

**Speaker:**

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Date: Monday, Feb. 22, 2021**Time:** 4:00 pm - 4:50 pm**Zoom:** 952-3324-4564**Passcode:** 835322**Title:**

“Challenging a Classic Paradigm in Endocrinology: Characterization of a Juvenile Hormone Transporter in *Drosophila melanogaster*”

Abstract:

Lipophilic hormones, such as various steroid hormones in humans, enter cells to regulate key physiological processes through intracellular receptors. Textbooks traditionally describe a simple diffusion model in which lipophilic hormones freely pass into the cell. However, with the recent discovery of *Ecdysone Importer (Eci)*, a membrane transporter required for cellular entry of the insect steroid hormone ecdysone, we believe that another highly lipophilic insect hormone, juvenile hormone (JH), also requires a membrane transporter. Juvenile hormone, a critical insect hormone that regulates insect development and reproduction, is believed to enter cells by simple diffusion and bind to its intracellular receptors. Through a genome-wide RNA interference (RNAi) screening for putative JH transporters in *Drosophila melanogaster*, we have identified a single gene that we have named *JH Transporter (JHT)*. Knockdown of *JHT* causes a phenotype that resembles JH receptor knockdown animals. We believe that *JHT* is needed for JH diffusion into the cell to bind to its intracellular receptors. This study aims to challenge the long-standing doctrine in endocrinology that lipophilic hormones can simply diffuse into the cell, which advances future research in the field of endocrinology and cell biology.