

Figure S1. **Washing with water restored the cytoD mediated inhibition of LB motility.** Green/red overlay of two time lapse confocal images (1 and 3 minutes) of OLE6-eGFP #1 main root. Seedlings were treated with Control (a), 40 $\mu$ M cytoD for 15 minutes (b) and washed with water after cytoD treatment (c). Note the near complete inhibition of LB movement (demonstrated by near-complete overlay of the two color signals) in cytoD treatment (b) and not in the water washed sample (c).

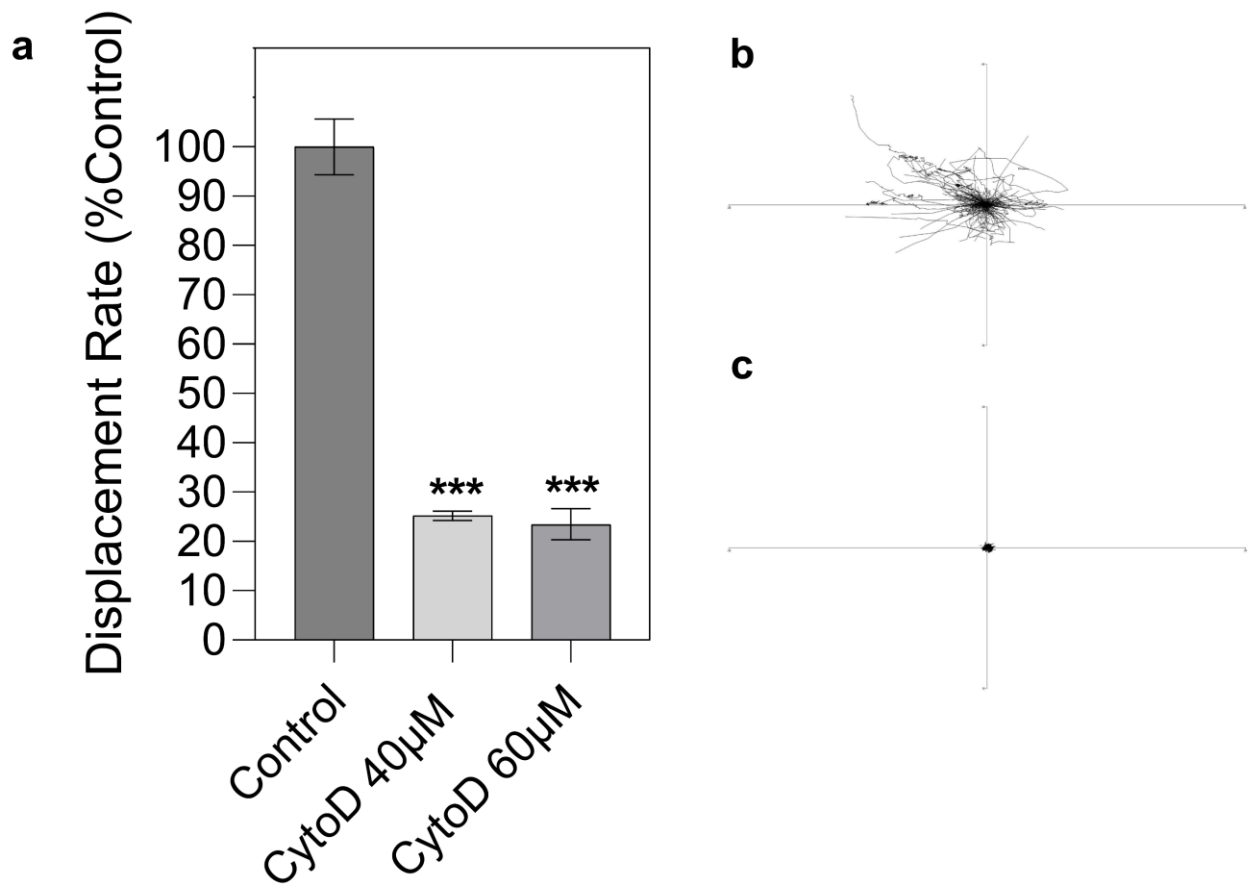


Figure S2. **Movement of lipid bodies in PtOLE6-eGFP overexpressing plants treated with different concentrations of CytoD.** (a) Mean displacement rates of the lipid bodies in leaf epidermal cells of PtOLE6-eGFP #1 treated with different concentrations of CytoD, expressed as percentage of those in the control treatment (0.45  $\mu\text{m}/\text{sec}$ ) ( $\pm\text{SE}$ ). Representative tracks of lipid bodies present in the control (b), 60 $\mu\text{M}$  cytoD (c) in one time series obtained using the CLSM and plotted to a common origin. Asterisks indicate significant differences compared to control and between the treatments (\*\*\* $P < 0.001$ ).

Protein	Gene abb.	Locus name v3.0	Forward 5'-3'	Reverse 5'-3'
<b>OLEOSIN genes</b>				
OLEOSIN1	<i>OLE1</i>	Potri.018G057800	GGTGCMGCACTGTTGGTGTT	GAATTGGTGTAGCCACGATCAA
OLEOSIN2	<i>OLE2</i>	Potri.015G082100	TGGATGGCCAGCTATATTCGA	GTGTCCTCCGTTTCGCTTGA
OLEOSIN3	<i>OLE3</i>	Potri.017G071800	CCTAGTAGGCACCCTGATCG	GAGGTCACTGCAAACCCAAT
OLEOSIN4	<i>OLE4</i>	Potri.012G083400	TTAGCATCCGGTGCTTTTGG	TGATCAAGCTCTGCGAATGG
OLEOSIN5	<i>OLE5</i>	Potri.012G059400	TCGGACCAGGTCGATTATGC	CATACTCCCTGGCGTAGTCCTT
OLEOSIN6	<i>OLE6</i>	Potri.006G234900	TTATGCTGGAGGGAGGATAGCA	TCTCACATTCTGACCGCACTCT
OLEOSIN7	<i>OLE7</i>	Potri.001G345800	GTCCCAGCTGCCCTTGTAATAG	AGGACCCTGTCAGTCCGAAA
OLEOSIN8	<i>OLE8</i>	Potri.001G080000	TTGCTGGTCATATTCAGTCCAGTT	AGGCCAAGAACCCCATAGC
OLEOSIN9	<i>OLE9</i>	Potri.003G150600	ACCGGTGGGTCTCTTTTAGTTGT	ATGGAGTGGCTACGGTCAACA
<b>Housekeeping gene</b>				
ACTIN	<i>ACT</i>	Potri.001G309500	CGATGCCGAGGATATTCAAC	ACCAGTGTGTCTTGGTCTACCC

Table S1. *P. trichocarpa* genes, identifiers and primer pairs used for qPCR analysis.

S.No	Plant Material	Treatment	N <sup>1</sup>	N <sup>2</sup>	Mean Velocity ±SD (µm/sec)	Mean Displacement Rate ±SD (µm/sec)
1	OLE6-eGFP #1 Leaf	Control	12	2909	0.546 ± 0.106	0.456 ± 0.089
2	OLE6-eGFP #1 Leaf	CytoD 40µM	14	4327	0.201 ± 0.024	0,115 ± 0.016
3	OLE6-eGFP #1 Leaf	Oryzalin	11	5639	0.506 ± 0.133	0.364 ± 0.109
4	OLE6-eGFP #1 Leaf	BFA	16	6898	0.582 ± 0.227	0.464 ± 0.171
5	OLE6-eGFP #1 Root	Control	18	15638	0.580 ± 0.280	0.376 ± 0.181
6	OLE6-eGFP #2 Leaf	Control	14	5762	0.473 ± 0.103	0.366 ± 0.084
7	OLE6-eGFP #2 Root	Control	13	7973	0.512 ± 0.228	0.325 ± 0.177
8	3KO #1 Leaf	Control	23	6041	0.188 ± 0,027	0,109 ± 0.019
9	3KO #2 Leaf	Control	16	5260	0.197 ± 0.035	0,115 ± 0.022
10	OLE6-eGFP #1 Leaf	CytoD 60µM	12	2613	0.201 ± 0.069	0,117 ± 0.058

N<sup>1</sup>: Number of analysed videos

N<sup>2</sup>: Number of Analyzed Lipid body count (in N<sup>1</sup>)

OLE6-GFP #1: OLE6-eGFP overexpressor in *Columbia-0* background

OLE6-GFP #2: OLE6-eGFP overexpressor in *Columbia-0* background

3KO #1: OLE6-eGFP overexpressor in myosin 3 knockout background

3KO #2: OLE6-eGFP overexpressor in myosin 3 knockout background

Table S2. **Lipid body movement data.**

AT Gene IDs	Protein Name (Fang et al 2014)	Other names
At3g01570	OLE-S1	
At3g27660	OLE-S2	OLE4
At4g25140	OLE-S3	OLE1
At5g40420	OLE-S4	OLE2
At5g51210	OLE-S5	OLE3
At1g48990	OLE-SM1	
At3g18570	OLE-SM2	
At2g25890	OLE-SM3	

Table S3. *A.thaliana* genes, identifiers used for the phylogenetic analysis.