86.2 Friday, Jan. 6 Proteomic analysis of hyposalinity stress in the ascidian species *Ciona savignyi* and *C. intestinalis* KOMAN, James S.*; TOMANEK, Lars; Cal Poly San Luis Obispo; Cal Poly San Luis Obispo jkoman@calpoly.edu

The ascidian species *Ciona savignyi* and *C. intestinalis* are invasive species but show interspecific differences in their population response to hypo-saline stress associated with heavy winter-run off events that are predicted to become more frequent due to climate change. Despite an almost world-wide distribution, *C. intestinalis* seems to be more susceptible to hypo-saline stress than the geographically more limited *C. savignyi*. Given that the genomes of both species are fully sequenced, we were able to compare their proteomic response to both acute and chronic salinity to characterize the mechanisms that are responsible for setting tolerance limits to hyposaline conditions in these two congeneric species. For the acute hypo-saline stress experiment, we exposed each species to decreasing salinities, 100%, 85% and 70% full-strength seawater, for 6 hours followed by a 4-hour recovery at 100%. In the chronic salinity stress experiment, each species was kept at 100% or 85% with individuals removed for analysis during a 16-day time course. Organisms were dissected to remove the tunic, and 2D SDS-PAGE was performed to separate proteins and characterize changes in protein expression. In the acute experiment, we determined 5% and 19% of the proteins to be differentially expressed in *C. savignyi* and *C. intestinalis*, respectively, due to the treatment effect. For both species in the chronic experiment, we determined over 40% of the proteins to be differentially expressed given the treatment, time, or interaction effect. Analysis of these proteins with MALDI TOF-TOF mass spectrometry has identified numerous proteins implicated in the cellular stress response (HSPs), metabolism (glycolysis, ATP & NADPH production), cytoskeleton (actin filament breakdown), and cell signaling (Ca-binding proteins), among others.