

COFACTOR
genomics

**COMPANY OVERVIEW
AND HIGHLIGHTS**

TOR
THE LEADERS IN RNA

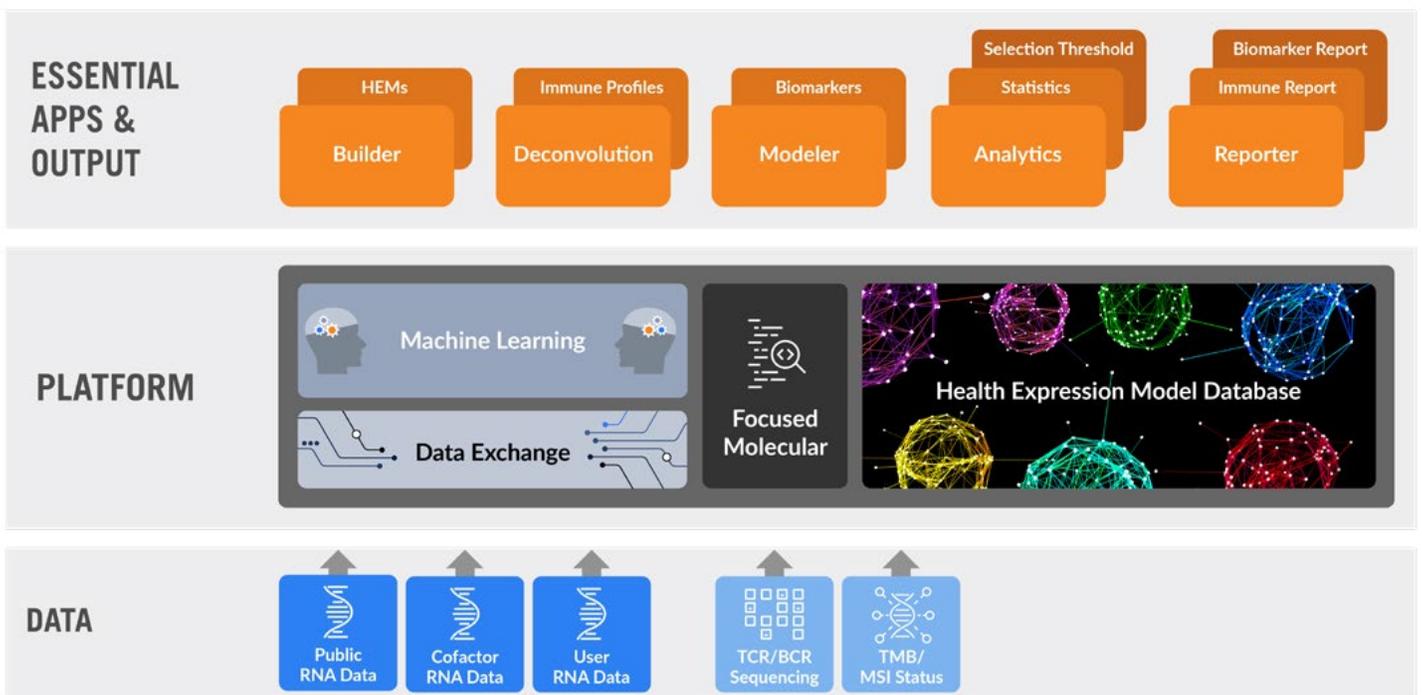
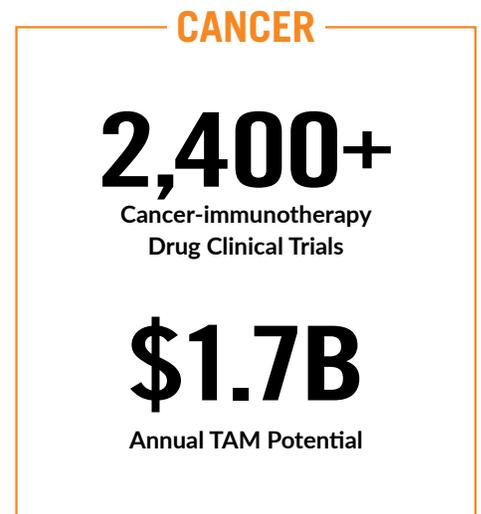


Who is Cofactor?

According to the National Cancer Institute (NCI), 50% of the world's population will have cancer, and 25% will die from it. Cofactor Genomics is on a mission to change those statistics. Precision Medicine ensures the right patient receives the right treatment at the right time. Nowhere is precision medicine more active than in the field of cancer immunotherapy, with more than 2,400 drugs and combination therapies in clinical trials.

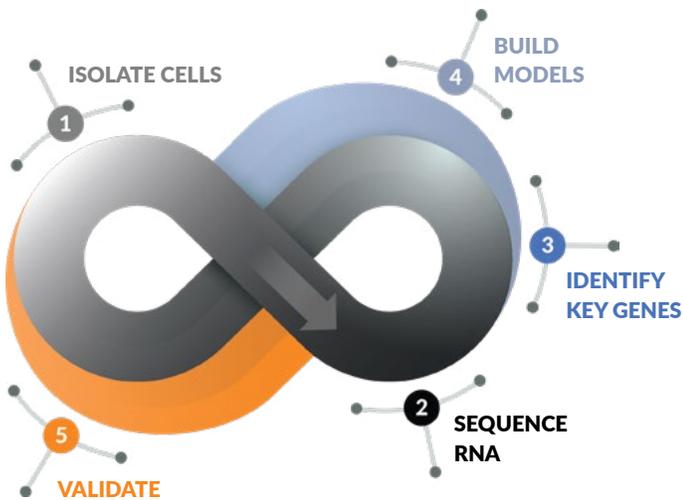
Even with so many breakthroughs, we still see a poor response; in some cases, less than 20% of patients respond to these therapies. The reason is the industry's reliance on imperfect, single-analyte biomarkers, often using antiquated methods to match patients to therapies. Our team of 20-year veterans in genomics, knowing the inherent limitations of DNA and proteins, instead are using the power of RNA to build the technologies, data assets, distribution and regulatory frameworks to enable more predictive multidimensional biomarkers. Through these efforts, Cofactor has established themselves as the "Leaders in RNA", and are demonstrating that RNA-based technologies are key to realizing the promise of precision medicine.

Driven by clinical and market data, we are prioritizing a list of key cancer subtypes that address the highest unmet clinical need, with a \$1.7B annual TAM to be captured as we demonstrate utility and gain adoption.



Powered by Health Expression Models

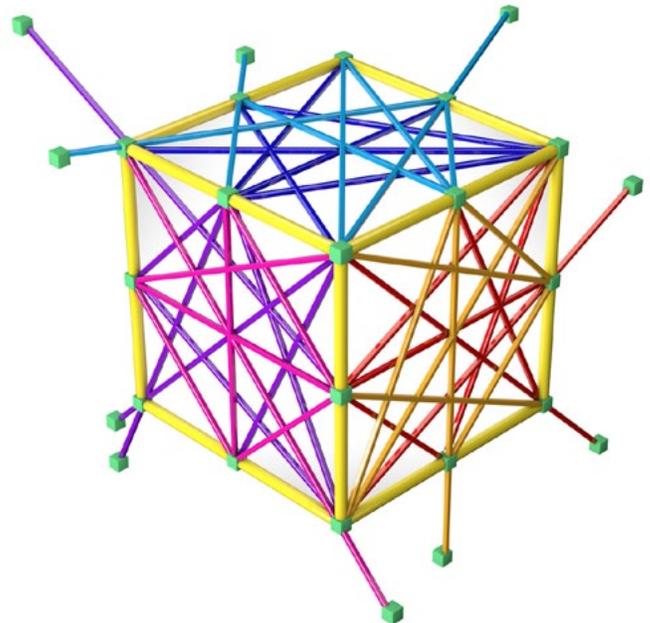
Cofactor has invested over \$10M over the past decade to build the world's largest database of [Health Expression Models](#). We've leveraged the power of machine learning and RNA-seq, utilizing 2 trillion data points from over 10,000 patient samples to build these models that capture multiple facets of complex biological systems. With our current clinical focus on immune-oncology, the database contains models of key immune cells known to play a role in immune-oncology. However, this approach can be expanded to generate Health Expression Models for other cell types, patient cohorts, cancer (sub)types, and treatment response. Our Health Expression Models have shown increased sensitivity and specificity in detecting cells in the tumor microenvironment of solid tumors, even while requiring less precious patient material. The data assets generated through this R&D investment are a key value proposition for Cofactor's clients and investors.



- 1 Isolate Cells:** We isolate key immune cell types according to canonical flow cytometry markers or in vitro stimuli
- 2 Sequence RNA:** We start with whole transcriptome sequencing to obtain a global view
- 3 Identify Key Genes:** Using machine-learning, we identify key signals/transcripts that make each immune cell unique
- 4 Build Models:** These models account for dynamic expression of the unique gene expression signals
- 5 Validate:** Cofactor benchmarks models against orthogonal technologies and tools

Multidimensional Biomarkers

Improved immune profiling alone does not provide the predictive power required to address the challenge of precision medicine. That is why Cofactor developed a complete solution for multidimensional biomarker discovery that employs Predictive Immune Modeling. Cofactor's ImmunoPrism Assay captures the full picture of the immune response with an RNA-based approach that measures many biomolecules and cell types in one assay. Generating multidimensional biomarkers that help clinicians, researchers, and pharma teams predict patients' responses to therapies enables faster, more cost effective, and more successful outcomes for clinical trials and most importantly for patients.

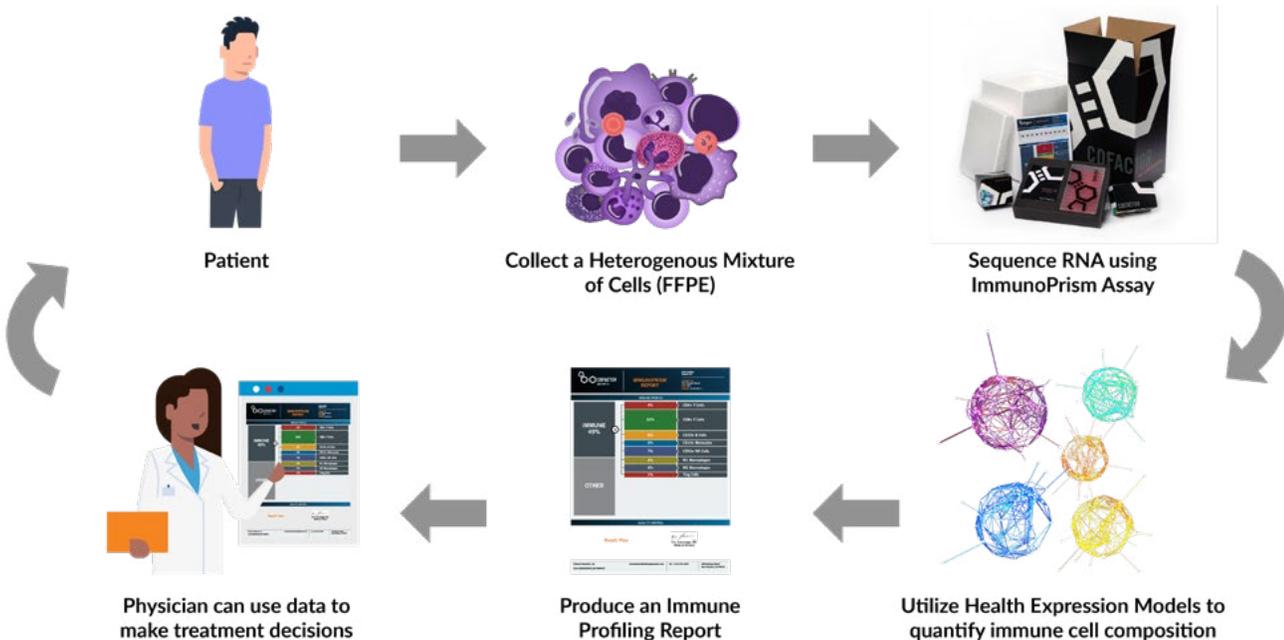


What We Do

Everyone is talking about “big data”. At Cofactor, we believe there is a sweet spot of information, a balance where we can capture the complexity of biology and distill it into something interpretable and meaningful. This mantra has motivated years of Cofactor’s work in RNA. Our advancements enabled us to build a database of Health Expression Models, which provide unprecedented accuracy and sensitivity for immune profiling in our ImmunoPrism Assay. Offered as a service in our laboratory, as a reagent kit for purchase, and available through key partnerships with Contract Research Organizations, ImmunoPrism empowers our pharma partners and clinical collaborators to better characterize immune response at the site of the tumor. Cofactor is dedicated to improving patient care by investing in clinical studies to demonstrate that Predictive Immune Modeling can generate the most powerful multidimensional biomarkers that the industry has ever seen.

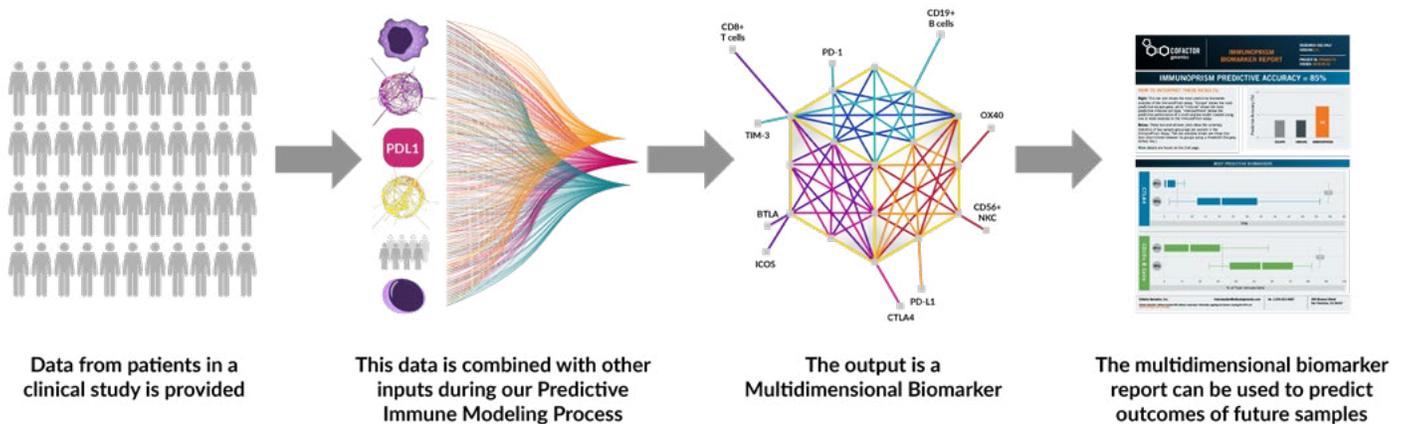
Use 1: Individual Immune Profile

Gain powerful insights to inform treatment decisions for cancer patients.



Use 2: Diagnostic for Drug Development

Use clinical data in our platform to generate a multidimensional biomarker with higher predictive accuracy.



Milestones

EXPAND

Look beyond cancer to other immune-related diseases; Build additional models of cell-states, disease-states, therapies, etc.

PARTNER

Exploratory KOL clinical-use studies; Large CRO Partnership and Certified Service Provider

BUILD

Built first database of immune Health Expression Models (iHEMs) and Predictive Immune Modeling platform

VALIDATE

Validated reagent kit and software tools with CAP/CLIA accreditation; Transition manufacturing to GMP status

PUBLISH

Peer-reviewed publications addressing analytical validity, clinical validity and clinical utility; Prepare Reimbursement Dossier for Disease-Specific Diagnostic



The Office

The team makes time for regular team-building activities and meals together.

Since October 2017, the number of employees working in San Francisco tripled, and our small live/work space became problematic. Our new office has two conference rooms, beautiful natural light, and can accommodate sixteen employees easily. It is in an ideal location near the coveted South Park neighborhood where tech companies like Dropbox are located.

Team & Board of Directors



Armen Vidan
Data Collective (DCVC)*

Armen brings the perspective of an entrepreneur and startup co-founder, a product marketer at Fortune 500 healthcare companies, and an investor, with expertise spanning across medical devices, pharmaceuticals, insurance, and compute-driven startups in healthcare.



John Kuelper
Ascension Ventures*

John joined Ascension in 2014 as a Kauffman Fellow, a highly sought-after program dedicated to educating global leaders in venture capital. John has advised investment firms, medical technology companies, as well as non-profits.



Bill Hagstrom
Octave Bioscience*

Bill is the Founder and CEO of Octave Bioscience. He has more than thirty years of executive and board-level experience in healthcare and diagnostic sectors including product development, operations infrastructure, and commercial strategy.



Mark Siegel
Menlo Ventures*

Mark is passionate about creating opportunities for products and services that improve peoples' lives and create enormous markets, including in one of his focus areas: computational biotech.



Jarret Glasscock, CEO*
20 years leading RNA-based Genomic Research. 10 years on the Human Genome Project. PhD in Computational Biology.



Jon Armstrong, CSO*
18 years developing DNA/RNA sequencing technologies and applications. 9 years Technology Development at Washington University Genome Institute. Developed molecular kits to run on Illumina/Solexa Serial #1.



David Messina, COO*
20 years in Genomics. Masters in Genetics, PhD in Computational Biology. Led Cofactor's CAP-CLIA accreditation team.



Natalie LaFranzo, VP of Market Development
Broad commercial background spanning sales, marketing, product development and management of genomics assays and reference materials.



Steven Daniel, VP of Business Development
Breadth of experience in the area of immune-related technologies, with 5 issued patents and over 23 years of biotechnology and genomics industry experience, including clinical genomics.



Dr. Eric Duncavage, Medical Director
Board certified Clinical Diagnostic Pathologist, co-directs clinical assay development at the Washington University, member of the clinical laboratory standards institute (CLSI).



*denotes member of Cofactor's Board



Cofactor in the News

[\[Cofactor Joins FNIH Biomarkers Consortium to Add Predictive Immune Modeling Expertise as New Resource for Multidimensional Biomarker Discovery\]](#)

Working alongside the Foundation NIH (FNIH), NIH and FDA with the goal of advancing the adoption of multidimensional biomarkers in cancer and immune-related diseases.

[\[We Have the Tools to Advance Precision Medicine, Why Aren't We Using Them?\]](#)

The Cofactor team is highlighted in the April 2019 Clinical OMICs edition including a Q&A with CEO, Jarret Glasscock, and an article written by COO, Dave Messina, titled, "We Have the Tools to Advance Precision Medicine, Why Aren't We Using Them?"

[\[Cofactor Genomics to Present on Predictive Immune Modeling at 2019 American Association for Cancer Research Annual Meeting\]](#)

The presentation featured Predictive Immune Modeling and multidimensional biomarker data generated in collaboration with TriStar Technology Group, a leading provider of archived human bio specimens and related research services offering highly-characterized and well-curated donor samples with extensive clinical follow-up data.

[\[Cofactor Genomics opens \\$100,000 Predictive Immune Modeling Grant Program for Biomarker Discovery\]](#)

Cofactor Genomics, pioneers in the field of Predictive Immune Modeling, announced a \$100,000 grant program to reward innovations with the Cofactor ImmunoPrism™ Assay. The program was unveiled at the 2019 Immuno-Oncology 360° Conference in New York.

[\[Solid Tumor Immune Profiling for Genocea Biosciences\]](#)

We announced a pilot study to evaluate use of Cofactor's ImmunoPrism assay in Genocea Biosciences' Phase 1/2a clinical trial testing the safety and efficacy of its lead personalized cancer vaccine candidate, GEN-009, in adult cancer patients with a variety of solid tumors.

[\[Cofactor Genomics Announces Clinical Validation of its Tumor Immune-Profiling Assay, ImmunoPrism™\]](#)

CAP/CLIA validation of ImmunoPrism™ furthers Cofactor's mission of leveraging RNA to build unique, transformative assays informing critical clinical decisions. In testing, the ImmunoPrism™ assay successfully met all performance criteria, which included sensitivity, specificity and reproducibility standards. As one of the only clinical laboratories specializing in RNA-based assays, Cofactor Genomics has worked closely with the College of American Pathologists in recent years to establish criteria specific to RNA-based assays.

[\[Cofactor raises an \\$18 million oversubscribed funding round\]](#)

"Cofactor is uniquely positioned to bring this technology out of academia and into the clinic, expanding the reach of precision medicine to a broader class of molecularly targeted drugs whose efficacy can't be assessed with DNA alone."



GET IN TOUCH

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