

Department of Biology presents

“*Toxoplasma gondii* - a parasite’s understanding of the adaptive immune system”

ABSTRACT. Our lab studies host-pathogen interactions using the widespread parasite of mammals and birds, *Toxoplasma gondii*. It is a very clever parasite, and is able to achieve chronic infection in the brains of most hosts, including 2 billion humans. *Toxoplasma* accomplishes this feat using specialized virulence factors it secretes into host cells, which can manipulate signaling pathways and immune defense mechanisms. Recently, we have noted a battle that takes place between *Toxoplasma* and a specific cell type of the adaptive immune system, the CD8 T cell. This immune cell is required for host immunity to most intracellular pathogens, however, *Toxoplasma* can turn “on” or “off” the activation of this immune cell. It is likely *Toxoplasma* has evolved to manipulate this immune cell to achieve chronic infection so it can complete its life cycle. By studying this particular host-parasite interaction, insights might be gained to better activate these cells during an infection. A feat which has to happen should we ever hope to develop a protective vaccine for human parasitic pathogens.

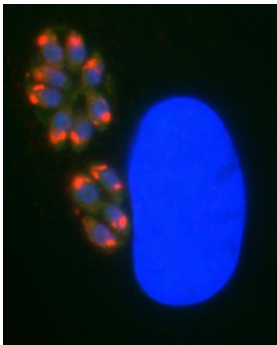


Figure. An immunofluorescence picture of *Toxoplasma gondii* (twelve dim green parasites) inside a human fibroblast cell. The red dots indicate a key *Toxoplasma* virulence factor, Rhoptry protein 5 (red), used to manipulate the immune system. The large blue blob is the infected human cell’s nuclear DNA stained with Hoechst dye (blue), the nuclei of *Toxoplasma* can also be seen.

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3:00 PM

Science 2, Room 109

For further information: www.csufresno.edu/biology or phone 278-2001. If you need a disability-related accommodation or wheelchair access information, please contact Lindasue Garner at the Department of Biology @ 278-2001 or e-mail lgarner@csufresno.edu (at least one week in advance of event).