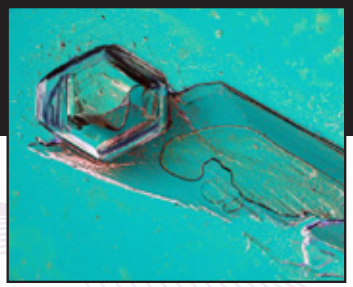
Customer Profile | SHAMROCK STRUCTURES

"Our access to the CLS enables us to deliver their data in a timely fashion at pivotal moments."

Canadian Light Source / Centre canadien de rayonnement synchrotron



Left to right: *Steven J. Schiltz, Chief Executive Officer; Gina Ranieri, Lead Scientist; Rick Walter, Chief Scientific Officer.*

Structures of Pharmaceutical Science

It's hardly a straightforward relationship. In their quest to produce new drugs, pharmaceutical corporations rely on contract research organizations (CROs) like Shamrock Structures to carry out the science on their behalf, especially protein X-ray crystallography – currently the preeminent tool for studying protein-drug interactions at the scale needed to develop drugs. However, this advanced technique is facilitated by a synchrotron—a feat of science in itself—so Shamrock in turn relies on the Canadian Light Source.

Acting as a liaison between pharmaceutical companies and synchrotrons, Chicago-based Shamrock Structures buys time to carry out this science at the CLS, and also at the Advanced Photon Source (APS), the Chicago-based synchrotron literally just a kilometre from Shamrock's office. "What the CLS does better than any other facility in the world, in my opinion, is they recognize that this is a business, and they make it price-competitive," says Richard Walter, Shamrock's Chief Scientific Officer. "There are times when we would fly up to the Canadian Light Source, even when the APS is running, and that's the big reason. That and the hard-working, dedicated, expert staff that maintains and runs their beam lines…that team is among the best!"

Drug development begins with the identification of a "drug lead," essentially a molecule with the potential to cure or curb a particular disease—for instance, by shutting down the protein that causes the disease. Before this raw potential can be converted to an optimized drug, however, it needs to be fully explored, beginning with the question of how the drug molecule or inhibitor binds to a protein target.

By focusing the synchrotron's brilliant probing light, protein X-ray crystallography, better than any other technique, can reveal these interactions on an atom-by-atom basis, and in 3D. Proteins are first grown into crystals, so that X-rays can clearly illuminate and delineate these interactions. Researchers used this synchrotron-based technique to develop protease-inhibitors, for example, medication that has helped prolong the lives of AIDS patients.

"You can glean a lot of information from these structures with protein X-ray crystallography," Walter says. "Using modern facilities like the CLS, the technique is capable of giving us much quicker answers than has been historically possible." The speed provided by the CLS, he adds, in turn helps Shamrock Structures reduce the cost of serving its pharmaceutical customers.

"I've been in contact with the CLS for about a year," says Steven Schiltz, CEO of Shamrock Structures. "And we find them to be a very cooperative organization to work with—and not too far away, relatively speaking. They've also been more than welcoming. Bottom line for us is that timing is crucial to our customers – and our access to the CLS enables us to deliver their data in a timely fashion at pivotal moments."