

# AtFH1 formin mutation affects actin filament and microtubule dynamics in *Arabidopsis thaliana*.

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## Supplementary Material

**Table S1.** Trichoblast and atrichoblast length, root hair density (i.e. number of root hairs in a 2 mm portion of new root, see Methods) and root hair length in wild type and mutant seedlings treated with inhibitors.

Treatment	Trichoblast length			Atrichoblast length			Root hair density		Root hair length			
	wt	<i>fh1-1</i>	<i>fh1-2</i>	wt	<i>fh1-1</i>	<i>fh1-2</i>	wt	<i>fh1-1</i>	wt	<i>fh1-1</i>	<i>fh1-2</i>	
<b>Control</b>	167.2 ±30.5	155.6 ±29.5	163.8 ±30.4	240.7 ±41.8	232.7 ±47.1	232.4 ±59.2	23.0 ±4.9	25.8 ±4.7	158.0 ±81.2	214.6 ±97.8**	282.6 ±74**	
<b>Lat B (nM)</b>	<b>100</b>	83.8 ±14.3	63.2 ±11.5**	73 ±14.6 <sup>1</sup>	135.2 ±26.3	101.3 ±15.3**	101.3 ±36.6**	27.0 ±6.7	35.5 ±6.9**	103.8 ±58.7	158.0 ±80.4**	146.2 ±91.9**
	<b>330</b>	60.6 ±9.3	46.7 ±7.4**	-	90.3 ±13.8	71.9 ±12.4**	-	10.6 ±6.1	13.1 ±6.3	55.4 ±32.2	32.7 ±24.4**	-
	<b>1000</b>	- <sup>2</sup>	- <sup>2</sup>	-	70.0 ±12.2	65.8 ±12.2	-	0	0	-	-	-
<b>Oryz (nM)</b>	<b>100</b>	155.5 ±29.1	158.7 ±31.8	-	230.2 ±42.2	224.6 ±40.7	-	19.7 ±4.1	24.4 ±5.7*	126.1 ±61.1	177.6±7 1.1**	-
	<b>330</b>	110.6 ±25.4	103.1 ±23.7	-	152.4 ±33.6	143.1 ±35.4	-	23.8 ±6.2	23.9 ±5.1	106.8 ±34.0	125.1±4 7.1*	-
	<b>1000</b>	77.1 ±22.4	76.7 ±27.6	-	87.0 ±24.9	86.9 ±25.7	-	26.8 ±6.7	35.3 ±7.4*	84.8 ±26.9	83.1±30. 2	-

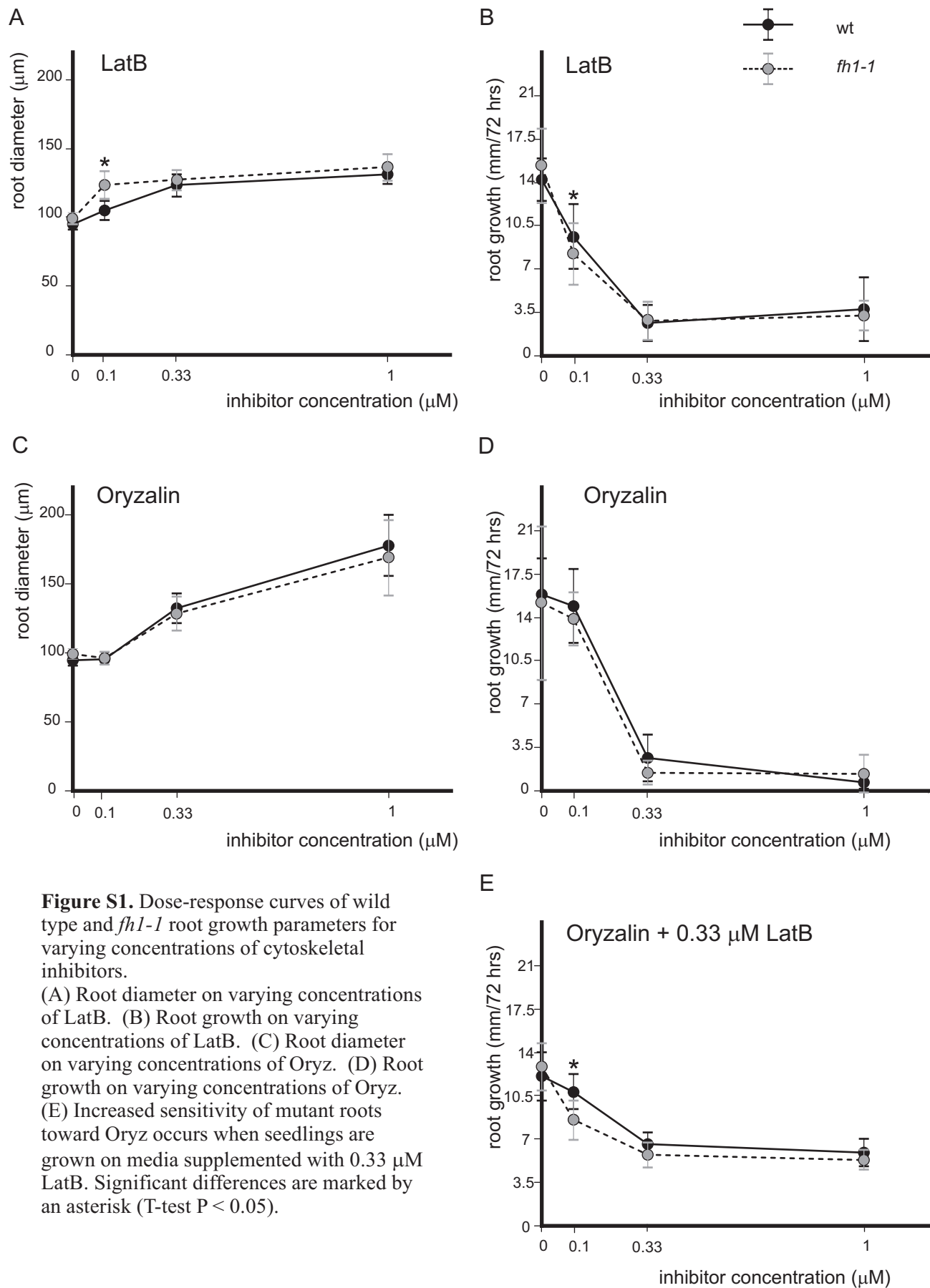
Data are means ± SD

\*\*Significant difference from wt at P<0.001

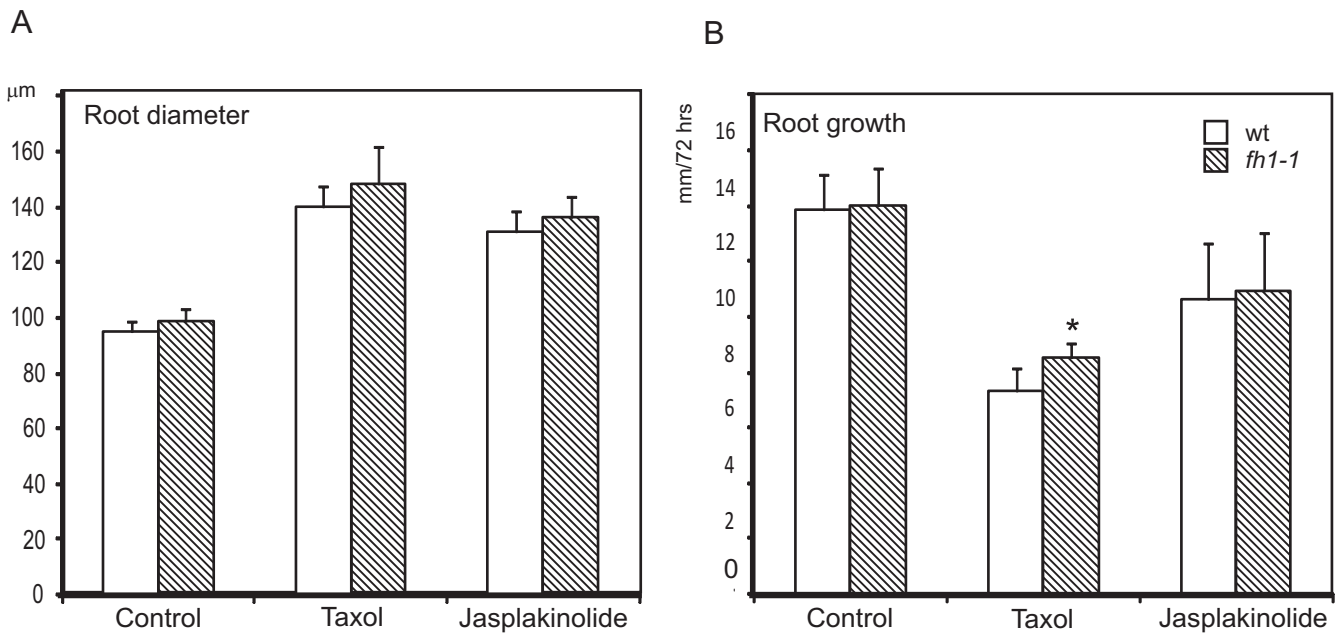
\* Significant difference from wt at P<0.05

<sup>1</sup>Data from 30 cells (remaining values are from > 100 cells).

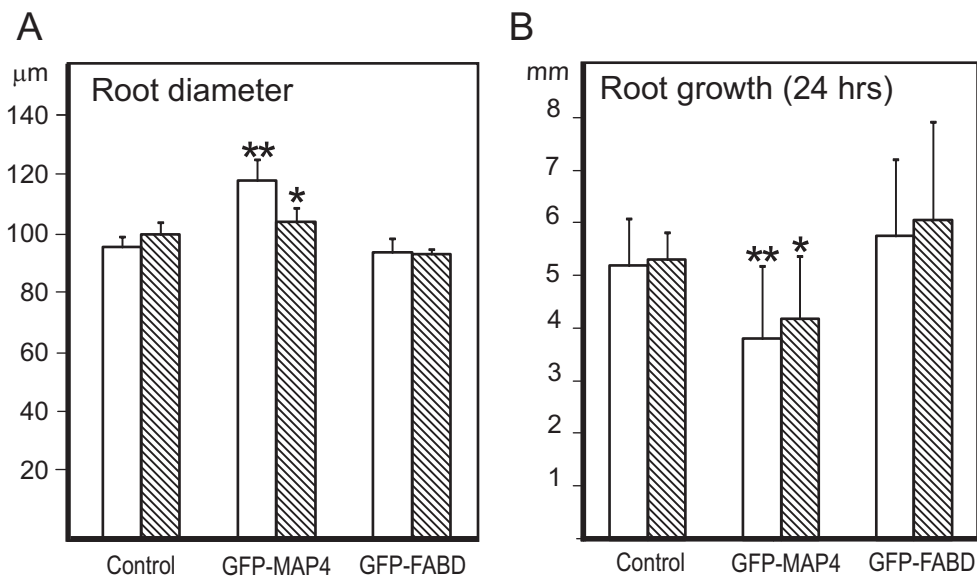
<sup>2</sup>As root hairs were absent at this concentration, all cells were scored as atrichoblasts.



**Figure S1.** Dose-response curves of wild type and *fh1-1* root growth parameters for varying concentrations of cytoskeletal inhibitors. (A) Root diameter on varying concentrations of LatB. (B) Root growth on varying concentrations of LatB. (C) Root diameter on varying concentrations of Oryz. (D) Root growth on varying concentrations of Oryz. (E) Increased sensitivity of mutant roots toward Oryz occurs when seedlings are grown on media supplemented with 0.33  $\mu\text{M}$  LatB. Significant differences are marked by an asterisk (T-test  $P < 0.05$ ).



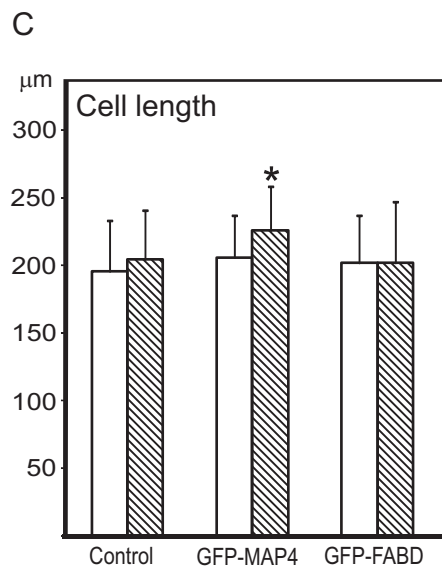
**Figure S2.** Response of wt and *fh1-1* seedling roots to Taxol (3µM) and Jasplakinolide (1µM). (A) root diameter. (B) Root growth. Significant difference between mutant and wt is marked by an asterisk (T-test  $P < 0.05$ ).

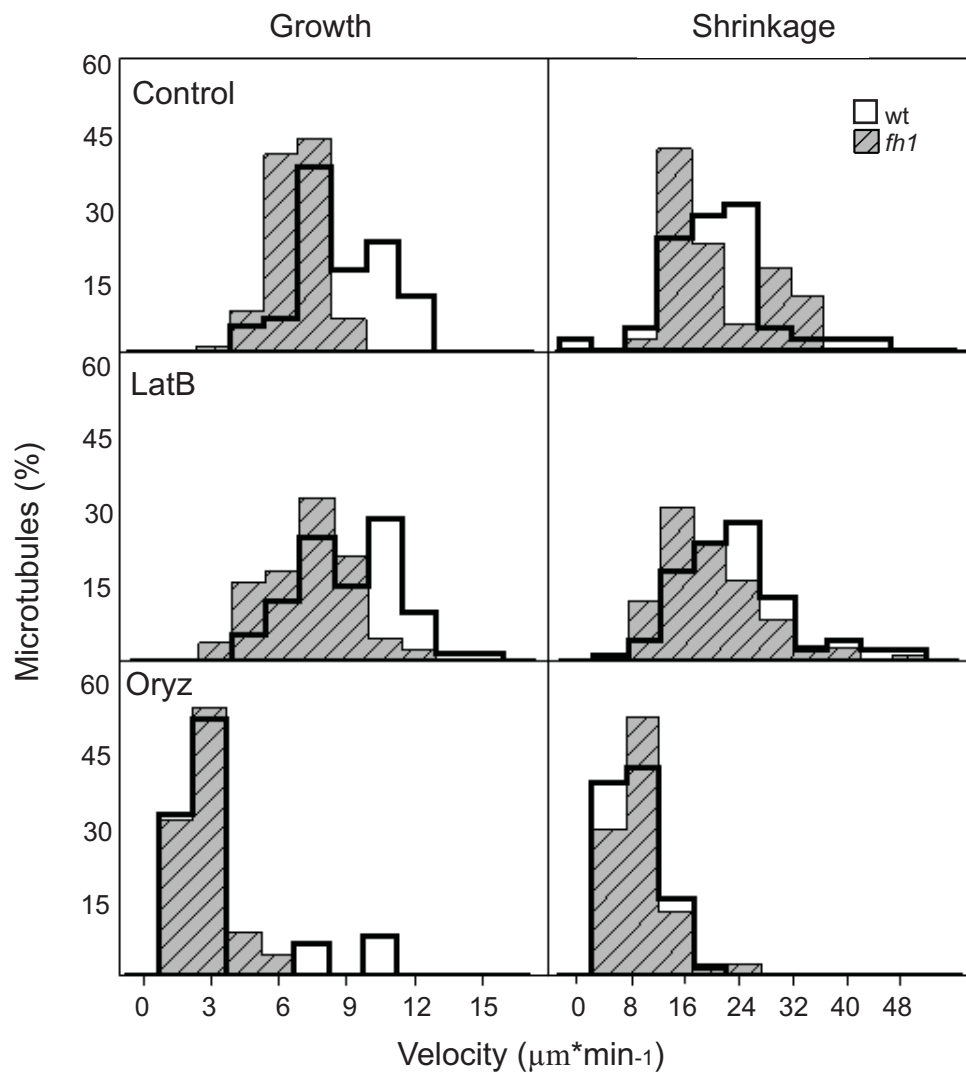


**Figure S3.** Effect of GFP-MAP4 and GFP-FABD on wild type and *fh1-1* root growth parameters.

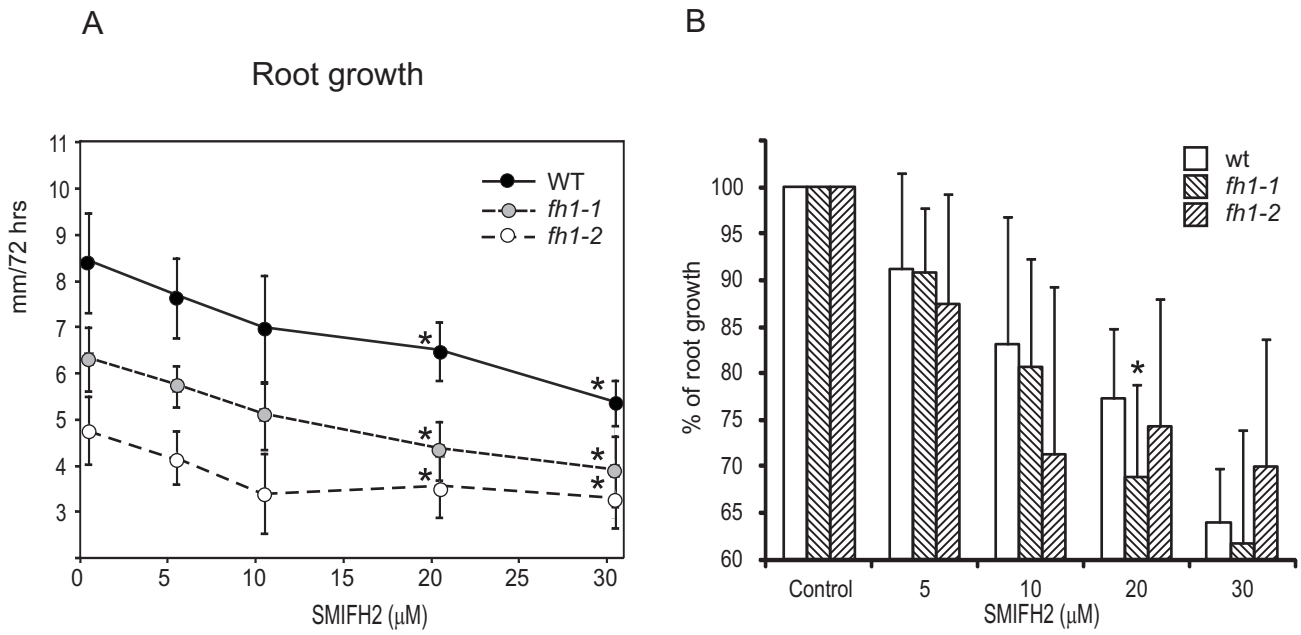
(A) Root diameter. (B) Root growth during 24 hours. (C) Cell length (equal numbers of trichoblasts and atrichoblasts were measured in each sample. Significant differences between wt and *fh1-1* are marked by asterisks (\*\* - T-test  $P < 0.0001$ ; \* - T-test  $P < 0.05$ ).

□ wt  
▨ *fh1-1*





**Figure S4.** Distribution of microtubule growth and shrinkage rates (calculated from time-lapse images) in *fh1-1* mutant and wild type seedlings grown on control media or 0.1  $\mu\text{M}$  LatB and Oryz.



**Figure S5.** Dose-response curves of wt and *fh1* mutants on root growth for varying concentrations of SMIFH2 under dark conditions. A. Root growth after 72h of transferring under dark conditions. Asterisks denote significant differences between non-treated control and SMIFH2-treated seedlings (T-test  $P < 0.001$ ). B. Relative reduction of root growth compared to growth in control media. Asterisk - significant difference between wt and *fh1-1* mutant (T-test  $P < 0.05$ ).