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Evolutionary Significance of Variation within the *CLAVATA3* Promoter and 3' UTR in *Arabidopsis Thaliana*

The highly regulated ability of the *Arabidopsis* shoot meristem to generate aboveground organs relies on the *CLAVATA/WUSCHEL* (*CLV/WUS*) negative feedback loop. It has been hypothesized that the *CLV3* gene encodes a small, secreted protein ligand that is responsible for activating the CLV1/2 receptor complex, which in turn suppresses the activity of *WUS*. If any participant of this negative feedback loop is damaged or removed, the normal development of the meristem and the entire plant is compromised. Because its transcription is required for the pathway's activation, I investigated nucleotide diversity in the *CLV3* gene. Typically, the promoter of a gene is responsible for regulating gene transcription; thus any variation in this region could impact the gene's activity. Additionally, genetic evidence suggests that the 3' untranslated region (UTR) of *CLV3* may also contain enhancer elements that can regulate gene transcription. Previous research has demonstrated that, in fact, polymorphisms are most concentrated in the promoter/5' UTR, roughly 300 bp upstream of the *CLV3* translational start site. Similarly, there is evidence that the 3' UTR of *CLV3* contains polymorphisms. The focus of my current study, therefore, involves the analysis of both the 3' UTR and a more extended portion of the promoter/5' UTR within a variety of *Arabidopsis* ecotypes. If any polymorphisms have been evolutionarily retained, I hypothesize that they may contribute to phenotypic variation between the meristems of different ecotypes.