Insights into the role of CLE signaling in the quiescent center

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Proper root growth and development is reliant on stem cells located in the root meristem, which are formed and maintained by the quiescent center (QC) of the stem cell niche. The divisions and differentiation of these stem cells are known to be regulated by CLAVATA3/ENDOSPERM SURROUNDING REGION-LIKE (CLE) peptide signaling through CLAVATA 1/ BARELY ANY MERISTEM (BAM) receptor-like-kinases. Unlike the relationship between CLE signaling and WUSCHEL-RELATED HOMEOBOX (WOX) transcription factors in the shoot, the role of CLE peptides in regulating the center of the root stem cell niche is independent of WOX5. We hypothesize that CLE signaling may directly control the QC and the surrounding stem cells and have observed that when exogenously treated with CLE peptides, the QC divides ectopically in a manner dependent on *BAM1*/*2*. Through a combination of genetic, transcriptomic, and morphological analysis we have found strong preliminary evidence that BAM-CLE signaling promotes QC divisions through transcriptionally regulating QC cell cycle genes. Future experiments are aimed at identifying downstream targets of BAMs and determining their genetic interactions.