Meet...
Carolyn Bertozzi

CHEMICAL BIOLOGIST, *Berkeley, California*

What She's Doing

It seems Carolyn Bertozzi excels at anything she puts her mind to. When she played soccer as a kid, she was named a county all-star. When she followed her father (a nuclear physicist) and older sister (a mathematician) into the sciences, she graduated summa cum laude from Harvard with an award for best senior thesis. And when she launched her career as a chemist interested in human health, she became one of the youngest scientists to earn the MacArthur "genius" award.

Now, Bertozzi is a widely respected expert in glycans, the sugars that dot the surface of every cell in our bodies. Her work is deepening basic knowledge of glycobiology, providing useful tools to fellow researchers, and could have a variety of applications for human health.

For instance, she devised a way to attach chemical markers to glycans in living creatures. Because changes in glycan behavior have been implicated in cancer, tuberculosis, bacterial infection and inflammation, Bertozzi's marker could let doctors find diseased cells and send drugs just to them. It could also allow researchers to monitor glycans in real-time and develop glycan-related tests to help diagnose disease.

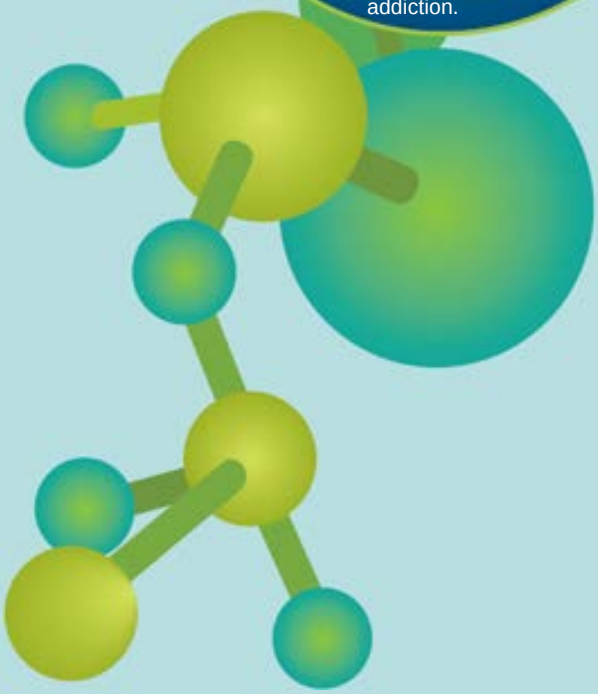
BORN IN
Lexington, Massachusetts

JOB SITE
University of California, Berkeley
& Lawrence Berkeley National Laboratory

HOBBIES
Music, sports, reading great books

BRUSH WITH FAME
Saturday Night Live cast member Rachel Dratch was a high school classmate, and in college I played in a rock band with guitarist Tom Morello, who later formed Rage Against the Machine and Audioslave.

FAVORITE FOOD
I have a peanut butter addiction.



"Molecules are as diverse as human beings."

Her Findings

In addition to tagging and manipulating glycans to study disease, Bertozzi is focusing on ways to chemically modify proteins. The technology she's developing could have an array of biotechnology applications, like making protein-based drugs last longer in a patient's body, attaching cancer drugs to antibodies so they travel to diseased cells, and building artificial proteins.

Not content to stop there, Bertozzi is also building nanoscale tools to study cells without damaging them. She's creating new nanoparticles to deliver drugs, making tiny probes to find out what molecules specific cells make, and inventing nano-needles to inject cells with probes that gather information inside.

Finally, Bertozzi studies *Mycobacterium tuberculosis*, the bacterium that causes—as its name suggests—the lung disease tuberculosis. She wants to know how different metabolic pathways in *M. tuberculosis* contribute to the disease so she can find new targets for drugs.

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

NIH National Institute of General Medical Sciences