

Meet...

Erik Sorensen

SYNTHETIC ORGANIC CHEMIST, *Princeton, New Jersey*



CHILDHOOD

Spent several years on an Indian reservation in upstate New York

JOB SITE

Princeton, New Jersey

HOBBIES

Running, drumming, hanging out with my chemist wife and young daughter

FAVORITE ROCK BAND

Rush, for their great drummer

HIDDEN TALENT

Counting to ten in Onondaga, an Iroquois Indian language

FAVORITE SPORTS TEAM

Syracuse lacrosse (men's and women's)

What He's Doing

Many plants and animals make chemicals that fight off predators, parasites, bacteria and viruses. Sometimes, we can use these natural substances to combat human illness. But many of them are so strong they're poisonous to us, or they're structured in such a way that our bodies don't absorb them.

What Nature makes on its own, Erik Sorensen tries to recreate from scratch in the lab. Inspired by substances in the wild, he builds molecules that can be developed into drugs to treat human diseases.

First, Sorensen studies the structure of a natural molecule down to its individual atoms. Then he designs a series of experiments to try to replicate it.

Building a molecule is less like playing with Lego® and more like cooking. Precisely measured ingredients go in a dish. Sorensen may boil, freeze or squeeze the mixture to encourage the chemical reactions that will form the structure he wants. Then he waits, stirring in other ingredients when needed. If he's lucky, he comes up with something good. If not, he adjusts the "recipe" and tries again. It can take anywhere from weeks to years to cook up a useful molecule.

Once he's hit upon a success, Sorensen creates what he calls "families" of molecules based on the original structure to see if any variations work effectively and safely in people.

"Chemical synthesis is a beautiful form of hands-off building. The chemical reactions do the work."

His Findings

Sorensen's naturally inspired, lab-made molecules have helped in the battles against cancer, autoimmune disorders, bacterial infections and memory loss. Most recently, he created a molecule that works like the powerful anti-cancer drug Taxol®. He named it cyclostreptin—"cyclo-" for its series of molecular rings, and "-streptin" for the *Streptomyces* bacteria from which he derived it. Sorensen is working with cancer researchers not only to learn more about cyclostreptin but also to explore its potential as a cancer medicine, especially in people who don't respond to Taxol.

Meet more interesting chemists at <http://www.nigms.nih.gov/ChemHealthWeb>.