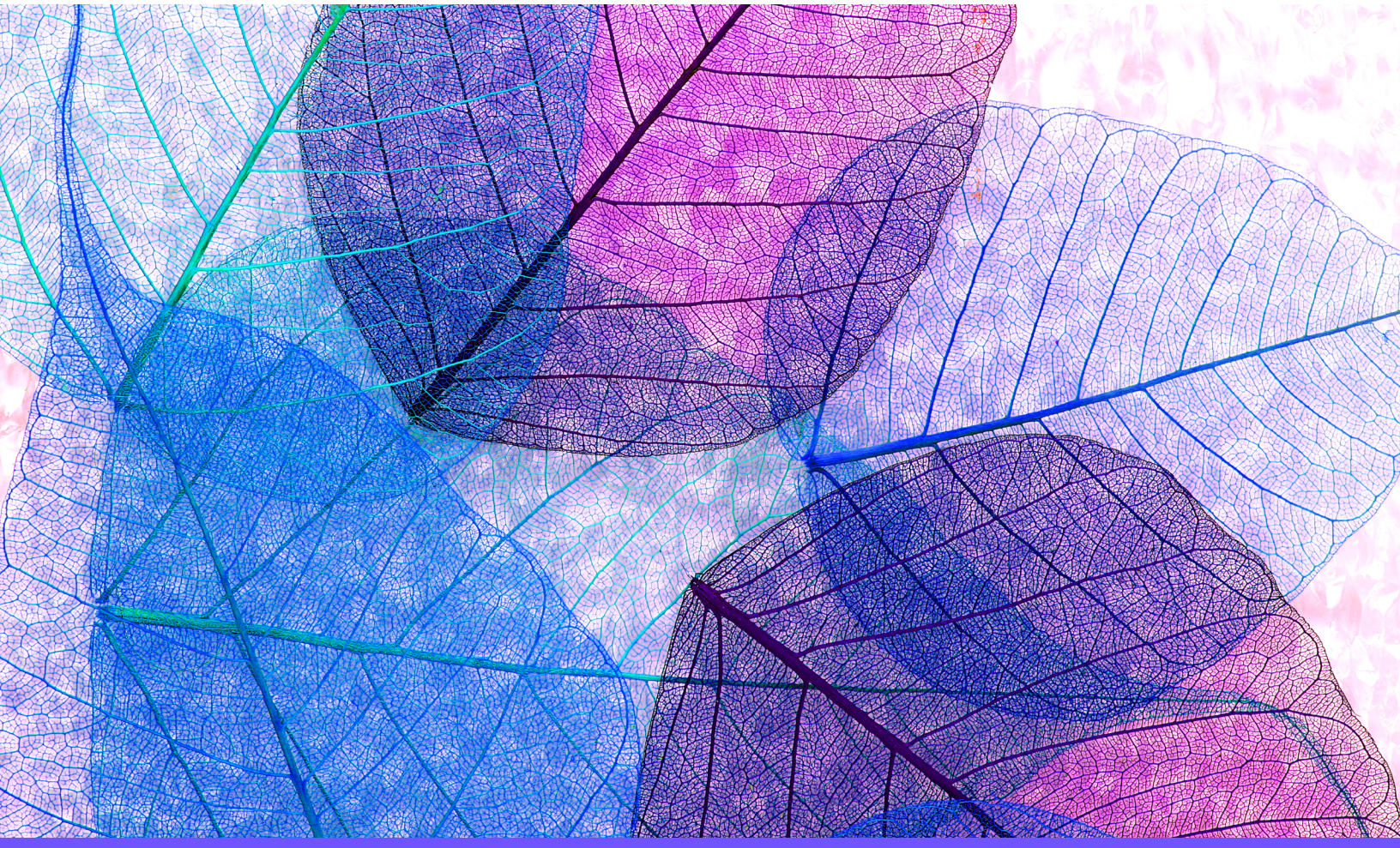
Benchling

CASE STUDY

Building a Backbone for Machine Learning Increases Speed of Discovery by 230%



Enveda BIOSCIENCES

GOAL

Efficiently capture plant characterization data and structure it for machine learning

Enveda is using the power of nature's chemistry to inspire new medicines for the toughest diseases. Their core technology is a computational metabolomics platform, which works like a powerful chemical search engine to unearth millions of new chemicals from mass spectral data, link them to activity in preclinical assays, and inspire drug-like modifications at scale. They are using this technology to create a diverse range of chemical libraries to target hitherto undruggable disease mechanisms, and "reverse translate" active leads in long-used medicinal plants into successful drugs. The challenge in running the chemical search engine lay in organizing and scaling the foundational data.

CHALLENGES

- Researchers lacked a central solution for experiment tracking and data capture, making it difficult for them to obtain a cohesive view of experimental progress and results.
- Enveda needed clean, standardized data to flow from the bench to their digital systems effortlessly, so they could feed their machine learning models at scale.
- Enveda needed a platform that would grow with them as their data production continued to increase exponentially, while providing functionality they'll need in the future, such as easily configurable workflows and barcoding.

RESULTS

66%

of scientists said they had a more cohesive view of experimental progress

130%

increase in data integrity

230%

reported average increase in speed to discovery

“Don’t create more work for the sake of creating a system. The system should be in the service of the work you do, not the other way around.”

Viswa Colluru, CEO

The Story

Just one year after Viswa Colluru founded Enveda Biosciences, he recognized they were generating so much structure-activity relationship (SAR), biomarker, and mechanistic readout data that they could no longer rely on siloed data solutions. In order to operate at a production level, Viswa knew Enveda would need a data platform that could automatically structure experimental data, then feed it into the machine learning pipelines that drive the company's R&D.

Viswa sought two sets of characteristics as he evaluated potential software solutions:

1. The platform had to be intuitive and sticky. Because Enveda was an early stage startup, they could only afford to onboard a system that scientists were naturally excited to use.
2. The solution would need to accommodate robust and iterative data models, customized to Enveda's use case. As a company with machine learning at the heart of their business, Enveda needed to be able to gain insights from a high volume of multi-dimensional data.

As Viswa evaluated a variety of options, including building out Enveda's existing in-house solution, Benchling's easy-to-use interface, high adoption rates, and user-configurable data model made it the clear choice for Enveda's needs.

Enveda's team moved nimbly in response to Viswa's decision. They supported a company-wide transition to Benchling, achieving a 100-percent adoption rate within just two months. As a result, Enveda's team has seen the speed of experiments double, driving crucial momentum for their official launch in December 2020.

Looking to the future, Viswa is excited about how Benchling's solution can evolve in parallel with Enveda's evolution. As the team grows, the medicinal library multiplies, and the pipeline expands, he knows he can rely on Benchling to not only continue scaling, but to also offer solutions for process managers and larger teams.

"My lab scientists are depending on me to make it easier to do their jobs instead of harder."

Viswa Colluru, CEO

Benchling Solutions

Centralized data and intuitive UX encourage enthusiastic scientist usage

- Benchling's modern, intuitive UX makes it easy for daily use in scientific workflows.
- Centralized data storage replaced disconnected Google Slides and Excel sheets saved on local machines, giving Enveda's team a centralized source of truth.
- A data model tailored to Enveda's needs supported a smooth transition to the platform, without requiring researchers to overhaul their existing workflows.

Custom data model pipes lab results directly into machine learning models

- Templated data entry ensures that data for all samples gets collected in a standardized fashion, saving scientists from tedious, time-consuming data cleaning.
- Metabolomics assays generate data that is automatically linked to a specific plant sample - no post-assay reconciliation needed.
- The new data model is tailored to their medicinal plant intake and characterization data output workflow, enabling Enveda to make future adjustments without writing a line of code.

Benchling is built for future growth

- Benchling's solution is designed to scale, which means Enveda won't have to worry about outgrowing their data foundation. In fact, Benchling's Customer Success team has years of experience with organizations of every size, from startups to global pharmaceutical giants.
- Data accessibility, experimental transparency, and shared vocabulary mean that even as Enveda's team grows, team members can continue collaborating just as tightly as in the startup stage.
- As Enveda's R&D pipeline grows in complexity, Benchling can augment its toolbox of capabilities, including lab automation, barcode inputs, workflows, and more.