Adaptive Biotechnologies Immune Medicine Platform

The adaptive immune system both detects AND treats most diseases—including cancer, infectious disease, and autoimmune disorders—in the exact same way. At Adaptive, we believe this represents one of the largest, relatively untapped opportunities in modern medicine.

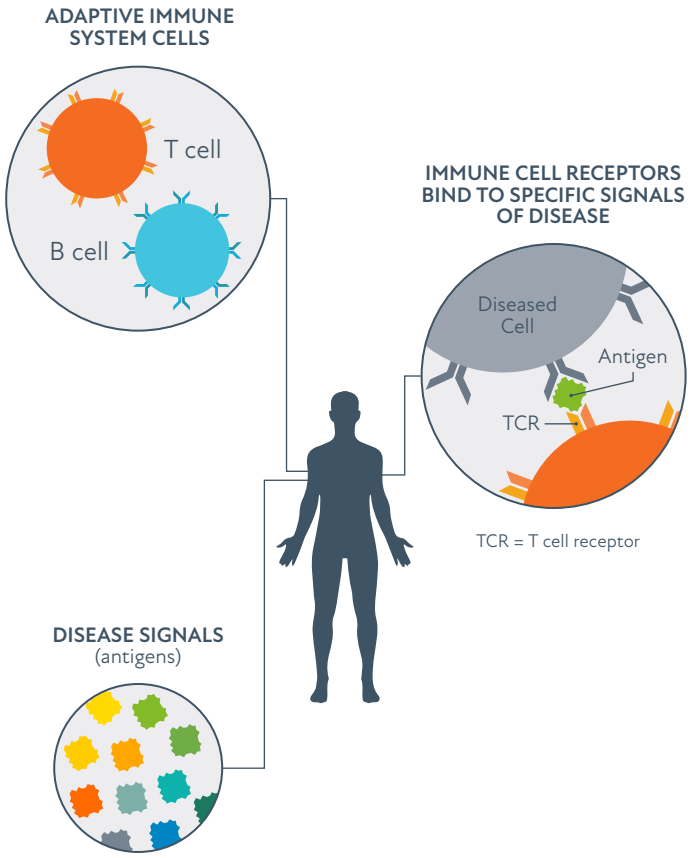
About the Adaptive Immune System

The adaptive immune system is nature's most finely-tuned diagnostic and therapeutic.

Specialized cells of the adaptive immune system—T cells and B cells—that each have receptors on their cell surface called TCRs or BCRs act as scanners. Each receptor has a unique genetic code and binds to a specific signal of disease, or antigen.

When you have a match between the receptor and the antigen, the immune response begins. The same receptor that detects the disease springs into action and treats the disease. The receptor that starts as a natural diagnostic then becomes a natural therapeutic to clear the disease.

After the disease is cleared, some of these T and B cells remain, so that the next time the body sees the same target, they are ready to respond more quickly.



30K GENES HUMAN GENOME

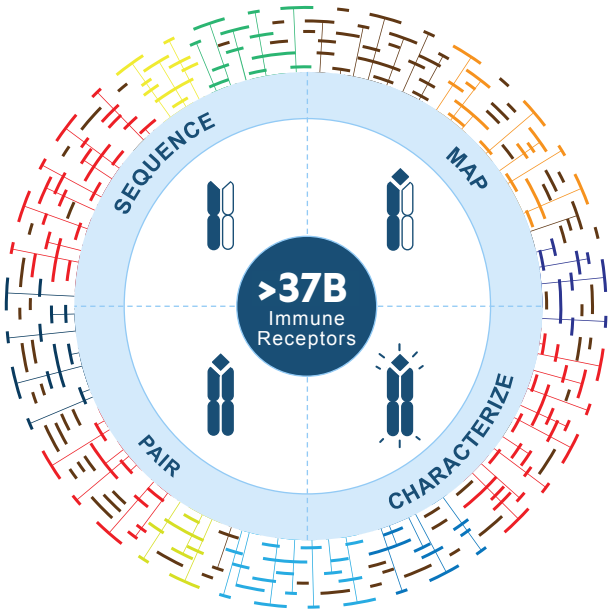
>100M GENES ADAPTIVE IMMUNE REPERTOIRE

The adaptive immune system is actually orders of magnitude larger than the human genome because our immune cells must be massively diverse and dynamic to protect us from millions of different signals of disease, called antigens.

To give a sense of scale in a healthy adult alone, there are over 100M genes in our immune repertoire versus only an estimated 30K genes in the genome we are born with.

Adaptive's Immune Medicine Platform

Our immune medicine platform was developed to decode and translate the massive amount of genetic data stored in our T and B cells. Applying our proprietary technologies, computational biology, software and machine learning, our immune medicine platform is designed to read the diverse genetic code of a patient's immune system and understand precisely how it detects and treats disease in that patient. Our platform can accurately decipher the massive genetic code of the adaptive immune system with the scale, precision and speed necessary to develop clinical diagnostics and therapeutics.



Technologies Underpinning Our Immune Medicine Platform

SEQUENCE
Quantifying TCRs & BCRs

immunoSEQ®⁺ sequences a single chain of Y-shaped B cell receptors (BCRs) or T cell receptors (TCRs) using next-generation sequencing (NGS) to count and profile most of a person's immune cell receptors in a sample.

MAP
Mapping TCRs to antigens

MIRA⁺ (Multiplexed Identification of T cell Receptor Antigen Specificity) maps billions of TCRs to millions of clinically relevant antigens. Combined with immunoSEQ⁺, it can identify potential diseases a patient's immune system has seen or is actively fighting.

PAIR
Pairing receptor chains

pairSEQ®⁺ builds on immunoSEQ and MIRA⁺ by using a combinatorial strategy to accurately pair the alpha and beta chains of T cell receptors at high-throughput, which is challenging to do at scale using other methods because the two chains of the Y-shaped receptors are located on different chromosomes.

CHARACTERIZE
Identifying optimal therapeutic TCRs

TruTCR®⁺° characterizes binding, cytotoxicity, and safety properties of antigen-specific, paired TCRs to identify a subset that is therapeutic-grade. Together with pairSEQ⁺ it enables the discovery and development of optimal clinical candidates to be engineered into TCR-mediated cellular therapies.

Clinical Portfolio and Pipeline

DIAGNOSTIC PRODUCT PLAN	SIGNAL DISCOVERY	CLINICAL VALIDATION	FDA SUBMISSION	FDA CLEARANCE	REIMBURSEMENT
Monitor MRD: clonoSEQ®°	Multiple Myeloma			✓	
	Acute Lymphoblastic Leukemia			✓	
	Chronic Lympohcytic Leukemia				
	Non-Hodgkin's Lymphoma (Subtypes)				
Early Detection: immunoSEQ Dx	Ovarian Cancer				
	Celiac Disease				
	Lyme Disease				

DRUG DISCOVERY PRODUCT PLAN	EARLY DEVELOPMENT	IND SUBMISSION	CLINICAL DEVELOPMENT
TCR-Base Cell Therapies*	1st Shared		
	2nd Shared		
	Personalized		

⁺ For Research Use Only. Not for use in diagnostic procedures.
° For Investigational Use Only.
° The clonoSEQ Assay is FDA-cleared for use in B cell acute lymphoblastic leukemia and multiple myeloma patients to detect and monitor minimal residual disease (MRD) in bone marrow samples. clonoSEQ is also available for use in other lymphoid cancers as an LDT. For important information about the FDA-cleared uses of clonoSEQ, including test limitations, visit clonoseq.com/technical-summary
* Product candidates in development as part of our worldwide collaboration and license agreement with Genentech. The "1st Shared" and "2nd Shared" product candidates refer to the two lead clinical product candidates selected from our library of TCRs that target cancer antigens present in many cancer patients. Genentech will determine the timing of discussions with, and submissions to, the FDA.

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Adaptive biotechnologies®