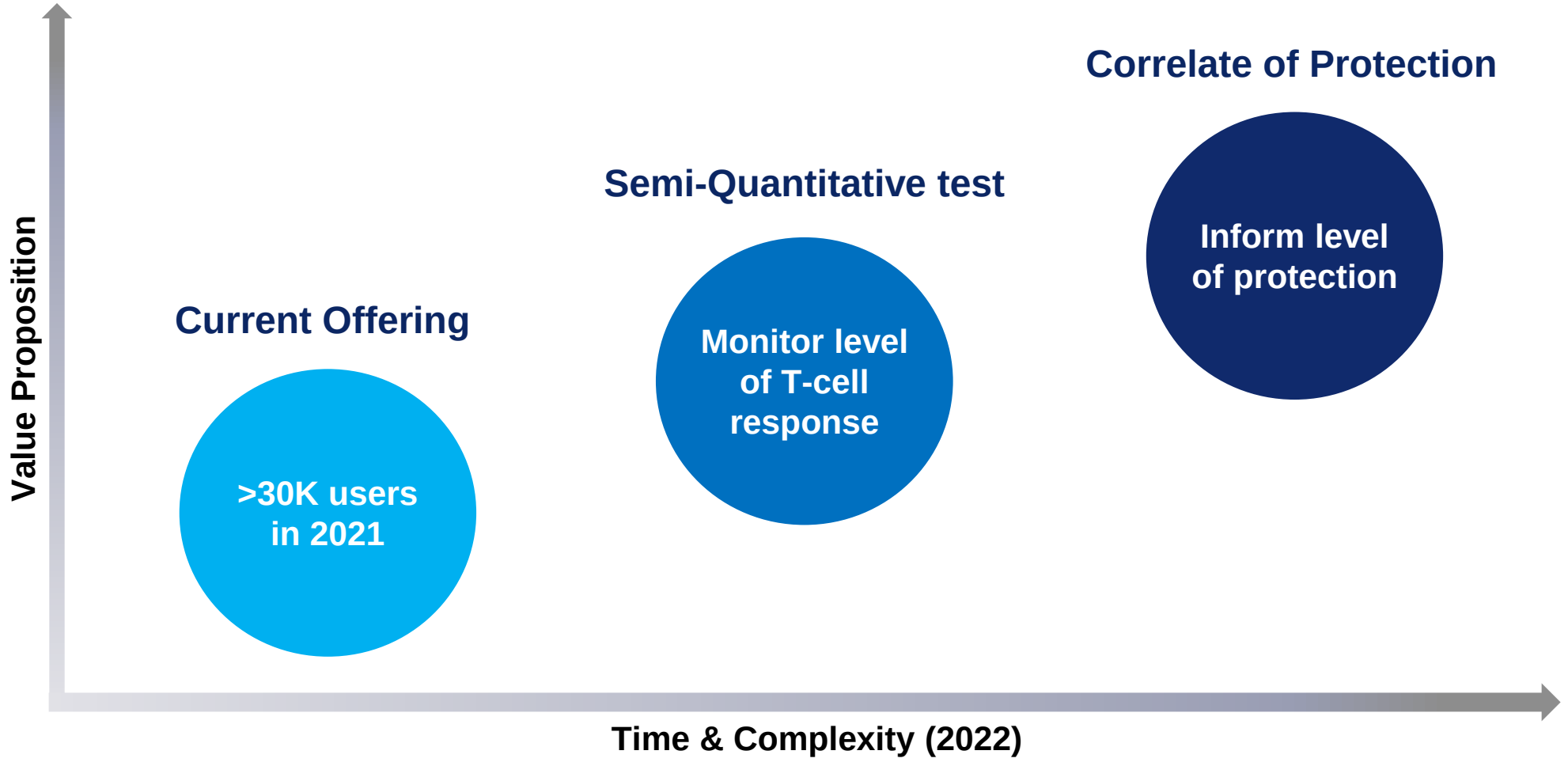
Increasing utility of T-Detect COVID



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Developing T-Detect Autoimmune: a multi-disease blood test

Why Autoimmune Disorders?

T- Cells

- Highly disease specific
- Mechanistic linkage

T-Detect

- Molecular, blood-based test
- FDA authorized for COVID-19
- Same technology for all indications

Advancing multiple signals in parallel

All indications at high specificity

Sensitivity	Signal	20-45%	45-70%	>70%
Ileal Crohn's	confirmed			✓
Colonic Crohn's	identified	✓		
Colitis	identified	✓		
Celiac	confirmed		✓	
MS	confirmed		✓	
RA	identified	✓		

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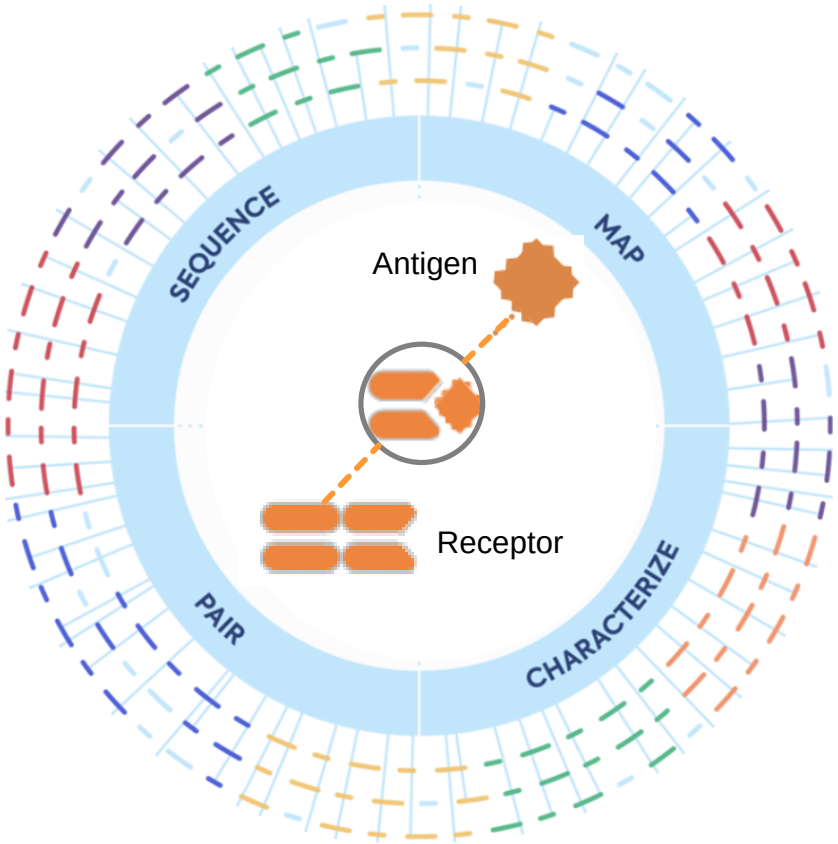
Drug Discovery

Using the immune system to develop differentiated therapeutics

IMMUNE MEDICINE PLATFORM → **3 DRUG MODALITIES** → **THERAPEUTICS**



- **T-cell Therapeutics**
- **T-cell based Vaccines**
- **Antibodies**

Drug Discovery

Novel targets and targeting molecules

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Robust Drug Discovery pipeline

MRD

Our MRD Heme business: synergistic value of pharma and clinical diagnostic

- **FDA cleared** in MM, ALL (BM*) and CLL (BM*, blood)
- **Broad coverage:** >240M lives
- **Widely adopted:** Clinical use in all 31 NCCN centers

clonoSEQ®
Clinical Testing

- Pharma supports lifecycle expansion which drives clinical use
- Clinical usage drives inclusion as an endpoint in pharma trials

MRD
Pharma Trials

- **Broad use** among major pharma in heme cancer trials
- Adopted by >40 biopharma companies
- >$330M in future regulatory milestones

* Bone marrow (BM)

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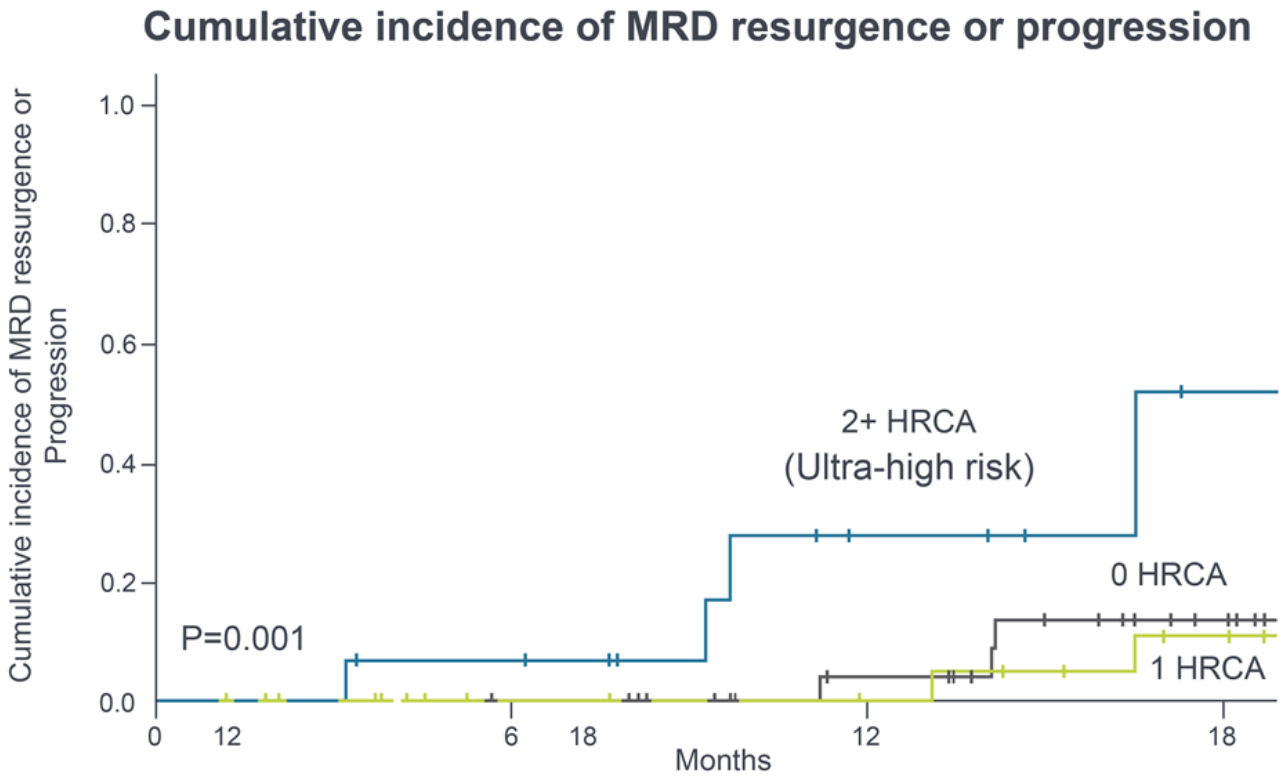
MRD has evolved into an essential clinical decision-making tool

Assess response to therapy

Escalate/de-escalate therapy

Detect relapse early

MASTER trial



96% of patients who stopped treatment after two clonoSEQ MRD negative tests did not progress

Presented at ASH 2021: *"Daratumumab, Carfilzomib, Lenalidomide and Dexamethasone (Dara-KRd), Autologous Transplantation and MRD Response-Adapted Consolidation and Treatment Cessation. Final Primary Endpoint Analysis of the Master Trial"*

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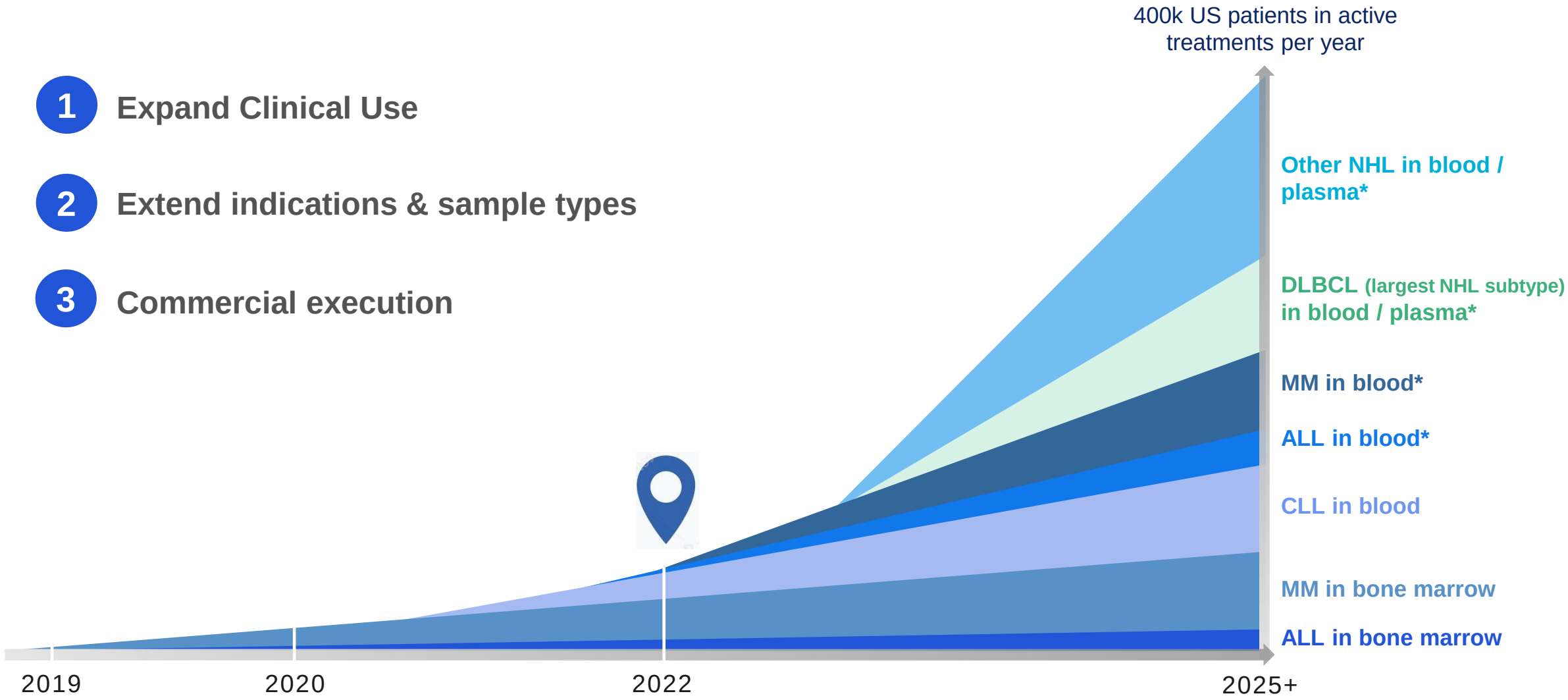
MRD business growth drivers

1. **Expand Clinical Use**
2. **Extend indications & sample types**
3. **Commercial execution**



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Thank You.