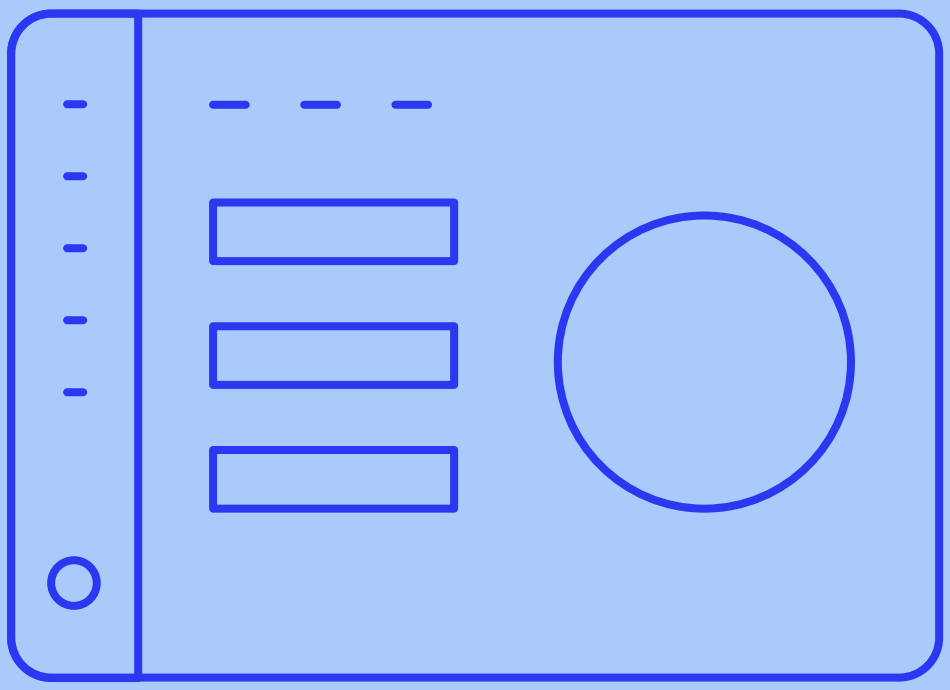
Benchling Life Sciences R&D Cloud

Brochure



Benchling

Accelerating the Pace of Life Sciences R&D

Introduction

Advances in biotechnology are transforming almost every aspect of our lives — from the medicines we take, to the food we eat, the crops we grow, and the materials we use every day.

Not surprisingly, the scientific techniques and R&D operations needed to bring these innovations to market are constantly evolving and growing in complexity. As a result, the scale and speed at which R&D data is generated are growing exponentially.

To continue making these innovations a reality, life science organizations need to fully embrace a digital transformation that will enable them to integrate their R&D data systems, develop more robust scientific platforms, and achieve more productive collaboration.

Unfortunately, the legacy software that R&D teams have historically used holds them back, siloing data and creating bottlenecks that stall their progress.

It's time for R&D software to catch up to the science it's intended to support.

Enter Benchling.

The Benchling Life Sciences R&D Cloud

Benchling connects the entire R&D lifecycle — from project documentation and data acquisition to sequence design, sample management, process management, and reporting.

By standardizing and centralizing R&D workflows on a single platform, Benchling helps forward-thinking companies accelerate their digital lab transformation to enable better, faster decision-making.

The Benchling Difference

If you're currently relying on paper lab notebooks, word processing docs, and spreadsheets that aren't purpose-built for your science, legacy ELNs and LIMS that silo your data, or custom-built systems that require constant IT upkeep, your entire organization is operating at significantly lower efficiency than it could be otherwise. So why Benchling?

Built for Complex Science

Purpose-built to support the development of anything from biologics and biomaterials to strains and small molecules, Benchling interlinks your sequences, samples, and experiment results to ensure full traceability.

Intuitive and Easy to Use

Benchling's modern user interface — with natively interconnected notebook, sample registration, inventory management, and workflow design applications — means your team can work better and faster, together.

Adapts to Your Process

Built on top of a secure, high-performance cloud infrastructure, Benchling supports evolving scientific workflows and integrates with lab instruments and other software systems to help unify your R&D data ecosystem.

Enables Data-Driven Decisions

Centralized, standardized data capture and storage help ensure the integrity of your data, while integrated analytics tools help you derive the insights you need to make better scientific and operational decisions.

"What Benchling has provided us is a single solution for multiple different problems, from sequence design and alignment to a centralized database. Our speed has doubled, communication has improved exponentially, and it's decreased scientist frustration."

Brenda K. Minesinger, PhD
Principal Scientist

Intellia THERAPEUTICS

Benchling Life Sciences R&D Cloud

Applications	 Notebook Ensure documentation completeness and compliance	 Molecular Biology Accelerate DNA and amino acid design, at scale	 Registry Standardize, connect, and contextualize sample data
	 Inventory Track and manage every sample and reagent	 Workflows Drive R&D efficiency with orchestrated process management	 Insights Translate R&D data into actionable insights
Platform	 Codeless Configuration Rapidly configure and deploy without needing to code	 Benchling for Lab Automation Automate instrument orchestration and data acquisition	 Developer Platform Unify your entire R&D data ecosystem

Notebook

Ensure Documentation Consistency, Completeness, and Compliance

Standardize experiment documentation

Develop a library of Notebook entry templates with predefined protocols, checklists, and tables to standardize how your team performs and documents any number of experiments.

Avoid data recording errors

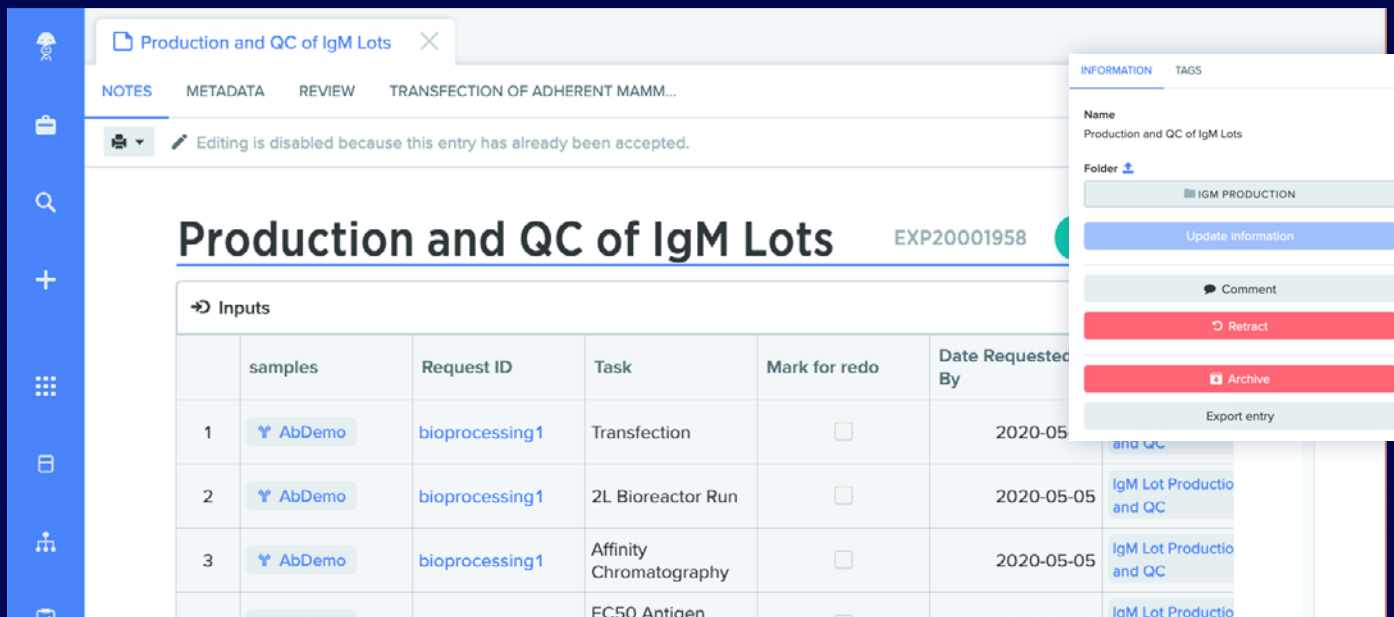
With pre-configured, structured data capture tables, you can ensure that experiment results are recorded the same way for each respective assay, by every team member.

Eliminate knowledge silos

Register and update the usage of samples and reagents in real-time directly within your Notebook entry, so each sample or entity is always accompanied by its complete history.

Notebook streamlines experiment documentation, collaboration, and knowledge transfer — all while ensuring your teams remain in compliance with organizational SOPs and regulatory requirements.

- Customizable entry templates
- In-line entity registration and inventory management
- Configurable, assay-specific data capture tables
- Audit trails and version control
- 21 CFR Part 11 compliant e-signatures



Molecular Biology

Accelerate Sequence Design and Analysis, at Scale

Streamline sequence design across teams

High-throughput in silico tools increase research efficiency — every sequence can be referenced in any Notebook entry, while retaining their full experimental context and history.

Ensure proper sequence utilization

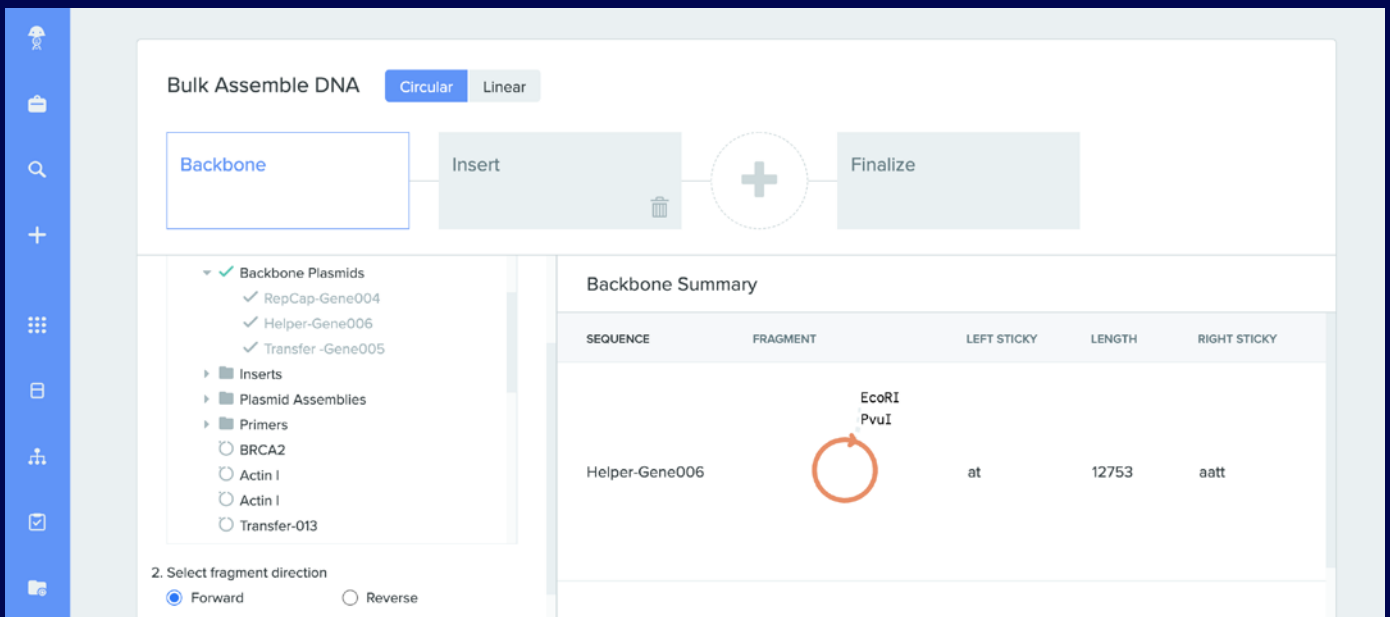
Benchling automatically captures and maintains a history of every modification to every sequence. At the same time, read-only permissioning allows you to control who can modify sequences.

Trace sequence relationships end-to-end

Define relationships between every primer, insert, construct your team uses, and interconnect sequences with strains, cell lines, and other downstream products to ensure full traceability.

Molecular Biology combines over a dozen DNA and amino acid design tools to help improve the speed, accuracy, and fidelity of your discovery programs.

- Golden Gate and Gibson assembly
- Primer design with secondary structure prediction
- DNA and amino acid alignment
- Amino acid translation, codon optimization, and back translation
- Antibody sequence annotation with CDRs, framework regions, etc.
- CRISPR guide RNA design



Registry

Standardize, Connect, and Contextualize Every Sequence and Sample

Standardize registration for diverse entities

Record pertinent information about the composition and properties of every sequence, sample, and entity in your lab, and define enforceable constraints to ensure every registered entity is unique.

Ensure end-to-end sample traceability

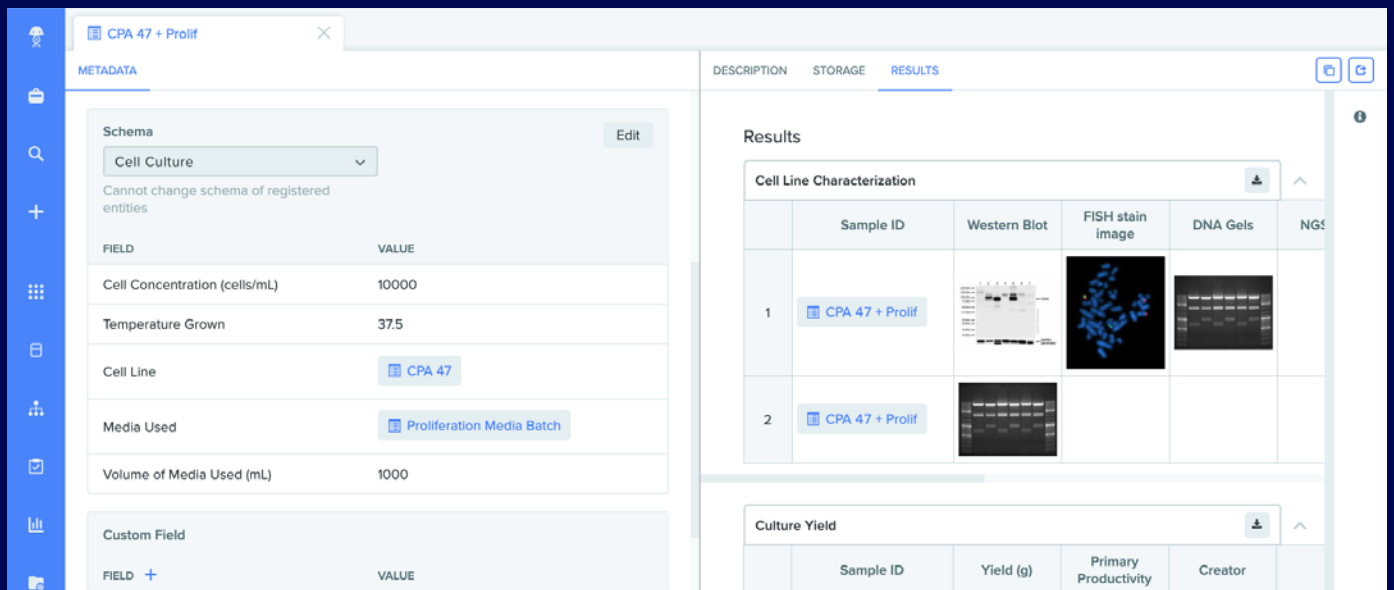
Define relationships between specific sample types — sequence to cell line to mouse model — to ensure the full lineage of any registered entity can be traced.

View sample & experiment data in context

Embeddable results tables enable you to record and automatically connect every piece of experiment data to the samples from which those data were produced.

Registry is an agile sample intelligence management system that harmonizes the way you collect, structure, and analyze all the sequence, sample, and experiment data in your lab.

- Code-free interface for defining scientific entities and metadata
- Configurable assay- and process-specific data capture tables
- Configurable auto-linking of entities and data
- Parent-child sample lineages
- Configurable media and formulation component schema



Inventory

Track the Location and Utilization of Every Sample and Reagent

View sample & experiment data in context

Easily locate items with Inventory's visual interface, and organize containers into worklists to transfer samples and reagents between collaborators.

Connect physical samples to experiments

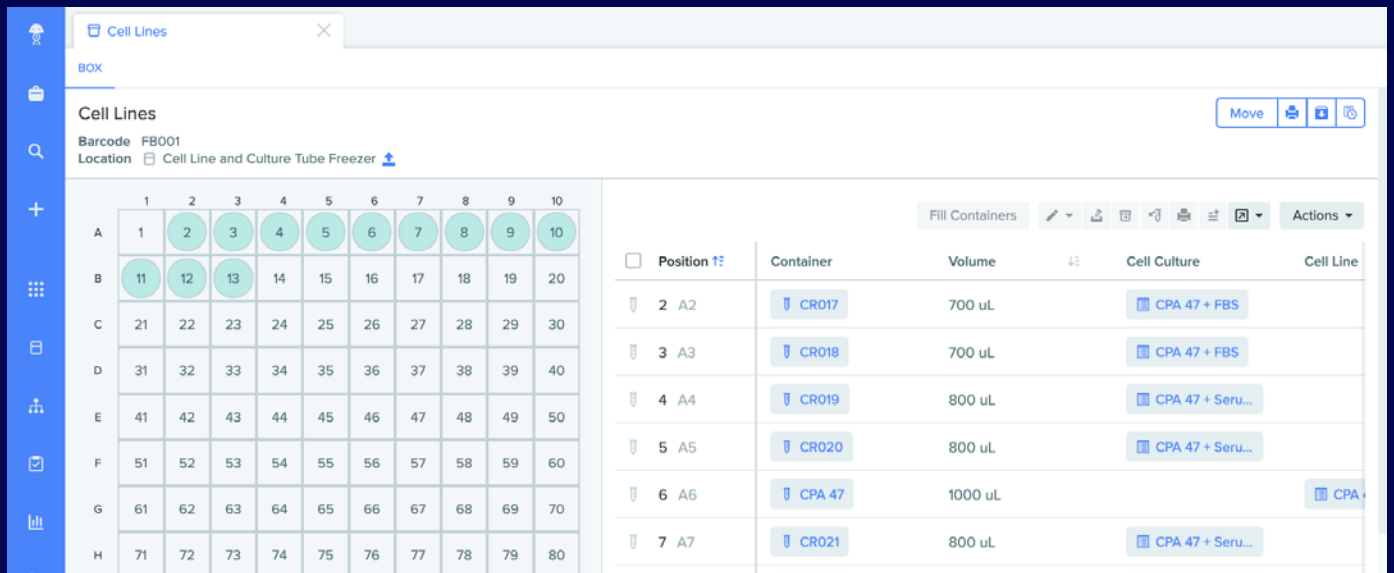
View all the samples that were used and produced in a particular experiment, and view all of the data — and associated experiments — that were ever generated from that particular sample.

Simplify location tracking

Support for label printing means you can integrate Benchling with your lab's barcode scanner and pull up any sample's full experimental history with a single click.

With Inventory, you can keep track of the amounts, concentrations, and physical locations of any samples and reagents stored in your lab.

- Custom storage types (e.g. cryovials, boxes, freezers)
- Media and formulation mixture component and lot tracking
- Aliquot lineage tracking and linking with experiment results
- Customizable worklists for organizing samples and reagents
- Barcode generation, scanning, and label printing



Workflows

Drive R&D efficiency with orchestrated process management

Increase productivity across specialized teams and programs

Workflows provides scientifically-aware project management and is an engine for collaboration. The flexible data model and UI supports simple request management through complex, multi-team programs.

Identify and resolve bottlenecks to improve efficiency

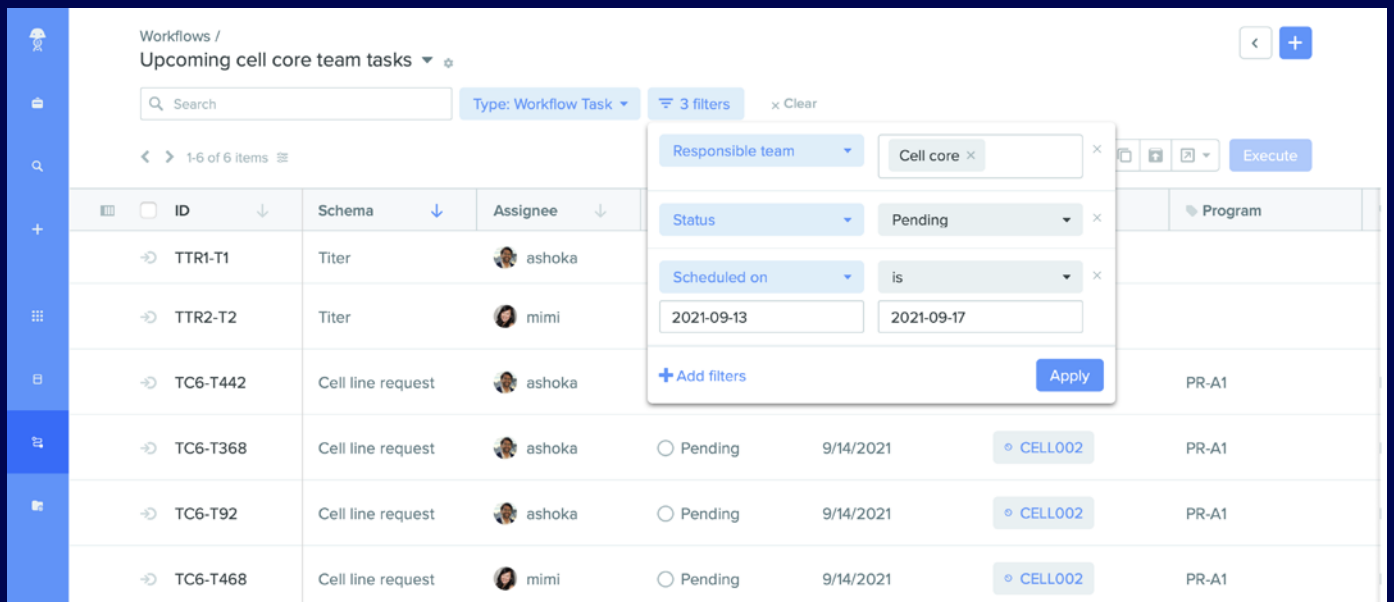
Operational data provides visibility so managers can clear hurdles and refine processes in order to reach milestones faster.

Increase data visibility across studies to drive process intelligence

Workflows makes it possible for users to bring together experimental, sample, and process results from across an organization. Aggregated data can surface key operational and scientific insights, further improving success rates and accelerating timelines.

Support the complex, collaborative work across specialized R&D teams with Workflows.

- Task management for serial, parallel, and nested workflows
- Data standardization and aggregation for comparing results across runs
- Real-time process visualization for tracking work status
- Task execution with structured templates for process control and repeatability
- Traceability of methods, samples, and registered inventory across stages



Insights

Translate R&D Data into Actionable Insights

Extract scientific intelligence in real-time

Build scientific dashboards to analyze experiment results and trace the lineage of each data point back as far as the sequence that was used to create a cell line or other entity.

Leverage data to optimize operational efficiency

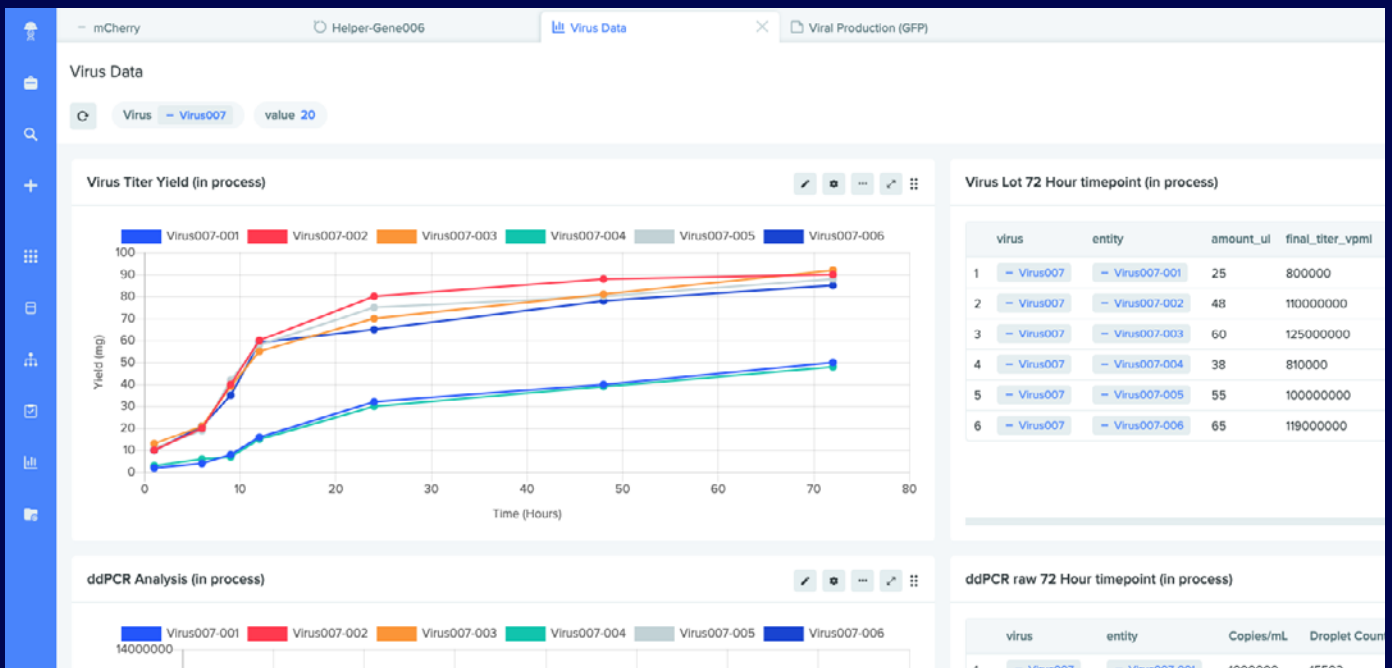
Dive deeper into resource utilization and compare process variations to identify opportunities to improve program throughput, yield, and quality.

Track and manage organizational performance

Gain visibility into progress at the individual and group levels. Ensure team compliance with process review standards, and monitor teams' output velocity and quality.

Drawing conclusions from R&D data is a snap with Insights. Analyze, visualize, and report on data from every sequence, sample, experiment, and process with easy-to-build dashboards.

- Dataset viewer with previewing, filtering, and sorting capabilities
- Query builder for quickly identifying and running analytics
- Data visualization with charts (e.g. table, bar, line, and scatter plots)
- Configurable dashboards with real-time updating

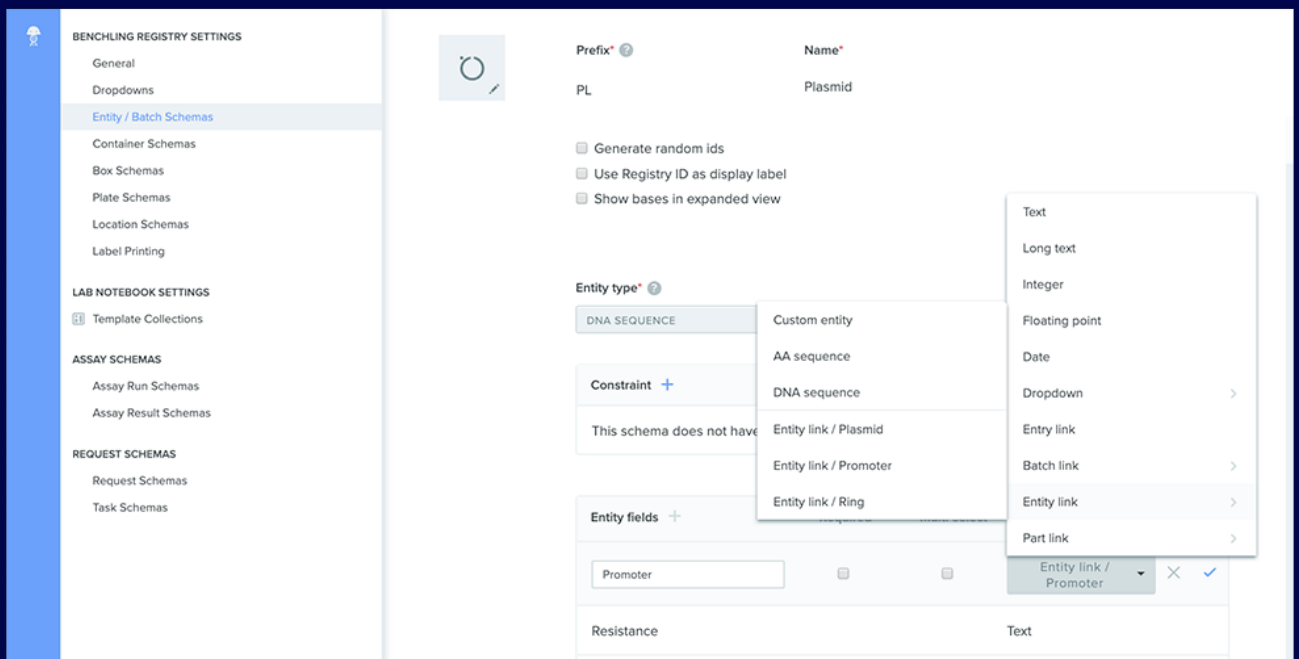


Codeless Configuration

Rapidly Configure and Deploy Without Needing to Code

With no-code, UI-based configuration, Benchling allows you to quickly and easily adapt the system to fit your team and processes — no matter how quickly they grow and evolve. Codelessly configure:

- Notebook entry templates
- In silico entities
- Assay-specific data tables
- Inventory storage types
- Multi-step processes
- User permissions



Benchling for
Lab Automation

Automate Lab Instrument Orchestration and Data Acquisition

Simplify instrument orchestration

Kick off instrument runs with a single click — define instructions that include sample data and preconfigured, instrument-specific input parameters to reduce errors and artefacts.

Reduce errors from manual data transfer

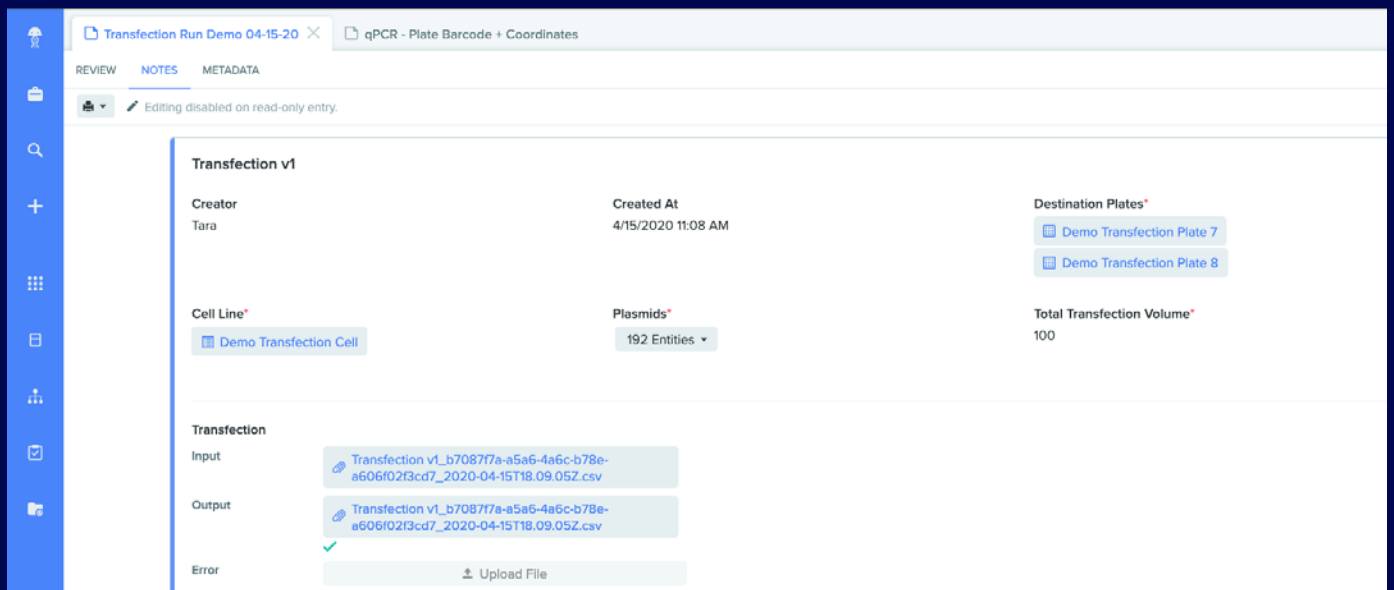
Run outputs can be automatically pulled into Benchling upon completion of your instrument runs, with results data automatically synced to predefined, structured data tables.

Retain full data integrity at high-throughput

Registered and inventoried sequence, sample, and reagent volumes are automatically created and updated in lab automation workflows from start to finish.

With Benchling for Lab Automation, automatically ingest, parse, and append data from liquid handlers, plate readers, and other instruments.

- Out-of-the-box integration with liquid handlers like PAA, Tecan, and Hamilton
- In-app interface for defining liquid handler operation and processing rules
- Liquid handler instruction generation directly within Notebook entries
- Standardized assay- and instrument-specific data capture tables
- Automatic data ingestion, parsing, and appendage of results and entities



Developer Platform

Unify Your Entire R&D Data Ecosystem

Centralize data across informatics systems

Use the API to build integrations that automatically pull and push data out of Benchling to ensure all your systems are kept up-to-date with complete, accurate data.

Automate workflows with custom logic

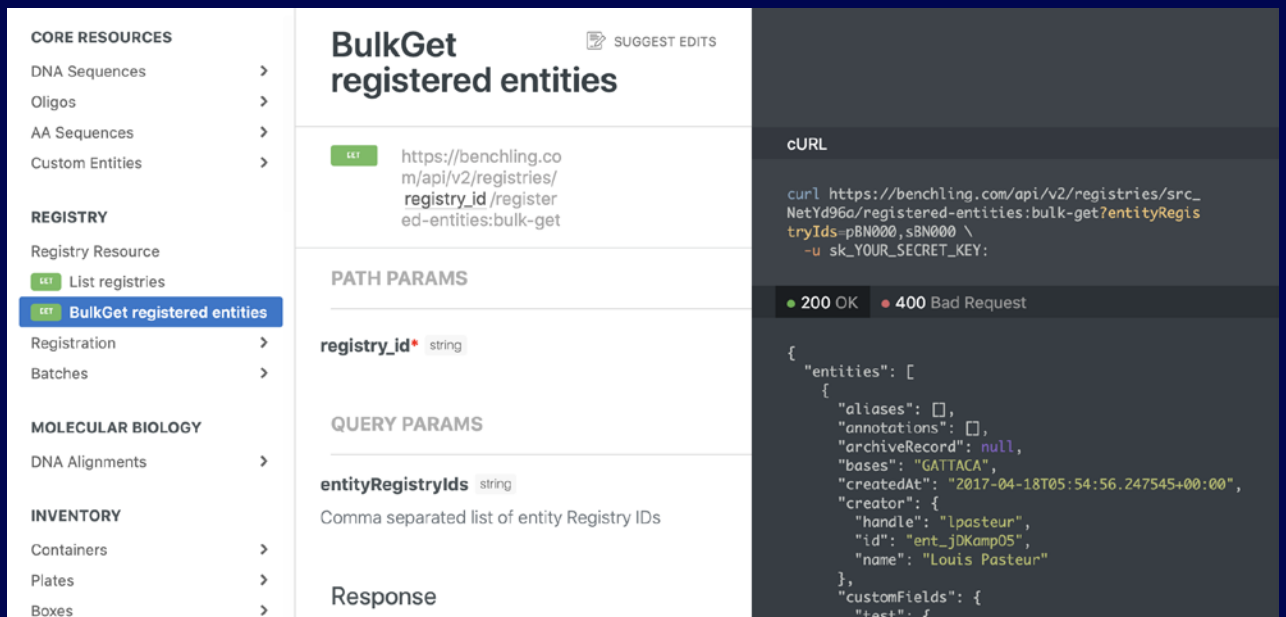
Subscribe to events that allow you to automatically trigger the next step in an informatics workflow, automate instrument interaction, or sync changes to an external database.

Extend platform capabilities with 3rd-party apps

Connect your proprietary software to support specialized workflows, and securely connect to analytics tools like Tableau and Spotfire to create charts and dashboards from Benchling data.

Integrate software, databases, and instruments with the Benchling Developer Platform to centralize and synchronize your R&D data and processes.

- Create, run, update, delete (CRUD) access via Benchling's REST API
- Events system for automatically triggering actions in Benchling and connected systems
- Read-only, SQL Data Warehouse for storing Benchling- and instrument-generated data



Trusted Partner to Leading Life Science R&D Organizations

Benchling enables high-impact life science R&D across hundreds of commercial, government, and academic organizations around the globe.

We've developed our platform in close coordination with R&D teams to ensure that no matter your science — from strain engineering and fermentation to cell therapy development, antibody engineering, and everything in between — the Benchling Life Sciences R&D Cloud will support the work you do.

Our professional services teams leverage three pillars of customer success to deliver the right solution for your organization:

Deep life sciences domain knowledge across different R&D modalities.

Proven implementation methodology and best practices for R&D data management.

Rapid prototyping and user testing to build the right solution for your organization.

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