Osmoregulatory capacity as a key determinant of insect cold tolerance
Lucie Gerber
Zoophysiology, Aarhus University

Most insects are chill-susceptible and lose ion and water balance at low temperature, which leads to cellular injury and death. There is growing evidence that maintenance of ion and water balance determine cold tolerance in insects but physiological studies investigating the processes involved in homeostatic regulation of ion and water balance at low temperature are lacking. I will present our recent findings on homeostatic regulation in the cold that links cold tolerance to osmoregulatory capacity, and introduce two methods: the everted gut sac and Ussing chambers, that I developed in our group to study ion and water transport across the osmoregulatory hindgut.