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At the University of Washington, the Molecular Information Systems Lab (MISL) needed a sample management solution that unified samples with their associated lab data.

MISL is a unique collaboration between the University of Washington and Microsoft Research focused on integrating biology and synthetic biology with computer science tools. MISL faced the challenge of managing a diverse range of physical samples and associating them with related lab data in an efficient and organized manner. This need led MISL to begin their search for a sample management system.



Challenges

Data and Sample Discrepancies: The lab had multiple researchers with diverse projects without a centralized system for recording and managing sample information. Information about the thousands of samples was dispersed across various sources.

Insufficient Labeling: The lab had used handwritten labels on sample tubes, presenting problems with legibility and freezer durability over time.

High Researcher Turnover: With a dynamic team including five Principal Investigators, post-docs, grad students, and undergrads cycling through projects, samples often got lost in freezers and storage spaces.



Journey to Sample Manager

Identifying the Problem: The initial proposal of creating an in-house sample management system proved daunting, leading MISL to explore existing software solutions for their sample management. The team explored several sample management systems but found most of them lacking in important features like data-connected electronic lab notebooks (ELN), intuitive user interfaces, continued support, and flexibility.

Data Compilation: The team began by auto-importing data from CSV files and importing OneNote lab notebook entries into the ELN, using sample manufacturer information as a starting point for the database.

Integrations: Next, MISL connected data from Quartzy, Benchling, and other programs to feed into Sample Manager, and encouraged researchers to import their vital samples into the application.



Why LabKey

Robust Sample-Data Connection: Sample Manager allowed the lab to establish a strong two-way connection between physical samples and their associated data, eliminating the need for manual cross-referencing.

User-Friendly Interface: The user-friendly interface and extensive customizability allowed the software to adapt to their unique research needs.

Electronic Lab Notebook: Sample Manager's electronic lab notebook functionality allowed the lab to maintain detailed records of their experiments, ensuring transparency and reproducibility.

Adopting Sample Manager at MISL has fully addressed the challenges associated with sample tracking for this unique collaboration of computer science and biology.

With easy-to-use, research-focused features, Sample Manager streamlined MISL's sample storage processes and ensured a robust connection between physical samples and their associated data. Overall, it has become an indispensable tool for this unique research laboratory.



Results

Cloud-Based Storage for Sample Data: Adopting Sample Manager centralized all lab data in cloud storage. This enhanced collaboration, increased lab efficiency, allowed global access to sample data, and eliminated the inefficiencies with dispersed data storage.

Quick Implementation: Easy onboarding allowed MISL to quickly organize their sample storage while LabKey's exceptional support ensured a responsive and helpful experience.

Sample-Centric Tracking: The connection between physical samples and their associated data eliminated the need for manual data cross-referencing, resulting in improved data integrity and accuracy.