**Curtain Call for Chlamydia: Extrusions *In vivo***

Although very little is said about chlamydia in the world today, a lot of it is being spread around the world today. *Chlamydia trachomatis* is the number one cause for a bacterial sexually transmitted infection (STI) and is also the leading cause for preventable blindness. A team of researchers from Oklahoma State University have set out to make it their mission to understand and continually learn about not only what Chlamydia does, but why, when and how it does what it does.

**The Background**

Contrary to other different types of infections, chlamydia has two particular way of infecting cells. If a host cell is infected, the host cell lyses in order to spread the infection to surrounding cells, but chlamydia is also able to manipulate the host cell into splitting off into an extrusion of that cell. The extrusion is essentially a new cell that is using the old host cell membrane in order to bind the infected chlamydia cells. Ultimately, this makes it easer for the infection to spread more quickly and quietly without raising alarm to the immune system since the infected cell would be seen as “self,” wrapped in its own membrane. It was this unique extrusion process that led to researchers wanting to investigate more in depth as to how this is possible, and was studied extensively *in vitro* (outside a living organism). That is, until the Oklahoma State University’s team of researchers decided to make it their goal to investigate whether these extrusions can be shed *in vivo* (inside a living organism), after being infected by Chlamydia.

**The Goal**

Dr. Erika Lutter from Oklahoma State University had a large impact in the study that would later confirm that extrusions were in fact present in live mice infected with Chlamydia. Her role was that of the Principal Investigator and had the job of generating ideas for the grant/lab projects as well as training students to perform the research. In the study, live, sedated mice were infected with Chlamydia in a controlled environment. Throughout the study, the extrusions that were a result of the Chlamydia were extracted from the infected mice and then were stained in order to see two things: the stained chlamydia bacteria and the stained host’s cell membrane. This confirmed the idea that the infected cell uses the host cell membrane as protection from the immune system, enabling it to be spread more easily and making it harder for the immune system to clear the infection on its own. To Dr. Lutter, it gave “massive implications in understanding transmission and why Chlamydia is easily spread from one person to another.”

**Conclusion**

Thanks to the findings of Dr. Erika Lutter and that of the Oklahoma State University researchers, the world is one step closer to understanding and solving the problems that humans face in regards to infection.

**Refrences**

Shaw JH, Behar AR, Snider TA, Allen NA, Lutter EI. Comparison of Murine Cervicovaginal Infection by Chlamydial Strains: Identification of Extrusions Shed *In vivo*. *Frontiers in Cellular and Infection Microbiology*. 2017;7:18. doi:10.3389/fcimb.2017.00018.