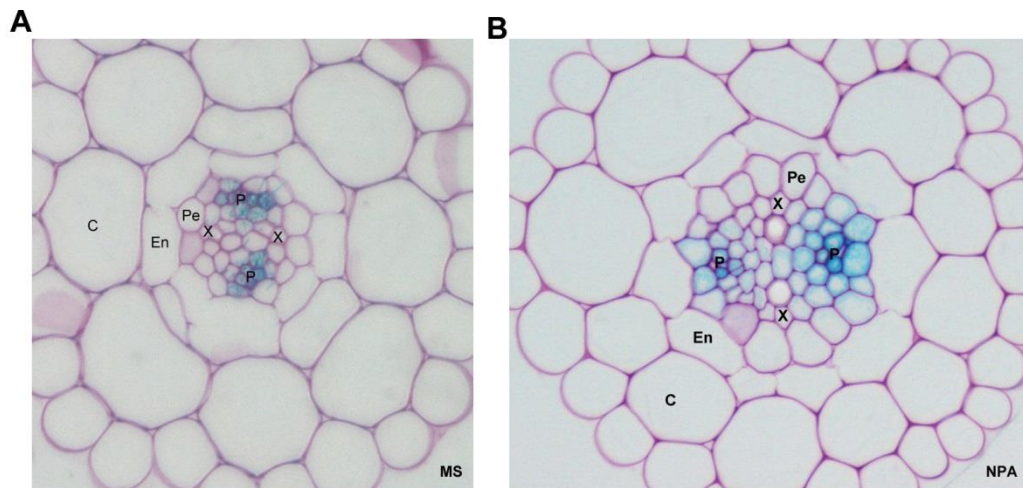


CEP5 and XIP1/CEPR1 regulate lateral root initiation in *Arabidopsis*

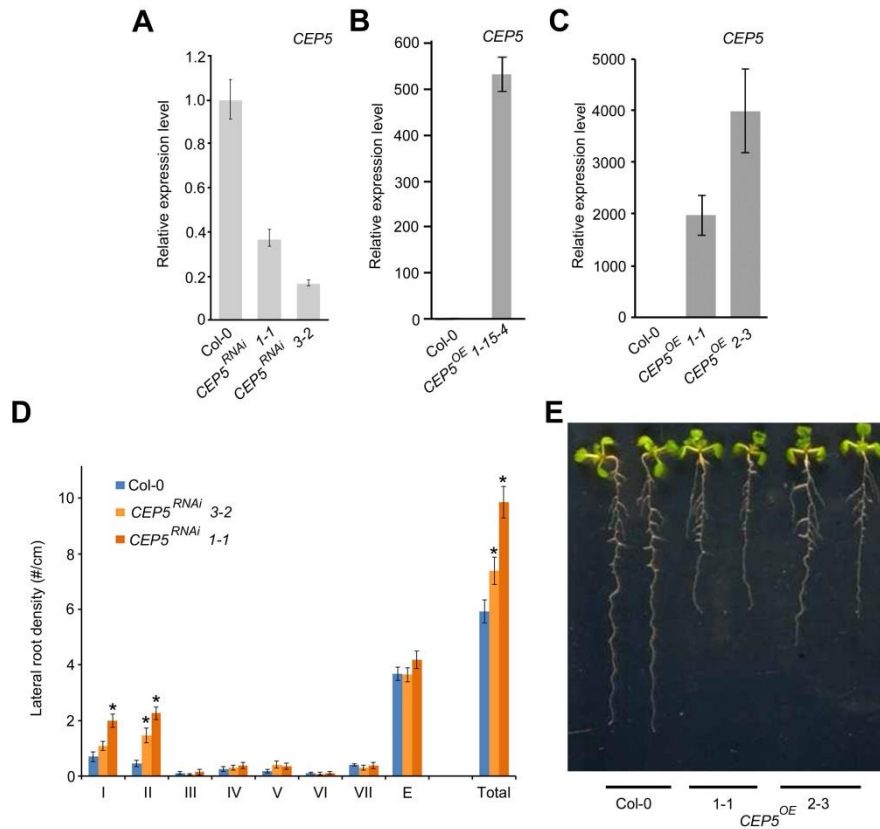
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SUPPLEMENTARY INFORMATION

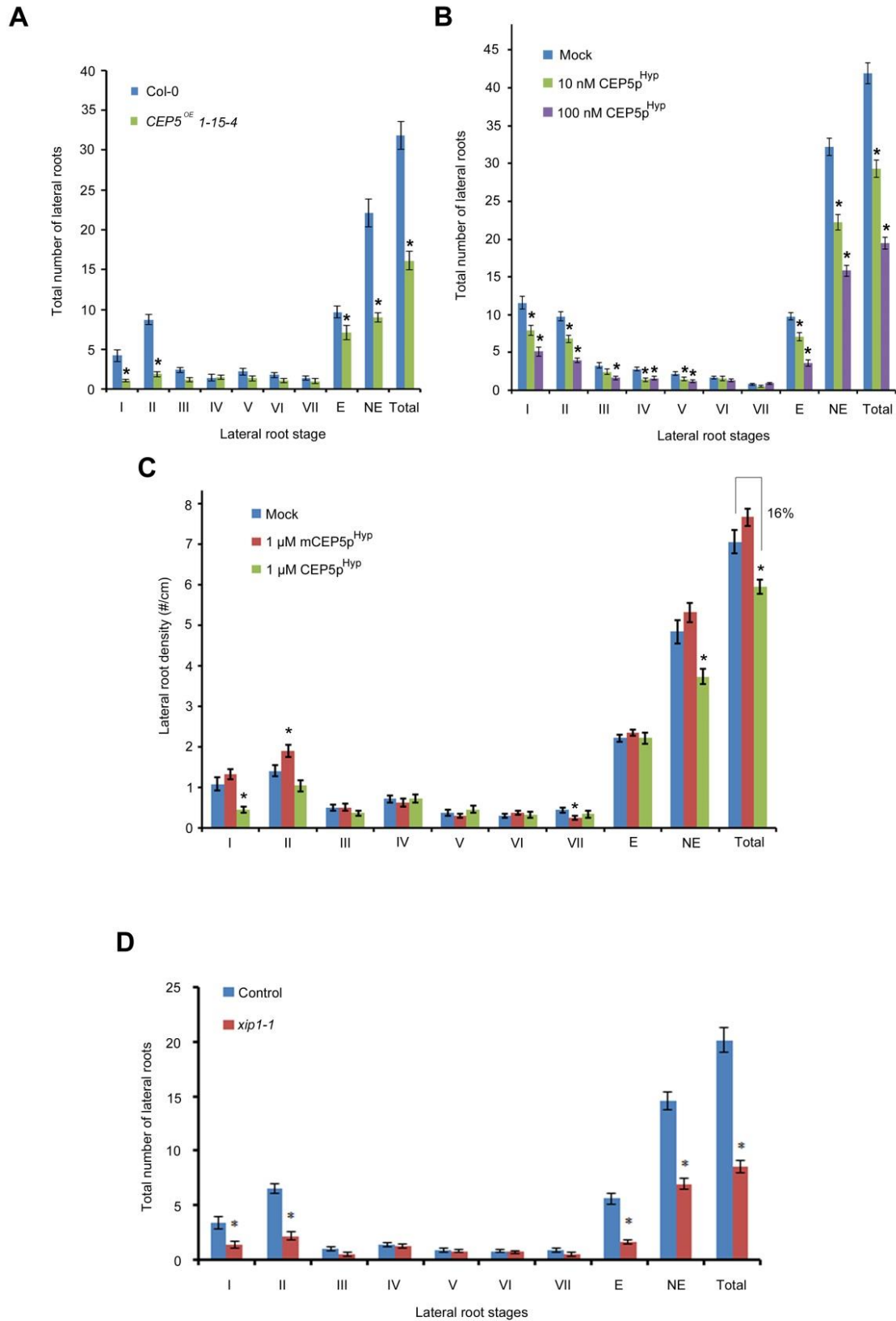
Supplemental Figures



Supplementary Figure S1. *CEP5* expression on transverse section. Representative image of *CEP5* expression (monitored through *GUS* expression in a *pCEP5::NLS:GFP:GUS* transgenic line) on a transverse section through (A) an older part of a 5-7 day-old seedling root grown on control medium (1/2 MS) and (B) a 5 day-old seedling root grown on 10 μM N-1-naphthylphthalamic acid (NPA). P, phloem; X, xylem; Pe, pericycle; En, endodermis; C, cortex.



Supplementary Figure S2. Analyses of $CEP5^{RNAi}$ and $CEP5^{OE}$ lines. (A-C) Relative expression levels of $CEP5$ in roots of independent $CEP5^{RNAi}$ (A) and $CEP5^{OE}$ lines (B-C) as determined by real-time qRT-PCR compared to Col-0 control roots. Graphs are average \pm standard error. (D) Lateral root stages I to VII (according to Malamy and Benfey, 1997) in two $CEP5^{RNAi}$ lines (n = 6-8) at 7 days after germination. E, emerged lateral roots; Total, sum of emerged and non-emerged. *, $p < 0.05$ according to Student's t -test compared to Col-0. (E) Representative seedlings illustrating root phenotype in independent $CEP5^{OE}$ lines with relative $CEP5$ expression levels shown in (C).



Supplementary Figure S3. Lateral root phenotypes upon CEP5 perturbation and in *xip1-1*. (A-B) Total number of lateral roots for *CEP5^{OE}* (A) and CEP5p^{Hyp} treatment at indicated concentrations (B). (C) Lateral root density for seedlings treated with 1 μM

CEP5p^{Hyp} or m CEP5p^{Hyp}. Lateral root stages I to VII according to (Malamy and Benfey, 1997) in *CEP5^{OE}* line ($n \geq 15$) at 7 days after germination (A), upon mock or CEP5p^{Hyp} treatment at different concentrations at 9 days after germination (data from newly grown root part of 5 day old seedlings transferred to CEP5p^{Hyp} for 4 days, $n \geq 32$) (B), and upon mock, CEP5p^{Hyp} or mCEP5p^{Hyp} treatment at 9 days after germination (data from newly grown root part of 5 day old seedlings transferred to (m)CEP5p^{Hyp} for 4 days, $n \geq 23$) (C). The % reduction in total lateral root density is indicated in C. In all cases, mock refers to medium with water as used to dissolve CEP5p. **(D)** Total number of lateral root stages I to VII according to (Malamy and Benfey, 1997) in Col-0 and *xip1-1* at 5 days after germination ($n \geq 14$). All graphs show average \pm standard error. *, $p < 0.05$ according to Student's *t*-test compared to Col-0 or mock. E, emerged lateral roots; NE, non-emerged lateral roots; Total, total lateral roots.

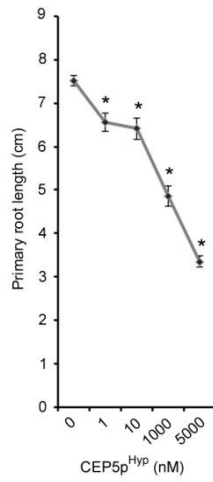


Figure S4. Bioactivity of hydroxyprolinated CEP5 (CEP5p^{Hyp}) at lower concentrations in the primary root length assay (on Col-0) at 12 days after germination ($n \geq 16$ per condition). *, $p < 0.05$ according to Student's t -test compared to mock (medium with water as used to dissolve CEP5p).

REFERENCES

Malamy JE, Benfey PN. 1997. Organization and cell differentiation in lateral roots of *Arabidopsis thaliana*. *Development* **124**, 33-44.