

## The Nathan Fechheimer Memorial Lecture Series In Animal Breeding and Production

**Dr. Joy Pate**, Professor of Reproductive Physiology,  
C. Lee Rumberger and Family Chair in Agricultural Sciences  
Penn State, College of Agricultural Sciences

The overall goal of Dr. Pate's research program is to improve reproductive efficiency of dairy cows. The main focus of the research is to understand the cellular mechanisms that regulate the lifespan of the corpus luteum (CL), which is the ovarian structure responsible for progesterone production and the maintenance of pregnancy. Work from this laboratory has provided insight into cholesterol metabolism for steroidogenesis, the roles of endogenous prostaglandin production in luteal function, and the mechanisms by which exogenous prostaglandin results in the demise of the CL.

There are currently two major research emphases. The first is to understand the interactions that occur between luteal steroidogenic cells and luteal-resident immune cells. Studies on expression of class II MHC molecules in the CL, activation of T lymphocytes by luteal steroidogenic cells, and functional programming of luteal-resident immune cells have helped to define the importance of cell-cell communication in tissue homeostasis and regulation of luteal lifespan. A more recent focus is the potential role of microRNA in regulation of differentiation and rescue of the corpus luteum during early pregnancy. Using deep sequencing technology, we have profiled microRNA and mRNA in the CL of cyclic and early pregnant cows, in an effort to discover the intracellular pathways that are regulated by microRNA to facilitate rescue of the CL during early pregnancy.



### Thursday, April 13 at 1pm

Seminar at (Wooster) 1:00pm  
in 122 Gerlaugh Hall videolinked to  
212 Animal Sciences (Columbus)

Round table with students 2:30pm

<http://ansci.osu.edu/about-us/fechheimer-lecture-series>

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### Friday, April 14 at 2pm

Seminar at (Columbus) 2:00pm  
in 212 Animal Sciences videolinked to  
122 Gerlaugh Hall (Wooster)

Presentation oriented towards students



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AND ENVIRONMENTAL SCIENCES