

Glenn E. Kietzmann, Ph.D.

**Research interests and investigative projects:**

**1.) Pathogenicity and virulence studies of *Trichomonas gallinae*.**

*Trichomonas gallinae* (Sarcomastigophora) is a protozoan parasite that is found normally in the throat of infected pigeons and doves. The flagellated parasites tend to assume various morphologic forms such as pyriform, round, stalked ameboid and bell-shaped ameboid. The bell-shaped ameboid form has been shown to cause cell damage to avian palatal-esophageal epithelium during disease onset and progression (Kietzmann, 1993; 1991). Pathogenicity and virulence of *T. gallinae* are also variable in the birds it infects. Some infected birds die of their infections within seven days post inoculation (PI) while other birds show clinical signs of infection and fully recover. Some infected birds tend to exhibit minor or no clinical signs after experimental infection (Kietzmann, 1990). It has been suggested that morphologic form and reproductive rate of the parasite influences pathogenicity and virulence of *T. gallinae*. In previous studies Kietzmann (1993; 1991) documented the relationship of *T. gallinae* to the palatal-esophageal junction (PEJ) epithelium in ring doves (*Streptopelia risoria*) with scanning electron microscopy (SEM). This relationship has been examined with transmission electron microscopy (TEM) as well, and results are in preparation.



Fig.1. *T. gallinae* on PEJ squamous epithelium. Note involvement with apical microfolds. SEM.

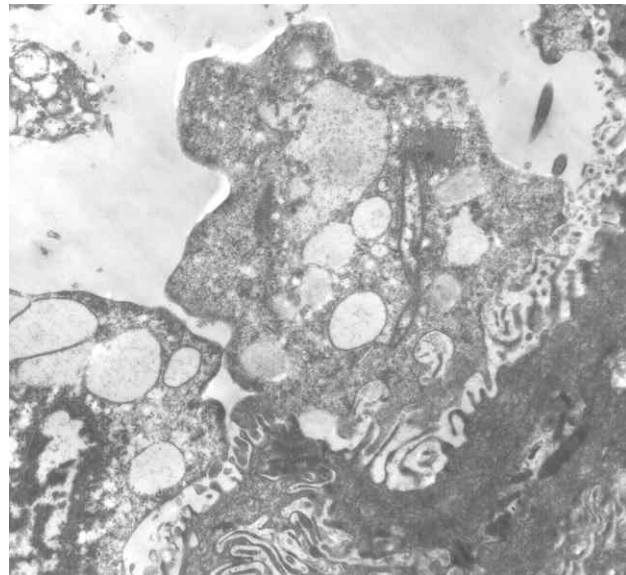


Fig.2. *T. gallinae* on PEJ squamous epithelial cell. Note involvement with apical microfolds. TEM.

Cell culture studies are currently underway to examine more closely the relationship of trichomonad morphologic shape and reproductive rate as they apply to pathogenicity and virulence of the parasite in vitro. I am utilizing various strains of *T. gallinae* and comparing the similarities and differences in their biology in hopes of learning why some strains are pathogenic while others appear to be nonpathogenic. This study is ongoing and is open to highly qualified and advanced WSC undergraduate research students. Selection for this project is competitive and is based on a submitted proposal and personal interview. For more information on these studies please contact Dr. Glenn E. Kietzmann.

**Literature Cited:**

- Kietzmann, G.E., Jr. 1993. Relationship of *Trichomonas gallinae* to the palatal-esophageal junction in ring doves (*Streptopelia risoria*) as revealed by scanning electron microscopy. *Journal of Parasitology* 79:408-415.
- Kietzmann, G.E., Jr. 1991. Effects of air drying and critical-point drying on morphology of *Trichomonas gallinae*. *Transactions of the American Microscopical Society* 110:172-177.
- Kietzmann, G.E., Jr. 1990. Transmission of *Trichomonas gallinae* to ring doves (*Streptopelia risoria*). *Proceedings of the South Dakota Academy of Science* 69:95-98.