

GLADSTONE INSTITUTES

About

- [The Gladstone Stem Cell Core](#)
- http://labs.gladstone.ucsf.edu/stem_cell

People

- **Kathy Ivey, PhD**
Staff Research Investigator, Director,
Gladstone Stem Cell Core
- **Victoria Yoon**
Research Associate and Lab
Manager, Gladstone Neuroscience
Research Group

Overall Goals

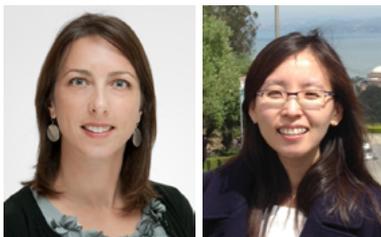
- Achieve holistic and proactive management of research projects
- Achieve research continuity in a highly transient staffing environment
- Digitization of experimental note-taking and experimental data to substantiate legally defensible notes

Problems

One of the legacy in-house built IT systems was to be replaced with Labguru in an implementation that started in January 2015 and was completed by the middle of March 2015. The second implementation was completed in June 2015.

Solution

Converge specimen management with the electronic lab notebook (ELN) in one unified database providing all data relative to specimens and experiments.



Kathy Ivey

Victoria Yoon

We interviewed a PI and Director of a central research facility and a lab manager of a research group at the Gladstone Institutes to find out how they and their respective research groups benefit from using Labguru.

Kathy Ivey, Director of the Stem Cell Research Core

The Gladstone Stem Cell Core is a shared research facility that provides service, training, reagents and equipment for research using human and mouse embryonic stem (ES) cells and induced pluripotent stem (iPS) cells. Kathy Ivey is the director of the Core and as a PI, manages a research team of seven graduate students and research associates. Kathy is also an adjunct member of the research group of Deepak Srivastava, Director of the Cardiovascular Research Institute in the Gladstone Institutes.

Kathy's first encounter with Labguru occurred when her previous lab inventory management tool, Lablife, was replaced by it in the Srivastava Lab. All cell lines, mouse lines, and a plasmid database were migrated from Lablife to Labguru. Early on, the group identified the opportunity to also replace their lab notebooks with the Electronic Lab Notebook (ELN) in Labguru. Kathy explains: "I was struck by the irony that our research group was super advanced but we persisted with recording everything on paper. This wasn't searchable, it was only accessible in the lab, and as a PI I certainly couldn't take home my research group's lab notebooks when working on a grant application."

Huge benefits of moving to a digital format

Adopting an ELN was particularly appealing to Kathy's group as most of the data they were collecting was in digital format – sequencing data, images from microscopes, gel and fluorescent images. Labguru was the perfect location to deposit this data associated with the results of the experiments.

Now with Labguru, Kathy automatically receives a weekly digest via an email alert on the progress of experiments being conducted by her group. This helps to ensure that she is always well prepared in advance of weekly review meetings.

Holistic overview of all project activities

The use of Labguru gives Kathy a holistic overview of all the project activities going on in her research group. This is extremely useful as she manages multiple projects involving many staff. She comments: "It's like a Venn diagram, and Labguru access is organized by experiment and by person. Staff only see the projects that are relevant to them but the Principal Investigator can see everything."

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Results

- Easy access and real-time extraction of key experimental information from any location
- PI can easily prepare for team meetings without interrupting their work with emails
- PI has clear oversight of lab's activities with the ability to monitor by project, by experiment or by individual team member
- Richer, updated notes because team members can easily modify experiments and record those modifications accurately
- Faster on-boarding of new team members through the aid of accurately documented procedures, protocols and a precise storage location system
- Lab manager provided with clear view of all inventory lists and the hierarchy of experiments
- Cost savings realized through elimination of duplicate purchase of materials

"It's like a Venn diagram and Labguru access is organized by experiment and by person. Staff only see the projects that are relevant to them but the Principal Investigator can see everything."

"Labguru helps us to monitor the quantity and frequency of materials being ordered to avoid duplication. Some lab members were not sharing resources, but by seeing the overview via Labguru I was able to connect team members and point out that the antibody had already been purchased and was available for use. This resulted in a cost saving of \$500."

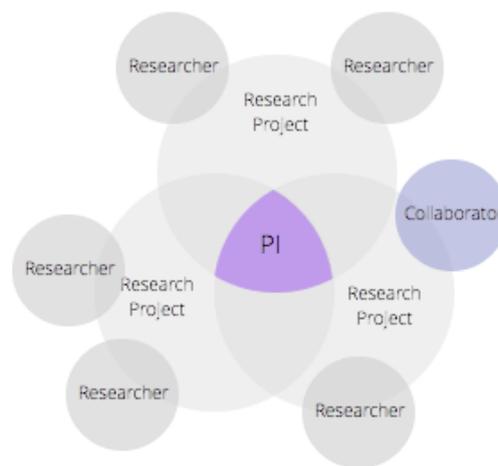


Fig 1: A Venn diagram of Labguru access hierarchy

Kathy also comments that Labguru is particularly useful as it allows an experimental procedure to be recorded precisely. This is important for research associates who must, over a period of several weeks, execute experimental procedures, making minor modifications to those procedures to see how they affect the results. These modifications must be recorded accurately, and this is made easier for the research associate as they can copy and paste the previous procedure before making new modifications. They could never do this in a print lab notebook.

The ability to create clear and accurate documentation through an ELN is also critical as the turnover of research staff in a central core facility lab is high. Processes need to be clearly documented so that when new research associates and postdocs join the group, they have clear protocols to follow. Kathy comments that this is especially important as the research group expands and the PI has less time to spend mentoring new research associates.

Victoria Yoon, Lab Manager, Gladstone Neuroscience Research Group

Victoria Yoon is a research associate in the lab of PI Yadong Huang. This lab consists of 7 graduate students, 2 postdocs and 2 research associates. The Huang Group study the origination and development of Alzheimer's Disease focussing on the pathological role of Apo lipoprotein E4 (apoE4) that is a major genetic risk factor for developing the disease.

Victoria is also the Lab Manager in this venerable research group and describes the three main branches of experimental work being conducted in the lab. Firstly, rodent behaviour studies are conducted to test Huang's Alzheimer's model. Secondly, the rodent's iterative physiological features in these models are recorded, and thirdly biochemistry and histology work involving protein work and brain tissue

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Processes can now be clearly documented so that when new research associates and postdocs join the group, they have detailed protocols to follow.

Clear view of experiments and inventory

Victoria comments that Labguru solves the problem of converging inventory management and the Electronic Lab Notebook in one, easily accessible location. "Quartzly was the previous solution we used for inventory management but its functionality was limited and you had to have another tool to get access to the electronic lab notebook."

With Labguru, Victoria finds that she can be easily updated on the progress of each project. The hierarchy of experiments and the inventory lists in Labguru are well structured. "The benefit here is that as a lab manager you do not go off on a tangent. You can be focussed and organized with your notes and know exactly where you need to go next."

Inventory management, plastic wares, chemicals and compounds are all listed in Labguru. This helps Victoria to understand current stock levels, and the frequency by which each item gets ordered and used by each member of the group.

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