Janice DelVecchio

Secondary Persona

"We're a very busy lab. I need to have all of my instruments running and know what they are doing in order to plan our upcoming work."

GOAL: Advance compounds

A discovery lab's success is judged by the compounds it delivers to development. "We do whatever it takes to move compounds forward."

GOAL: Justify her expenses

PharmaGen has invested heavily in Janice's lab and Janice puts a lot of pressure on herself to demonstrate the value of that investment.

GOAL: Minimize human intervention

Janice believes in automating repetitive, boring tasks that computers could do much more reliably than humans. But some things are better left to the human mind. "Human pattern recognition is so much better than software."

Janice DelVecchio runs one of the bioanalytical mass spec labs at PharmaGen's facility in Wilmington, Delaware. She was promoted to lab manager a couple years ago on the strength of her work and research experience in mass spec.

Her staff of fourteen performs analysis on a variety of assays for "clients" within the Drug Metabolism Pharmaco-Kinetics (DMPK) department, which spans the discovery and pre-clinical phases. "We run what we are asked to run. Only about 1 in 10 of the drug candidates that come through Discovery will show up in my lab for metabolite ID work."

Metabolite identification accounts for about 30% of the lab's workload and has unique challenges that Janice approaches by minimizing wasted effort and expense. For example, before any LC-MS assays are run on a compound, LC-UV is performed to see if the compound metabolizes at all. If it does, initial LC-MS runs are performed with inexpensive rat hepatocytes at very high concentrations (50 µmol), to guarantee a strong signal. "We may only do the compound once, since it can be killed in assay somewhere else. This way, we get a feel for the metabolism, then if it sticks around, we come back later and do human livers at realistic concentrations."

This approach is not universal. A colleague does metabolite identification using a TOF instrument. "He can filter much more tightly on the XIC, which helps differentiate transformations with identical mass shifts, or metabolites from endogenous compounds. Unfortunately, our TOF instruments are usually tied up doing protein work." Occasionally Janice gets some time on a TOF instrument but not as often as she would like.

Samples come into her lab from other labs along with a form that Janice designed. "A lot of the people we work with don't know much about mass spec, they just want an answer to their question so I designed this form so we get the data we need to do our job." When the samples are received, they're placed in the freezer until they come up on the work queue. "We aim for a 5 day turnaround and right now we can't get any faster than that. Most instruments are working around the clock, and our QTraps are always working 24/7."

Janice is very comfortable with mass spec but feels that is unusual in her lab. "My knowledge of mass spec is not typical. Most of the people who work for me don't care, let alone understand, what a mass spec does, it's just another detector. Janice hired two scientists from university labs who are comfortable cleaning the instruments up to Q0 and they've been a godsend. "Some of the samples we get are so dirty we have to clean the source and curtain plate at least once a week and we clean down to Q0 once a month. If is wasn't for Jason and Stan, at least

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one of my instruments would be out of service for half a day a week while we waited for the service engineer to come clean it. Most of my other people are hesitant to touch the instruments for anything other than running samples. They'd love if I could write a script that would allow them to do their work on the mass spec with one click."

For the metabolism work in her lab, one-click automation would be a challenge. It is not that she is suspicious of automation, but of approaches that either try to do what a human mind could do much better or that produce too much data. "It's ridiculous to hope that you could just stick in a sample and get the metabolites and their structures. Human pattern recognition is much better than software. I want to minimize human intervention in ways that make sense."

As the lab manager, she needs to know what all of the instruments are doing in her lab at any given time so that she can plan the lab's workload. "Now we write everything on a whiteboard in the lab. I would love to have software that summarizes how much time each instrument is running and how much method development time, maintenance time, down time, etc. Every time I ask my management for new equipment they want to know if I have any excess capacity on our current instruments. I have to figure that out by hand."

Janice would like more feedback from the instruments to help the lab run better. "There are so many things that would help us run better. Our expert users always want to know if a voltage or temperature has reached the target values but there is no way of finding out from the software like you can on the Thermo Finnigan LTQ. Now the only way to find out if the source is hot enough to run samples is to touch it with the back of your hand. I'd also love to walk through the lab and be able to see that each an instrument was processing at a glance."

With all of her planning and administrative duties Janice feels out of touch with the "real work." "To tell you the truth I haven't had a truly satisfying day in awhile. I miss working on the instruments and doing the science."

Lab Manager

PharmaGen

Wilmington, Delaware, USA

Age: 44

Education

- PhD in pharmacology from the University of Geneva

Lab Instrumentation

- 1 AB Sciex 4000 QTRAP
- 2 Micromass QTOFs
- 1 Finnigan Deca XP ion trap
- 3 API 3000s
- 1 API 4000
- Waters Diode Array

Information Technology

- Analyst 1.4
- MassLynx
- Excalibur
- Microsoft Office

Key Practices and Tasks

- Structural elucidation of metabolites
- Supervising her staff
- Experimenting with new technology
- Publishing Papers
- Attending conferences
- Schedule and manage studies and instrument usage
- Schedule PMs