teselagen
BIOTECHNOLOGY

for Lab Automation

Make Life Better™

The Artificial Intelligence enabled Operating System for Biotechnology.

The TeselaGen® operating system connects biologists, lab technicians, and bioinformaticians so that they can collaboratively design and build experiments, organize and standardize data, test and continually learn. Our modern approach, coupled with artificial intelligence modeling, has opened the door for a radical transformation of biology and chemistry, enabling rapid expansion of potential applications.

TeselaGen's founding team met at Stanford while working on problems in computational and molecular biology. The team includes an elite group of engineers, biologists and physicists from Stanford, Cal, MIT and Harvard with wide experience in synthetic biology, molecular biology, automation, artificial intelligence, software development, and business development. TeselaGen has been now deployed by a number of small startups, Fortune 50 companies, as well as emerging innovators in biopharmaceuticals, agriculture, and specialty chemicals.

Reduce cost and time to market.

Our Artificial Intelligence-enabled operating system radically accelerates product development of therapeutics, high value chemicals, and agricultural products. TeselaGen has demonstrated that it can increase the design and build speed, as well as reduce the costs associated with research & development, by an order of magnitude.

TeselaGen as your Operating System for R&D.

➤ **Why TeselaGen?**

Large and small companies that participate in the bio-economy are replacing traditional methods with modern biotechnology and machine learning driven techniques. This is opening the door for a radical transformation of biology and a rapid expansion of potential applications. This increased demand requires a secure, scalable, interoperable, protocol-driven platform that can span multiple users working on multiple projects across large, geographically distributed organizations.

➤ **The four pillars of our system**

- **Design Management:** From DNA to protein design, to the most advanced large scale combinatorial and hierarchical designs that use state-of-art synthetic biology approaches for product development, our design tools help you design complex libraries that can get built quickly in the lab.

- **Lab Management:** A fully integrated laboratory management system that knows how to talk to you and your robots. Our system can orchestrate workflows, hands off to automation, manages samples, freezers and inventory, coordinates inventory and purchasing, guides quality control, and keeps track of everything you need to apply machine learning to optimizing your product.

- **Data Management:** All too often, data is scattered and isolated in places that make it hard to find and difficult to use. Our system provides a connected resource that acquires data from analytic and monitoring equipment and brings it together, links it to your design-build process, transforms it and makes it ready for analysis, predictive modeling, and machine learning.

- **Intelligence:** teams can combine their knowledge and data with AI algorithms built to understand biology — leading to new, high performance bio based products faster than ever before. Our AI models allow you to converge on an optimal product ten times faster then using traditional approaches.

Automated **Worklist Generation**
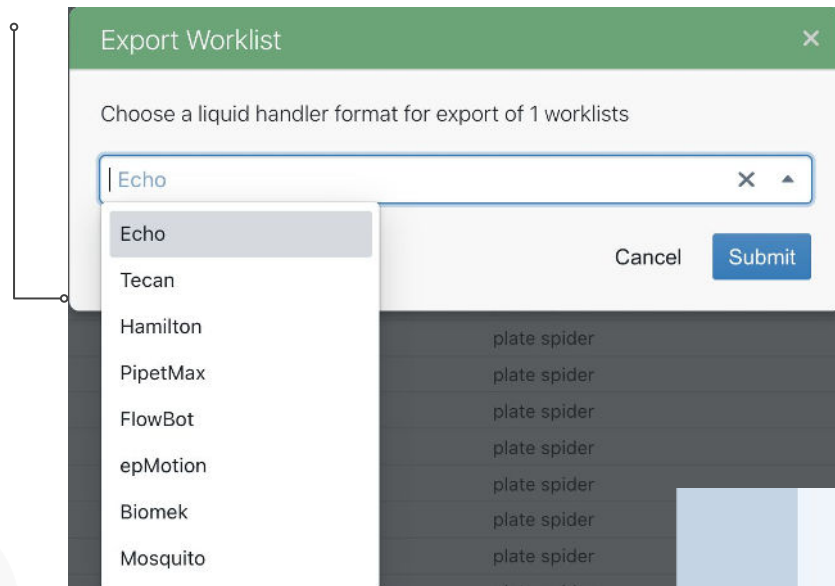
➤ Our platform has the ability to **translate high-level workflow instructions to lower-level worklists**, which might be particularly useful if you're thinking on automation.

➤ We can generate worklists for a number of liquid handling equipment, including: **Hamilton, Tecan, Echo, epMotion, BioMek, Mosquito**, among others.

Automated **Report Generation**

➤ Automate the generation of **reports** after workflows are ran.

➤ Configure **report templates** for generating your own custom reports.

Report Options

Date Format (Use Day.js)

D MMMM YYYY HH:mm

Report Intro Template

{{{Workflow Run Name}}} Run

Start Date: {{{Start Date}}}
Finish Date: {{{Finish Date}}}

{{{Workflow Run Tags}}}

Workflow Definition: {{{Workflow Definition Name}}}
Description: {{{Workflow Definition Description}}}

Available Template Variables
- Workflow Run Name
- Start Date
- Finish Date
- Workflow Definition Name
- Workflow Definition Description
- Workflow Run Tags

Example:

Example Workflow Run

Start Date: 28 May 2021 21:57
Finish Date: 29 May 2021 21:57

Tag 1, Tag 2

Workflow D...
Description...

Tool Footer Te...

{{{First ...
user exec...

{{{Tool de...

Template Variables
- ame Of User ing Tool
- ame Of User ing Tool

j5 Assembly Run Report

j5 Assembly Run Run

Start Date: 21 April 2021 13:48
Finish Date: 21 April 2021 13:48

Workflow Definition: CyT Assay Workflow
Description: CyT Assay: Transformation, Lysis, Spin Down, Protein Purification

1. Microbial Transformation
-

This tool accepts plates, racks, or tubes of DNA materials. After selecting an existing microbial material, the tool will generate a worklist to combine DNA materials with selected microbial materials.

Input(s):
- DNA Plates
- DNA Tubes
- Microbial Transformation Reaction Map

Output(s):
- Microbial Plate(s)
- Microbial Tube(s)
- Microbial Transformation Reaction Map
- Microbial Transformation Worklist

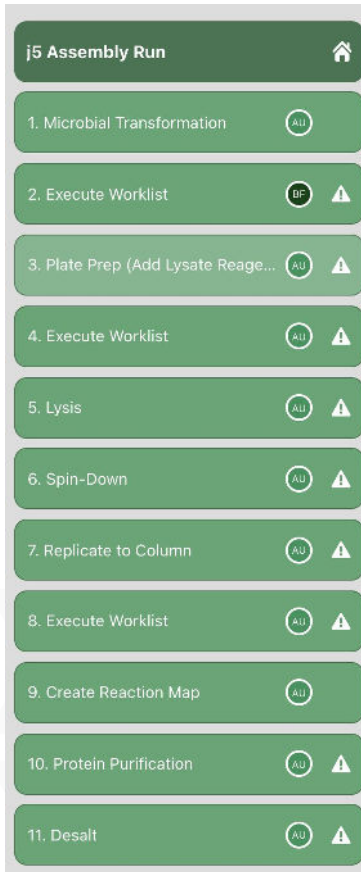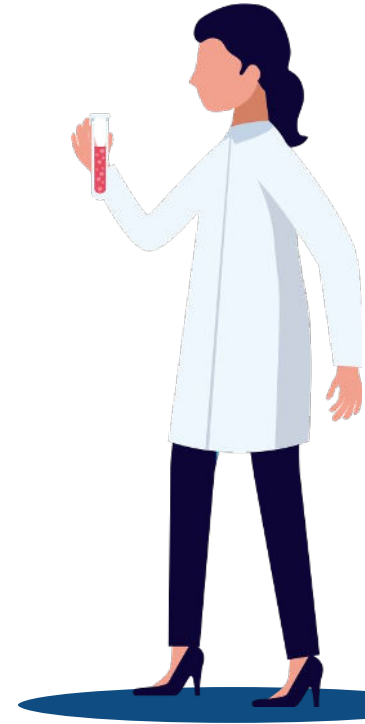### 2. Execute Worklist
-

This tool takes in one or more worklists with optional reaction maps to be executed in the lab. The tool validates that the source and destination materials both exist and have the appropriate volumes/capacity in the LIMS inventory. If the worklist is valid, executing the tool updates the effected plates in your lab's inventory.

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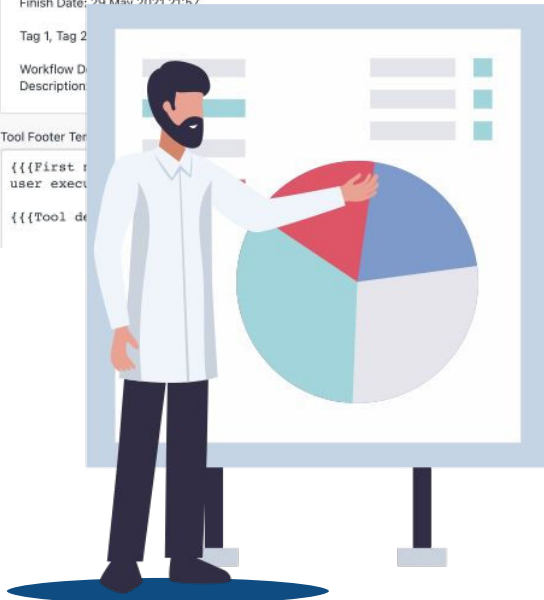
Automated **Workflow Execution**

➤ Easily ingest assembly instructions exported from TeselaGen's **Design** module, into a workflow.

➤ Configure workflow definitions using different tools that will **automatically update your inventory** and data sets.

➤ Execute workflows step-by-step, or **automate the execution** of the entire workflow!

j5 Assembly Run

1. Microbial Transformation
2. Execute Worklist
3. Plate Prep (Add Lysate Reage...
4. Execute Worklist
5. Lysis
6. Spin-Down
7. Replicate to Column
8. Execute Worklist
9. Create Reaction Map
10. Protein Purification
11. Desalt

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1. Microbial Transformation

Tool: Microbial Transformation

Description:

This tool accepts plates, racks, or tubes of DNA materials. After selecting an existing microbial material, the tool will generate a worklist to combine DNA materials with selected microbial materials.

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2. Execute Worklist

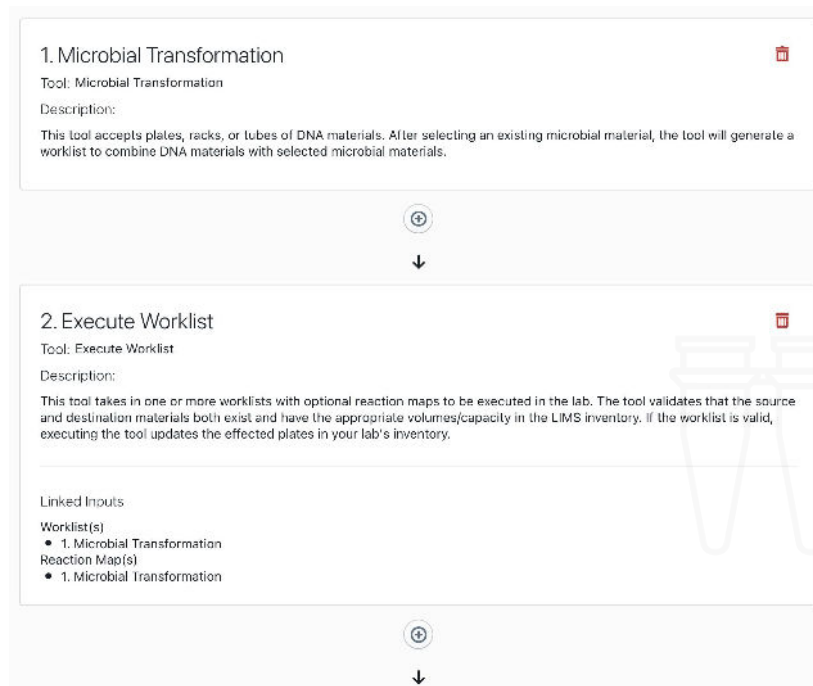Tool: Execute Worklist

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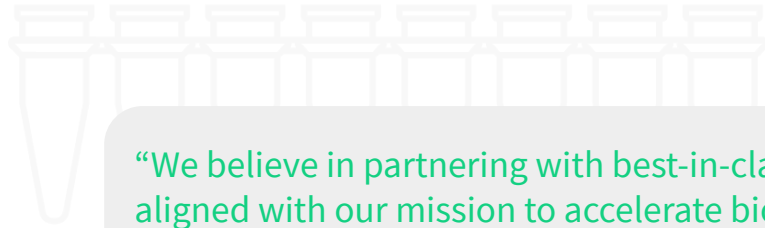
Linked Inputs

Worklist(s)
• 1. Microbial Transformation
Reaction Map(s)
• 1. Microbial Transformation

Some Partners building with **TeselaGen**

Ansa Biotechnologies

LanzaTech

CSIRO

"We believe in partnering with best-in-class service providers that are aligned with our mission to accelerate biotech research and development."

-*Daniel Arlow, CEO at Ansa Biotechnologies*

"Designing and optimizing biology is not easy, and we are in a race to recycle more carbon before it is too late. This collaboration with TeselaGen will extend our capabilities and help us achieve our goals."

-*Dr. Sean Simpson, Chief Scientific Officer, and Co-founder, LanzaTech*