

# Skin to Neuron Communication Links Stress Adaptation to Stress Avoidance Behavior

**May 13**

**Tuesday, 12:30 pm**

**Billings Building—Rosedale Room**

**SPEAKER:**



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**Host: Dianna E. Willis, Ph.D.**

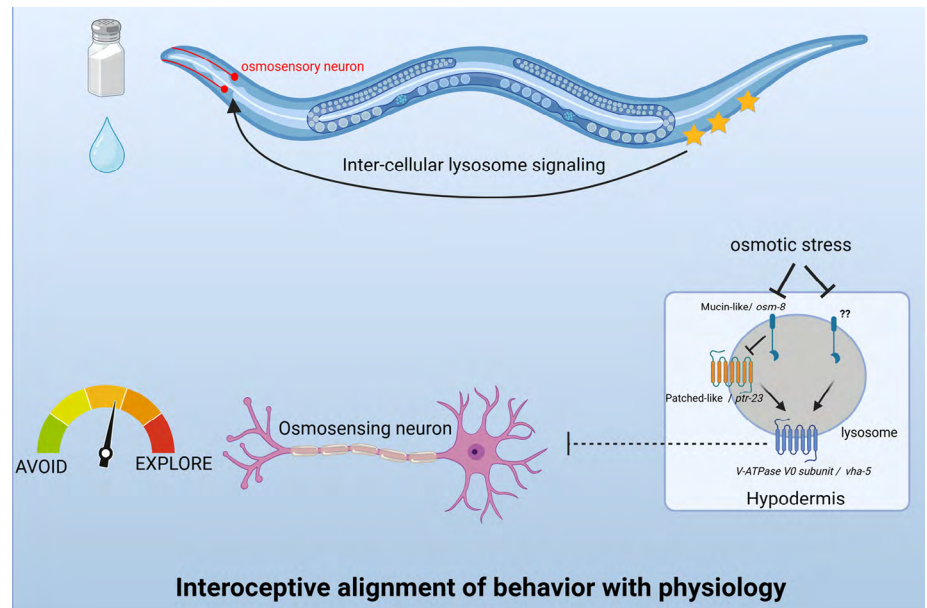
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## Abstract

Changes in physiological states, such as starvation, drive changes in behavior that reestablish homeostasis, such as eating. This involves physiologically evoked signals from peripheral tissues that alter nervous system function. Beyond the gustatory signals that regulate feeding behavior, the signals and systems that link other physiological states to behavior are poorly described. The model system *C. elegans* provides a powerful, integrated system to understand the mechanisms by which physiological states impact nervous system function. I will present new data showing how a physiological pathway that responds to stress in the skin inhibits a neurocircuit that mediates behavioral avoidance towards that same stress signal. I will also show how genetic activation of this pathway in the absence of any changes in the environment is sufficient to drive this behavioral change. This shows that worms monitor their internal physiological state to modify sensory processing, i.e. worms possess interoception. Together, these data suggest that stress signaling in peripheral tissue links stress physiology to stress avoidance behavior.



## Publications

1. Urso SJ, Comly M, Hanover JA, Lamitina T.\* The O-GlcNAc transferase OGT is a conserved and essential regulator of the cellular and organismal response to hypertonic stress. *PLoS Genet.* 2020 Oct 2;16(10):e1008821. doi: 10.1371/journal.pgen.1008821. PMID: 33006972; PMCID: PMC7556452
2. Urso, SJ, Sathaseevan, A., Derry, WB, Lamitina, T.\* Regulation of the hypertonic stress response by the 3' mRNA cleavage and polyadenylation complex. *Genetics*, 2023 Mar 27; iyad051. doi: 10.1093/genetics/iyad051
3. Snoznik C, Medvedeva V, Mojsilovic-Petrovic J, Rudich P, Oosten J, Kalb RG, Lamitina T.\* The nuclear ubiquitin ligase adaptor SPOP is a conserved regulator of C9orf72 dipeptide toxicity. *Proc Natl Acad Sci U S A.* 2021 Oct 5;118(40):e2104664118. doi: 10.1073/pnas.2104664118. Epub 2021 Sep 30. PMID: 34593637; PMCID: PMC8501779