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Joan Wood Lecture Series

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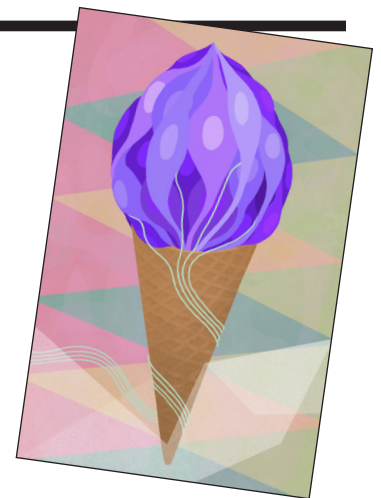
Nutrigenomic regulation of plasticity and disease

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Biology Bldg. 009

Abstract: Diet profoundly influences brain physiology, but how the nutritional information is transmuted into neural activity and behavior changes has remained elusive. My lab has been studying the effects of high dietary sugar on the taste and reward systems to answer this question. We previously demonstrated that, in flies and rats, the responses of the sweet-sensing neurons are modulated by the dietary environment. Here we will discuss how diet-induced taste plasticity requires the integration of metabolic and neural activity cues at the chromatin level. We will also discuss how alterations in taste function blunt the reinforcing effects of dopamine transmission onto associative learning circuits. This deficit in dopamine signaling prevents the pairing between sensory cues and food, delaying satiety and increasing food intake. Our studies show that diet-driven changes in sensory function initiate a cascade of circuit dysfunction that promotes the development of metabolic disease. We will also introduce newer directions for the lab, where we are investigating the nutrigenomics mechanisms underlying metabolic and developmental diseases.



The **Joan Wood Lecture Series** provides a forum for students to interact with women in science-related careers. Designed to encourage undergraduate women to pursue advanced degrees in science, the series showcases the many career opportunities available to science majors.

Joan Wood, Ph.D., M.D., a medical geneticist, was a strong advocate of women in the sciences. She was active in educational programs in the IU Department of Biology, where she earned three degrees.