

**Title: The Role of CLV2/CRN in Floral Primordium Development in *Arabidopsis***

**ABSTRACT:**

Understanding the pathways that control plant development is critical in building a more complete account of how plants grow, especially with changing environmental conditions. This process still lacks mechanistic knowledge at the level of receptors and ligands. In the shoot, the CLE peptide CLAVATA3 (CLV3) limits stem cell production by signaling through receptor-like kinase CLAVATA1 and a dimer of the receptor pseudokinase complex CLAVATA2 and CORYNE (CLV2/CRN). Mutations in these genes cause an over-proliferation of stem cells and thus an excess of floral organs. We find that *crn* and *clv2* mutants exhibit an additional phenotype that involves a pause in development along with a period of floral primordia termination. Interestingly, termination is temperature-dependent and we find that *crn* and *clv2* mutations alter the balance of auxin. We also find that this pathway is CLV1-independent, which points to a novel pathway specific to floral primordia development that relies on additional CLE ligands including CLV3. We show a unique function of the CLV2/CRN receptor complex in conferring resistance to various environmental conditions to allow for proper floral development. In this way, we provide a new mechanistic look at a pathway that can integrate external environmental signals and translate it into hormone signals for proper floral development.