sapio sciences

Case Study

EIT Los Angeles Deploys Sapio LIMS for DNA Sequencing and Centralized Sample and Materials Management

The unified informatics platform has the capability, flexibility, and extensibility to meet present and future research needs

Ellison Institute of Technology

About the Project

Founded in
2016

Location
Los Angeles, CA

Industry
Science & Engineering

Website
www.eit.org

Snapshot

The Ellison Institute of Technology Los Angeles (EIT Los Angeles) draws on collaborators from across conventional health and wellness fields, as well as from a broad range of other disciplines — physics, biology, math, and engineering — to study cancer and potential ways to prevent, detect, and treat the disease. EIT Los Angeles adopted the Sapio Platform in 2020, incorporating the Sapio LIMS℠ and Sapio ELN℠ into a modern, unified platform for its research informatics. This has enabled EIT Los Angeles to:

- Streamline inventory tracking and help the lab operations team manage and track consumables usage.
- Use LIMS templates to collect DNA extraction and cell culture data in a reproducible and standardized manner.
- Use the cell culture homepage dashboard to track and share documentation among team members to foster collaboration.
- Easily modify and adapt the platform to manage the diversity of projects at EIT Los Angeles now and in the future.

The Customer

Founded by Larry Ellison and David Agus, MD, the Ellison Institute of Technology (EIT) works to develop and deploy advanced technology in pursuit of solving some of humanity's most challenging and enduring problems. Guided by world leaders, scientists, and entrepreneurs, EIT seeks to improve lives on a worldwide scale by driving scientific and technological advancements across four humane endeavours: medical science and healthcare, food security and sustainable agriculture, clean energy and climate change, and government policy and economics.

Between EIT's Los Angeles and Oxford, UK locations, the organization is made up of about 200 people globally, with about 150 based at its Los Angeles campus.

EIT Los Angeles was established in 2016 as a research and development center for cancer, healthcare, and global public health. A cross-disciplinary organization, EIT Los Angeles includes departments and teams focused on microscopy and imaging, bioinformatics, mass spec and metabolomics, clinical and translational research, and chemistry. A small sampling of EIT Los Angeles' diverse projects includes organ-on-chip models, digital pathology, genetic sequencing with AI and machine learning analysis, and small-molecule drug discovery.

The Challenge

In the fall of 2020, EIT Los Angeles implemented a sample management and tracking solution to streamline and automate operations with adaptability to meet the evolving requirements of its broad, diverse range of projects. EIT Los Angeles wanted to move quickly with the initial implementation of its DNA sequencing workflow and then exercise continuous process improvement to enhance sequencing operations and aid in the systematic and methodical extension of capabilities to other lab workflows and operations over time.

> "Given the scope and diversity of projects we undertake, tracking and documentation can be overwhelming. The easy customization and quick adaptability of the platform for the different projects and scenarios gave me confidence that it could do whatever we needed."

Roi Bagsic,
Quality Control Analyst, EIT Los Angeles

The Solution

Key EIT Los Angeles stakeholders from IT and laboratory operations created an RFP and sent it to about a dozen laboratory informatics companies in October 2020. In early 2021, seven of the companies conducted demos, and three were chosen for closer evaluation. Sapio Sciences distinguished itself and was selected for several reasons.

Its API-first architecture meant anything EIT Los Angeles could do through the UI; it could also programmatically streamline and automate many lab operations. Webhook functionality allowed EIT Los Angeles to extend the product any way it wanted. And, most importantly, Sapio offered a unified laboratory informatics platform. According to Frank Callari, Director of IT at EIT Los Angeles, "Most competitors offered products, but Sapio offered more — it offered a complete platform."

Roi Bagsic, a quality control analyst at EIT Los Angeles, is responsible for lab operations, including those involving the Sapio Platform. He knew some customization of the LIMS and ELN would be needed, and the flexible webhook and AI-assisted no-code capabilities were especially appealing to him. "Given the scope and diversity of projects we undertake, tracking and documentation can be overwhelming," he said, "The easy customization and quick adaptability of the platform for the different projects and scenarios gave me confidence that it could do whatever we needed."

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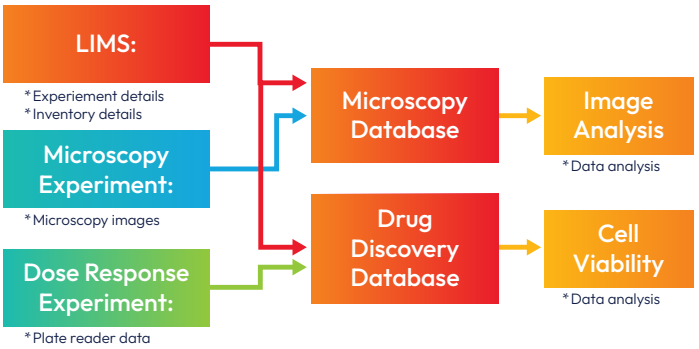
Results/Benefits

With the Sapio implementation in 2021, EIT Los Angeles initially tracked three different sample types: compounds, tissues, and cell lines. In 2022, as EIT Los Angeles began to understand more about Sapio's material management and biological subtype capabilities, it started to track additional sample types, including slides, blood, DNA antibodies, and other lab materials.

It also started developing its in-house experimental templates using Sapio's no-code rules engines, specifically for chain of custody, digital pathology, DNA extraction, fragmentation, library prep, and sequencing workflows. In 2023, more customized templates were created to track tissue processing and other cell culture activities. The lab operations homepage was revamped the same year to streamline calendar tracking with ELN documentation, greatly enhancing collaboration and coordination among team members.

Another advantage of the Sapio Platform is its ability to communicate with other lab systems through its API. In 2023, EIT Los Angeles integrated microscopy and drug discovery databases with the LIMS, as illustrated in Figure 1. The initial implementation pushes experimental and inventory information from the LIMS to databases, where it's stored with images from microscopy experiments and plate reader data from dose-response experiments, respectively. From here, the bioanalysis team can access unified data for image or cell viability analysis.

Figure 1 – Sapio API enables database connectivity for downstream data analysis pipelines



Source: *EIT Los Angeles*

Consistent with EIT Los Angeles' continuous improvement process, it monitors and analyzes how different teams work with this integration through their ELNs. Its roadmap includes leveraging this learning to automate present manual processes and further streamline operations soon.

By selecting a unified platform from Sapio, EIT Los Angeles began to reap the benefits of sample tracking on day one. They have further automated and accelerated lab operations by leveraging more and more of the platform's capabilities over the past three years. They look forward with confidence that Sapio will continue to add new platform capabilities that enhance and extend its role as a scientific assistant to help EIT fulfill its mission in cancer research and other transformative medical endeavors.

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