

RENĀ ROBINSON

Codename: Proteomics Provocateur

Renā Robinson is not one of those people who knew as a child that she wanted to be a chemist. She majored in chemistry because it seemed like a straightforward path to becoming a cardiac surgeon—a reaction to losing her father to heart complications while she was in middle school. But an internship convinced her that she didn't want to hold that level of responsibility for someone's life literally in her hands.

So she wound up in graduate school instead. While at Indiana University, she focused on examining the protein makeup of fruit flies to understand how they age. In David Clemmer's group, she was a pioneer in combining two techniques—ion mobility and time-of-flight mass spectrometry—for the large-scale analysis and identification of proteins. Because commercial instruments with this combination of methods weren't yet available, these experiments "were anything but routine," Clemmer says.

As a grad student, Robinson didn't see a lot of people who looked like her, a fact that helped persuade her to go into academia. There, she thought she could address the lack of African American—especially female—role models. "That gave me more purpose and more motivation," she says.

Now with her own lab at the University of Pittsburgh, Robinson continues to study aging and related neurodegenerative diseases. She's particularly interested in finding out how the brain and other parts of the body interact in Alzheimer's, with the ultimate goal of identifying new therapeutic targets.

To do that, she develops proteomics methods that enable her team to identify proteins that have been modified by oxygen or other reactive species. Within the next five years, she hopes to resolve a chicken-or-egg question in Alzheimer's: whether changes outside the brain, such as oxidative stress or metabolism changes, precede or are a response to changes in the brain. That information could help alter our perception of Alzheimer's as just a brain disease and lead to new ways to monitor or treat it.—CELIA ARNAUD

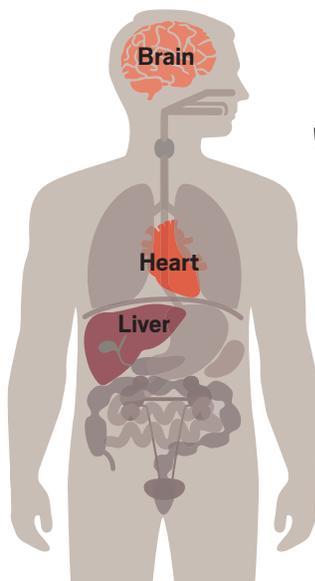
VITALS

Current affiliation: University of Pittsburgh
Age: 36
Ph.D. alma mater: Indiana University
Role model: Rather than name one person, Robinson cites many female chemists in analytical chemistry and mass spectrometry she's met throughout her career "who are reachable examples of how it's possible to maintain a successful research program and a life with your family outside the lab."
In a world without chemistry, I would be: a travel writer and blogger, "traveling the world to find the best nontourist insider places to visit."

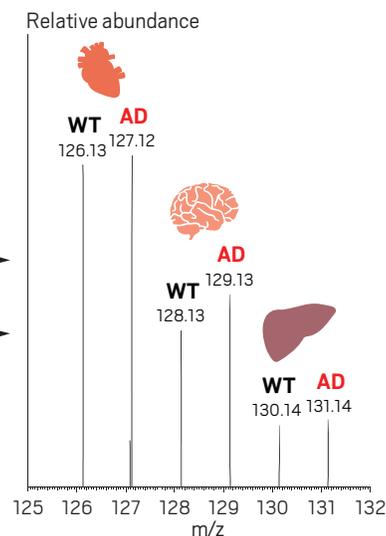


RESEARCH AT A GLANCE

Robinson wants to understand how proteins in the body respond to Alzheimer's or warn of the disease's onset. To achieve this, she uses isotopic labeling to tag proteins extracted from various tissues and then carries out proteomics analysis on them. Although her ultimate goal is to work with human tissue, the example mass spectrum shown here displays peaks from mice with Alzheimer's symptoms and healthy animals.



Proteins extracted, digested, separated



WT = From wildtype, or normal, tissue
 AD = From Alzheimer's tissue