

Meet...

Marc Zimmer

BIOCHEMIST, *New London, Connecticut*



BORN IN
South Africa

JOB SITE
Connecticut College

ALTERNATIVE CAREER CHOICE
Game warden

FAVORITE MUSIC
Kwaito, reggae, ska, Bollywood soundtracks

What He's Doing

Many creatures, like fireflies and jellyfish, light up in the dark. They fluoresce for many different reasons—to spook predators, lure prey, attract mates and even communicate.

Marc Zimmer is trying to make the molecules that illuminate these organisms glow brighter and longer. Why? So scientists can tag molecules and watch where they go inside living creatures. Doing this could help us understand how cancer spreads, gain new insights into disease treatments and even engineer bacteria so they light up in the presence of bioterrorism agents like anthrax.

At the center of this research is a protein called green fluorescent protein, or GFP. This molecule helps certain jellyfish give off green light, and one of the researchers who discovered it got the 2008 Nobel Prize in chemistry.

"I get to work with many young people and hopefully make a difference in their lives."

His Findings

Zimmer has spent the last 15 years studying GFP. He's most interested in its structure. Shaped like a soda can, GFP is made up of 238 amino acids. Just three of these amino acids come together in the center to form the chromophore, the protein's light source.

Using information about other fluorescent proteins, Zimmer has calculated each twist and turn of GFP's chromophore formation. This precise sequence, he says, could eventually allow researchers to turn glowing proteins on or off whenever needed—just like a light switch.

But there's another benefit: Students get to do research, too. Zimmer believes that the best way to get students to learn is to get them involved, so he creates many shorter projects that undergraduates can complete during a summer or a semester. The experiences, he says, shows them that chemistry can be cool, exciting and a great career choice.

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