

Radhika Geonka

ASSISTANT IMMUNOLOGIST

What is Immunology?

Immunology is a branch of biology (life science). It's the study of the body's main defenses. Every living thing is made of proteins. When a foreign protein or bacteria enters the blood stream, the body reacts. Radhika's work is focused on how the body reacts and to the foreign bacteria and developing vaccines to make that person more immune or resistant to the bacteria.



Childhood

Radhika was born in India. She grew up in a family with strong, well-educated women. Her family encouraged her to to have a career in either medicine, engineering, or science. When she was a junior in high school, she took a class in biology. Once Radhika got a taste of science, she was inspired to pursue further studies. This was the beginning of her preparation towards a career in science.

Education

- Radhika got her Bachelors degree in microbiology at The University of Massachusetts. Also, she got her second Bachelors degree in biochemistry at Umass. Currently, she is involved in a Masters program in animal science.

Place of Work

- Radhika is working on the Umass campus, in Paige Hall.

Job Description

- Radhika is working along side Dr Cynthia Baldwin as a research assistant.
- Her project is studying a bacteria called Brucella Abortus that causes a disease, Brucellosis. Cynthia Baldwin and she are working to better understand this disease. Once their understanding is more complete, they hope to develop a vaccine.



(From left) Kim Stankiewicz, a graduate student, my partner Chloe, me, and Radhika.

Research and Work

As you know, Radhika's study is focused on a particular bacteria, **Brucella Abortus**. This Disease is very, very dangerous. It can be spread through milk, urine, and through people who work with the animals that are infected with Brucellosis. Though there is no certified or general human to human transmission, it is still very dangerous to work with. Radhika's particular job is creating injections of Brucella Abortus to inject into the mice. She doesn't like hurting the mice. It's very important research. After the mice are infected, they go into a special room, and Radhika works to look how the disease effects the mouse. The disease cripples the mouse, and stays with it forever meaning it's a chronic disease. Radhika works by a machine called a Hood. A hood sucks up air, so Radhika isn't infected by the disease. She is very brave to take on this job.



Mice that Radhika infects.

Did You Know?

- Radhika's work is so dangerous, she needs FBI clearance to work with the bacteria.
- The bacteria could be used as a bio-hazard, meaning it could be used as a weapon.



Radhika pointing to an autoclave

Equipment

- **Centrifuges**, that spin very fast to separate cells.
- **Incubator**, a controlled environment with a consistent tempeture used for keeping cells alive.
- **Thermocycler**, a device used for making DNA larger.
- **Gel box**, separates DNA to see if you've made the right DNA bigger.
- **Autoclave**, a high pressure, high tempeture steam chamber that kills fungus and bacteria.
- **Sonicator**, that produces high frequency vibrations.