

Understanding cell therapies is life or death.

Do you know what drives differentiation, potency, persistence, and the difference between a cell that cures and a cell that quits?

“We don’t know what quality looks like until we inject [the therapy] into the patient”

— VHL CUSTOMER

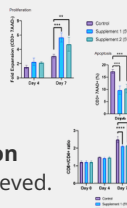
The answers are in your cells. *We know how to find them.*

Van Heron Labs provides the most advanced cellular intelligence available. We profile at depths greater than traditional methods, then translate those results into better processes, products, and therapies.

PROGRAMS LIKE YOURS WHERE WE’VE ALREADY DONE IT

CD4/CD8 T Cell Case Study 1

- Stress signatures diagnosed.
- Over 15 nutrients to improve viability identified.
- New CD supplement designed.
- **Result: 80% less cell death, 40% more activation** marker expression + **optimal lineage ratios** achieved.



iPSC Case Study 1

- Complete **cell state, lineage profile + fate resolved**.
- Small + large molecules to improve key phenotypes and differentiation fate found.
- **Basis for new commercial product:** VHL cost vs. \$400K in internal R&D - **10X cheaper. 5 months faster.**



iPSC Case Study 2

- 25 day mfg process mapped by stage.
- Rational media + process modifications delivered.
- **Highly accurate predictive mfg model achieved.**
- **Biomarkers to predict mfg quality + outcome found** > basis of new KQA assay.
- **Basis for clinical process + commercial product.**



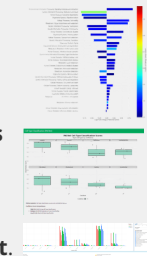
Treg Case Study 1

- 8 new **regulators of FOXP3** found.
- New **growth factor regime resolved**.
- **8 new nutrient candidates** for expansion optimization identified.



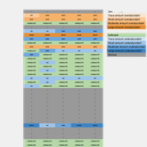
MSC Case Study 1

- Oxidative + ionic stress, senescence + drivers identified.
- **Premature differentiation drivers diagnosed.** +
- Large + small molecules for optimization found.
- **Basis for new commercial product.**



TIL Case Study 1

- Key **nutrient deficits identified.**
- **Batch variability diagnosed.**
- Recommendations for **targeted additions to standardize TIL output** across batches identified.



7

T CELL ENGAGEMENTS COMPLETED

4

STEM CELL ENGAGEMENTS COMPLETED

2

IPSC / PSC ENGAGEMENTS COMPLETED

3

OTHER PRIMARY CELL ENGAGEMENTS COMPLETED

A data universe translated to decisions.

Our optimizations result in better outcomes, faster processes, better costs.

80%

Better viability + survival

40%

Increases in key activation markers

30%

Better lineage ratios

100%

Chemically defined optimizations

25+

PROJECTS SHIPPED

~50%

REPEAT CUSTOMERS

BACKED BY

NVIDIA Microsoft AWS

Cells are talking. Do you know what they're saying?

vanheronlabs.com

CONTACT@VANHERONLABS.COM

HOW WE DO IT: AN ADVANCED MULTI-NODAL ENGINE

LAYER 01

DEEP CELL CHARACTERIZATION > FUNCTION

Data universe, deconvoluted — expression, the most comprehensive small + large-molecule needs available, metabolic pathway profile, reactome, function enrichment, cell lineage diagnosis, prediction + more.

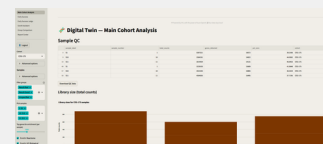


Months of work, instantly.

LAYER 02

CELLULAR BIOLOGICAL DIGITAL TWIN

Your cells, fully unified to a digital model. Understand your cells without a bioinformatics team, months of work, and massive spend.



Target cells, fully simulated.

LAYER 03

AGENTIC QUERY ENGINE

Simulate, test hypotheses, and compare scenarios + interventions before making decisions or implementing them, using mechanism-backed reasoning from your data, not the literature [unless you want to].



Ask anything, you now have a digital scientific team.

LAYER 04

PREDICTION MODULES

Predict mfg success from starting or donor material, or upstream process data. Predict Tx success from cell profile — cell state, proliferation, viability, potency, activation, gene expression markers tied to patient response. Identify biomarkers for KQAs + regulatory.



Predict BEFORE you mfg.

LAYER 05

THE HUMAN LAYER

VHL's team translates the platform outputs into optimized mfg processes, media, and reagent formulations that improve the phenotypes that matter. We can handle discovery to cGMP-scaled clinic-compatible programs for you.

R&D + process + product development — in a single engagement.

Expertise in bioprocessing, PD, media, reagents, and chemically-defined systems. The best team to solve the biggest problems in advanced therapies and stem cell tech.

WHAT OUR TECH COULD MEAN FOR YOUR PROGRAM

AUTOLOGOUS

Deeply assess donor cell state and heterogeneity. Identify key drivers for reducing mfg time and costs and improving cell health, Tx quality and potency. Predict outcomes.

iPSC + STEM CELL

Optimize pluripotency. Diagnose cell lineages and predict cell fates. Improve differentiation efficiency. Better prepare your system to scale up.

REAGENTS + ANCILLARY + MEDIA

Create next-gen and chemically-defined formulations, with optimized small and large molecules, including trace elements, metabolites, cytokines, growth factors, key modulators, and much more. It's time the industry had access to better and cheaper formulations and products.

ALLOGENEIC

Deeply assess target material and identify candidates to improve expansion process and therapeutic efficacy. Prime your system for scaling and larger-scale production.

EMERGING (Ex. NK, TIL, TREG, $\gamma\delta$, CAR-M)

Deeply characterize to elucidate phenotypes, behavior, KQAs. Identify specific components missing from your current process, explain + eliminate variability, improve cryopreservation + expansion outcomes. Get closer to better patient response.

The holy grail of cell therapy: predicting manufacturing and therapeutic success — now accessible.