

Supporting Information:

Dual CLAVATA3 Peptide in Arabidopsis Shoot Stem Cell Signaling

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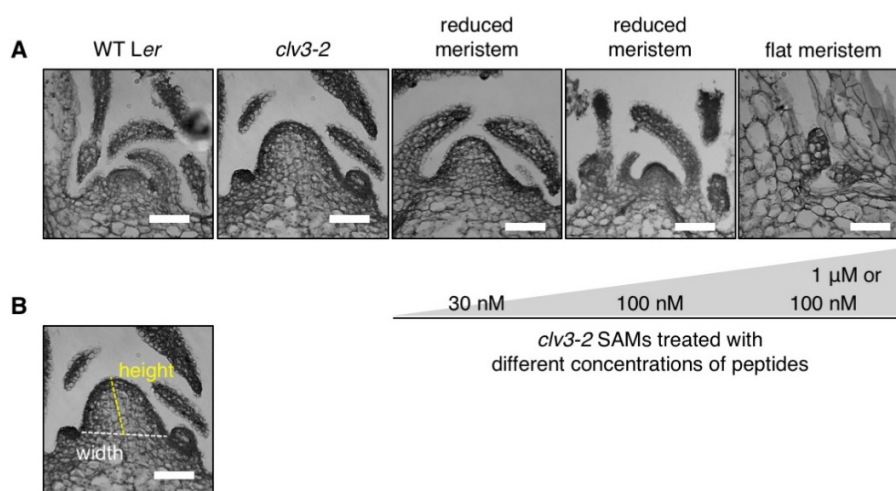


Fig. S1. CLV3 peptides complement *clv3-2* in the SAM homeostasis.

(A) The SAM size of *clv3-2* is gradually reduced by physiological concentrations (30 and 100 nM) of both [Ara₃]CLV3p and MCLV3p, and eventually resembles that of WT *Ler*. High concentrations of peptides (100 nM or 1 μM) often deplete stem cells in the SAM, causing a flat structure in the region of the SAM. This flat structure was more frequently observed in the *clv3-2* SAM treated with 100 nM [Ara₃]CLV3p but not MCLV3p. However, a flat structure in the region of the SAM was also observed in a higher 1 μM concentration of MCLV3p. Scale bars = 50 μm.

(B) An example of height (yellow dot line) and width (white dot line) between two flanking primordia from the sectioned SAM.

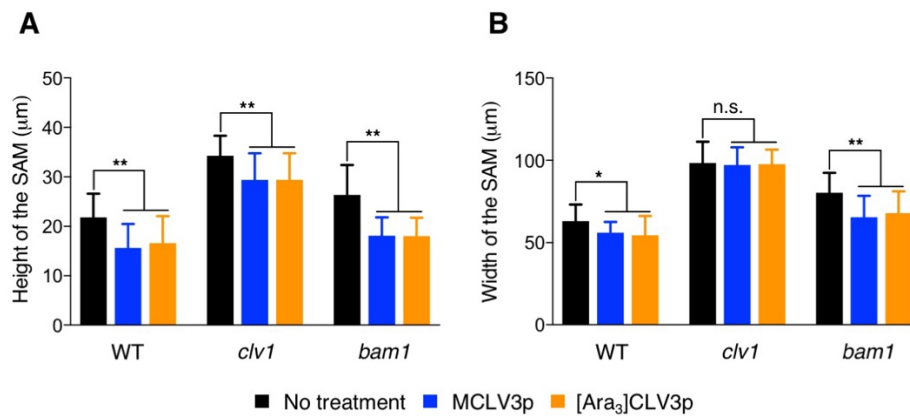


Fig. S2. MCLV3p and [Ara₃]CLV3p similarly reduce the SAM size in *clv1* and *bam1* mutants.

(A, B) The size of shoot meristem was quantified by measuring the height (A) or the width (B) of the SAM. In the absence of CLV3 peptides, the SAM of *clv1* (WiscDsLox489-492B1) or *bam1* (Salk_015302; *bam1-3*) is enlarged obviously or slightly compared to that of WT Col-0, respectively (No treatment, Black bars). The SAM size of WT, *clv1* and *bam1* seedlings treated with 100 nM MCLV3p or [Ara₃]CLV3p for 11 days at intermediate photoperiod condition (12-h light/12-dark) was similarly affected. Although the width of the SAM in the *clv1* mutant was rarely changed by the treatment of two kinds of CLV3 peptides (B), the height of the SAM was significantly decreased (A). Error bars represent SD ($n = 14$). * indicates significant difference (two-way ANOVA test, $p < 0.05$) and ** also indicates significant difference (two-way ANOVA test, $p < 0.001$). n.s., not significant.

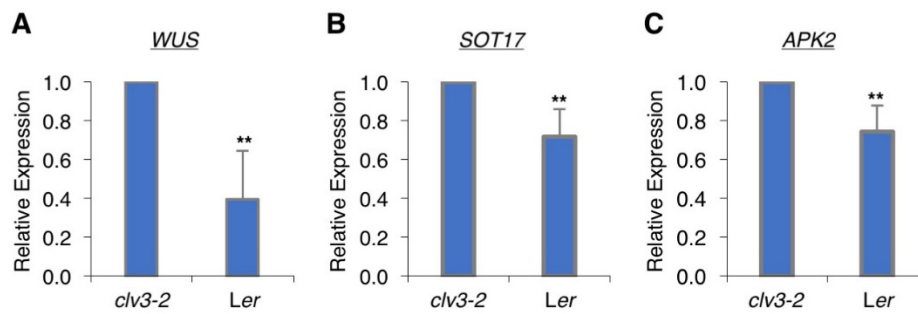


Fig. S3. Endogenous expression levels of *WUS*, *SOT17* and *APK2* genes in the SAM of *clv3-2* and WT *Ler* seedlings.

(A-C) Seven-day-old *clv3-2* and *Ler* seedlings were grown in the liquid medium and each total RNA was isolated from SAM tissues. The expression levels of *WUS* (A), *SOT17* (B) and *APK2* (C) genes in the *clv3-2* mutant or the WT *Ler* through the normalization with the expression level of *ACT2* gene. Error bars represent SD ($n = 7$). ** indicates significant difference (Unpaired t -test, $p < 0.001$).