

Meet...

Gus Rosania

PHARMACEUTICAL SCIENTIST, *Ann Arbor, Michigan*



BORN IN

Barranquilla, Colombia

DREAM CAR

A large, purple van that seats eight and runs on air and sunlight

FAVORITE SEASON

The one we're in! I live in the present

JOB SITE

University of Michigan

FAVORITE PASTIME

Laughing until my belly aches

What He's Doing

Sometimes, a drug doesn't work like it's meant to because it isn't absorbed properly or it doesn't reach the correct spot in the body. These adverse drug reactions are one of the leading causes of hospitalization and death in the United States.

Gus Rosania thinks that the precise location of a drug, within a cell, is a key clue to its effectiveness and safety. And so he is using powerful microscopic techniques to track where drugs go inside cells and what they do when they get there.

To do this efficiently and on a large scale, Rosania is using "machine vision." This technique joins imaging to computer methods that can screen huge collections of molecules for their locations inside cells.

"My dream is to develop technologies for making better and safer medicines. I want to help people live longer, healthier and happier."

His Findings

Sometimes, a drug doesn't work like it's meant to because it isn't absorbed properly or it doesn't reach the correct spot in the body. These adverse drug reactions are one of the leading causes of hospitalization and death in the United States.

Rosania treated human cells growing in lab dishes with a huge collection of molecules that glow in different colors in response to certain wavelengths of light. Computerized microscopes scanned the treated cells, analyzing more than 15,000 individual molecular pictures.

The experiment was a test to see if such a "high-throughput" approach—beginning with thousands of different potential molecules—could be used in the process researchers use to look for would-be medicines. Rosania concluded that his machine vision technique was successful in automatically analyzing where the dye molecules traveled inside cells.

One advantage this technique has over manual labor—a person sitting at a microscope—is scale. The process can be done quickly and efficiently, saving time and money and enabling many more molecules to be tested in the search for new and safer medicines.

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



National Institute of
General Medical Sciences