Physiological homeostasis is monitored and maintained by a complex system of neurons, including peripheral sensory neurons, which convey information from metabolic tissues to the brain. Of particular importance are Nav1.8-expressing afferents (C-fibers) which serve as a critical link between peripheral nutrient sensing and centrally mediated physiological responses. My laboratory is interested in the physiological requirements for Nav1.8-expressing neurons in regulating metabolic inflammation. Furthermore, we examine how inflammatory insults and high-fat feeding affects the anatomical integrity of Nav1.8-expressing neurons supplying the gastrointestinal tract, with a special emphasis on the role played by bacterial endotoxins and the Toll-like receptor 4. Together, these studies will increase our understanding of the biological control of energy balance, feeding and metabolic inflammation and will provide mechanistic insights to the pathophysiology of obesity-associated neuropathies.