**Véronique A. Lacombe, DVM, PhD, Diplomate ACVIM, Diplomate ECEIM**

**Associate Professor**

**Department:** Physiological Sciences

**Contact Information:**

*Physiological Sciences*

*283 McElroy Hall*

*Stillwater, OK 74078*

*Office: (405) 744-8089*

*Fax: (405) 744-8263*

**Fields of Interest:** glucose metabolism, insulin resistance and obesity, diabetes, therapeutic targets for the diabetic population, cardiac complications in the diabetic patient.

**Research program of the Comparative Metabolism laboratory:** Diabetes, insulin resistance and obesity have reached epidemic levels, and impose a considerable medical and economic burden on societies that requires urgent action. The research mission of our laboratory is to improve animal and human health by a better understanding of the metabolic effects of insulin resistance and diabetes. The main pathogenic process underlying sustained hyperglycemia, the landmark of diabetes, results from a defect of insulin production or action, with dysfunctional glucose uptake into insulin-sensitive tissues (i.e., striated muscles and adipose tissues). Glucose uptake from the bloodstream is tightly regulated by a family of specialized proteins, called the glucose transporters. Because every cell expresses these glucose transporters, they are recognized as major regulators of whole body metabolism and thus key pharmacological targets. In addition, diabetes causes multi-organ dysfunction and substantially increases the risk of both developing and dying from heart failure. Despite intensive research for over 50 years, the mechanisms of altered glucose transport observed during diabetes and heart diseases remain elusive. Therefore, the main current missions of my laboratory are to primarily investigate the regulation of glucose transport in insulin-sensitive tissue and to further understand the pathogenesis of heart diseases in diabetic patients. The strength of our research program is to use a unique comparative approach by investigating both small and large animal models of metabolic diseases, spinning from transgenic mice to horses*.* In addition, we use an integrative physiological approach ranging from whole-animal to cellular and molecular studies. State-of-the-art techniques used in the laboratory include echocardiography, cardiac myocyte isolation, western blot, RT-PCR and cell surface biotinylation assay. Findings from our ongoing studies could unravel new pathogenic mechanisms, which could translate in the discovery of novel therapeutic directions that could be beneficial to both veterinary and human patients. Potential summer students will participate in one of the ongoing projects.

Additional information can be found at:

<http://www3.cvhs.okstate.edu/profiles/DisplayProfile.asp?RecordID=973>