Spatial and temporal control of dendrite arborization in a nociceptive neuron in C. elegans

Mechanical stimuli on the skin of *C. elegans* are detected by the dendritic arbors of PVD nociceptive neurons, which provide uniform sensory coverage outside the head region across the entire animal. Through genetic screens, we isolate several mutants that display defective collapsed menorahs in PVD dendrites and three mutants that exhibit profound self-avoidance defects in PVD dendrites and through whole genome sequencing, we identify the responsible mutations. I will present our molecular and cell biological analysis of these mutant gene products. Choreographic dendritic arborization takes place within a defined time frame, but the timing mechanism is currently not known. I will show our recent identification of two precisely timed regulatory circuits that trigger an initial dendritic growth activity and signals a subsequent developmental decline in dendritic growth ability, hence restricting dendritic arborization within a set time period.