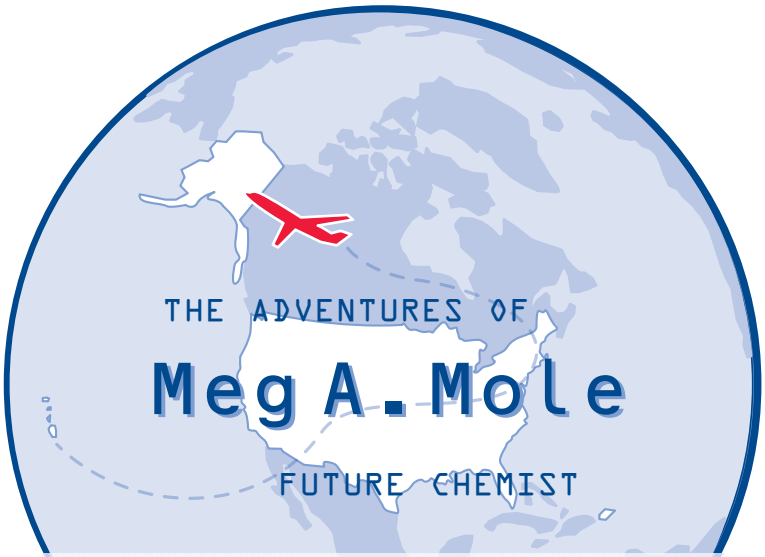
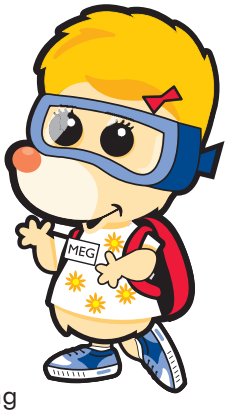




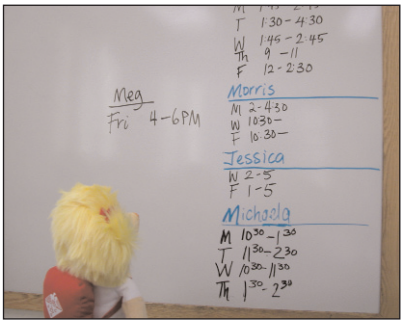
Featured Chemist: Dr. Beronda Montgomery-Kaguri

Department of Energy Plant Research Laboratory, Michigan State University

Can you "DIG IT?" In honor of this year's Chemists Celebrate Earth Day, I traveled all the way to Michigan, where I met Dr. Beronda Montgomery-Kaguri. She is a plant biochemist in the Department of Energy Plant Research Laboratory at Michigan State University. Since a mole is definitely seen as an expert in "digging" in the dirt, I was very excited to learn more about a chemist who spends her day experimenting with soil and plants.

As we were on the way to the lab, Dr. Montgomery-Kaguri told me more about her interest in science when she was growing up. She started taking advanced classes at the local university when she was in eighth grade! She developed an early interest in plants and performed experiments to see if items around the house could help them grow better. She even tried mixing eggshells and fruit rinds in soil to see if it would help the plants to grow!

Dr. Montgomery-Kaguri's parents were very supportive and allowed her to do all kinds of interesting projects at home. She really enjoyed learning the process of discovering new things and figuring out how things work. She knew that she was hooked after the first time she was able to complete an independent experiment in a research laboratory.



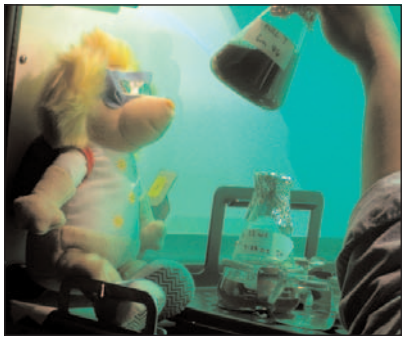
I started the day by checking out my schedule. I'll be working with Morris and Jessica, two university students doing research in the lab.

When we got to the lab, I saw my schedule written up on Dr. Montgomery-Kaguri's white board! I was thrilled to know that others in the lab were expecting my visit. The day I spent at the lab, I also got to work with Morris and Jessica, two undergraduate research students. Dr. Montgomery-Kaguri told me she loves working with young, aspiring scientists and students to introduce them to the concepts of research and discovery. I hope she counts me as a young aspiring scientist!

Dr. Montgomery-Kaguri said in the lab they study how plants "see." More specifically, how they detect light and how it changes their patterns of behavior or growth. She said they often work in darkrooms, rooms that are so dark that you cannot even see your hand in front

Here I am checking on the cyanobacteria. These tiny organisms grow on the surface of ponds and lakes.

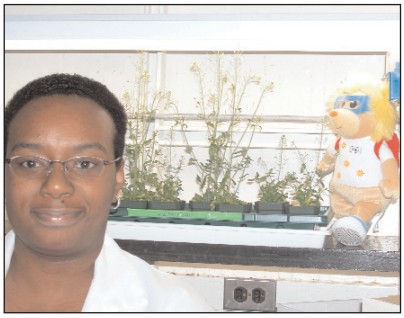
American Chemical Society
Membership Division—Office of Community Activities
1155 16th Street, NW, Washington, DC 20036
email meg@acs.org or call 800-227-5558, ext. 6097
chemistry.org/kids



Here I am in the green light chamber looking at more cyanobacteria. These organisms use light to carry out the process called photosynthesis.

of your face! They get to wear special goggles, called night vision or infrared goggles, to let them see in the dark. I've seen those on TV before! In the darkrooms, they can change the color and light and see how it affects the plants. They use lamps of many different colors including red, green, blue, and white. Next she showed me a green light chamber. Inside the chamber they were growing cyanobacteria, which are tiny organisms that naturally grow on the surface of ponds and lakes. Studying cyanobacteria is important because these organisms use photosynthesis to make sugars just like plants. By the end of the day, I was experienced enough to keep an eye on the plants. These tiny plants, which I am almost taller than, are called *Arabidopsis*. Dr. Montgomery-Kaguri and her students use these plants to understand how plants see. Plants use proteins called photoreceptors as their "eyes" to detect light. I did a great job of not playing in the dirt when she turned around!

Dr. Montgomery-Kaguri told me she really enjoys the freedom of exploring how plants work. Her research is important because we all depend on plants for food, materials, and even decoration.



By the end of the day, Dr. Montgomery-Kaguri said I was experienced enough to keep an eye on the plants. They are called *Arabidopsis* and help the researchers understand how plants see.

Although her work with plants is mainly in a laboratory, we can see the results of studying plants and soils every time we visit a botanical garden, farm, or even dig in our own backyard! Can you DIG IT?

If you have any questions about my visit, you can write to me at meg@acs.org.

Personal Profile: Dr. Beronda Montgomery-Kaguri

What is your favorite food?
Popsicles and chocolate chip cookies

What is your favorite color?
Purple

When is your birthday?
September 22

Favorite pastime?
Reading, writing, and international travel

What is an accomplishment you are proud of?
I was one of two Arkansas delegates to the National Youth Science Camp the summer after my senior year of high school.

About your family
My husband Jackson and I are the parents of a bright, energetic 3-year-old son Nicolas, who already loves to visit the research lab and perform specially designed "experiments." His current favorite is mixing soap and water in a disposable test tube and discovering the process of making lots of bubbles!

Very interesting project you were a part of?
Helping plant a community garden at a school for orphans in Uganda, East Africa.

American Chemical Society
Membership Division—Office of Community Activities
1155 16th Street, NW, Washington, DC 20036
email meg@acs.org or call 800-227-5558, ext. 6097
chemistry.org/kids