**Research: An Inside Point of View**

Research is such a crucial and major focal point in all fields of science. In order to get an inside look at research and the perspective from someone who had first-hand experience in the area of research I interviewed Dr. Erica Lutter, a professor at Oklahoma State University. Dr. Lutter has her PHD in Cellular and Molecular Biology from the University of Calgary, Canada. Not only does Dr. Lutter have her PHD but she has numerous and impressive awards, honors, and publications. Some of these awards include the “Outstanding Faculty Member award, Petty Cotter award, and the Sharon Wilkinson Teaching Excellence Award” among many others. I began the interview by asking her about a recent study she has participated and then moved on to questions about her career field, and what her goals are for the future.

**“What new and exciting scientific results have you recently found and published in your area of research? Where can these publications be found?”**

“My lab has two distinct areas of research. 1) Half of my lab works on host-pathogen interactions of Chlamydia trachomatis and 2) the other half works on pathogens of cystic fibrosis, specifically *Pseudomonas aeruginosa*, and how they interact with the cell in the presence of calcium. We have had more publications on Chlamydia as we have been working on it more and had more funding in that area. The highlights are working on mechanisms of host cell exit and identifying the proteins regulating extrusion events at the end of the chlamydial infection cycle and linking it to changes in infectivity and alterations in immune response. “

She also mentioned that some of her publications can be found on the following website.

<https://pubmed.ncbi.nlm.nih.gov/?term=lutter+e&sort=date> “

**“What spurred this study and what got you interested in the research?”**

“The Chlamydial projects are extensions of my work from my postdoctoral studies. We have since expanded on this research as new avenues/directions open from the graduate students’ research. The Pseudomonas work is newly developed in collaboration with Dr. Marianna Patrauchan here on campus. My lab is responsible for studying the interactions with host cells, specifically lung epithelial cells.”

**“What was the goal of your research and what question were you trying to address when you began this project?”**

“With regards to the Chlamydial projects we were trying to see if the ability to extrude, a specific mechanism of host cell exit, affected the immune response of the host. Our initial work was to test to see if there was a connection and our more recent work is to confirm the mechanisms by which Chlamydia avoids the immune response and how it may manipulate it during infection.”

**“What are some challenges that you faced when conducting this research?”**

“The main challenge with Chlamydial work is that Chlamydia is an obligate intracellular pathogen, so we have to grow them in cell lines which takes time and is difficult. It is also not easily mutated or transformed so genetic manipulations take a lot of time.”

**“Why is this research important?”**

“As researchers we all think our research is very important. I think it is important as infections with Chlamydia can lead to long term consequences such as pelvic inflammatory disease, infertility and even cervical cancer. All of us that study pathogens do so as our goal is to understand how pathogens work in order to one day help develop new treatments.”

**“Describe how you felt the day you made this exciting discovery.”**

“It’s not really ever just one discovery. Each step-in science and research are difficult, but each success (even if small) is exciting.”

**“What would you like to achieve with your research projects?”**

“This is hard to answer because as we solve one problem we move onto the next problem. Our goal is to really understand how Chlamydia manipulates the host and how it avoids the immune response. Research occurs in small stages and is always ongoing so as we achieve one goal we move onto the subsequent goal.”

**“What is next for you?”**

“More research and grants. The research never ends. As we solve one area or problem, other doors open for the next experiments.”

**“What do you enjoy doing when you are not researching?”**

“I enjoy spending time with friends and my cats.”

**“What drew you to the field of science and what are the things that excite you about your work and career?”**

“I was drawn into science because I enjoyed labs as an undergraduate and got involved in undergraduate research which I truly enjoyed. I applied to graduate school, got accepted and really enjoyed learning hands on instead of just classes. As I continued in research, I enjoyed it more and more and, in the end, decided to make a career of it – this is why I am here now as a professor, leading my own lab and teaching classes. I really enjoy research and working with students and this is the perfect mix of those two things.”

Dr. Lutter’s work in the field of pathogens is not only extensive and impressive but it is also essential. This interview allowed me to learn more about research and what made her fall in love with this area. Like she mentioned “Research never stops.” There is always something new to be discovered or a new problem to be solved. There is so much more work to be done in research and science, but the discoveries are so exciting.

**References**

Lutter+E - search results - pubmed. (n.d.). Retrieved April 23, 2021, from https://pubmed.ncbi.nlm.nih.gov/?term=lutter%2Be&sort=date