

Exception to housing temperature for deer mice

An exception was approved by the IACUC to the guidelines indicated by the “Guide for the Care and Use of Laboratory Animals” for housing temperature of small mammals such as mice. A project requires the housing of mice at 5°C, which has been shown to significantly increase the metabolic rate of the species being studied (Deer mouse) without causing ill health effects (Van Sant and Hammond 2008). Previous studies on this species have used this approach to manipulate basal metabolic rate, maximum metabolic rate, and respiration frequency and efficiency (Heimer and Morrison 1978, Russell and Chappell 2007, Rezende et al. 2004). This cool housing temperature should increase the contribution of metabolic water to the mouse body water and decrease $\Delta^{17}\text{O}_{\text{BW}}$, testing a central hypothesis regarding the scientific goal of this project. Eight deer mice experienced this temperature exception in this reporting year.

Citations

Heimer, W., P. Morrison. 1978. Effects of chronic and intermittent cold exposure on metabolic capacity of *Peromyscus* and *Microtus*. *International Journal of Biometeorology* 22:129–134.

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Russell, G. A., M. A. Chappell. 2007. Is BMR repeatable in deer mice? Organ mass correlates and the effects of cold acclimation and natal altitude. *Journal of Comparative Physiology B* 177:75–87.

Van Sant, M. J., K. A. Hammond. 2008. Contribution of shivering and nonshivering thermogenesis to thermogenic capacity for the deer mouse (*Peromyscus maniculatus*). *Physiological & Biochemical Zoology* 81:605–611.