

**Table. Description of mutants and experimental design**

Category	No.	Muatnts or Experiments	Treatment	Control	Parental line	Medium	Tissue	Mutant description	Reference
<b>Auxin</b>	1	<i>axr2-1/iaa7</i>	No treatment	WT	Col-0	1/2 MS plate	Aerial part	Disruption in auxin signaling	Wilson et al., (1990)
	2	<i>tir1-1</i>	No treatment	WT	Col-0	1/2 MS plate	Aerial part	Knockout of auxin receptor	Ruegger et al., (1998)
	3	<i>sur1-3</i>	No treatment	WT	Col-0	1/2 MS plate	Aerial part	Excess auxin biosynthesis	Boerjan et al., (1995)
	4	<i>axr3-3/iaa17</i>	No treatment	WT	Col-0	1/2 MS plate	Aerial part	Disruption in auxin signaling	Leyser et al., (1996)
	5	<i>msg2-1/iaa19</i>	No treatment	WT	Col-0	1/2 MS plate	Aerial part	Disruption in auxin signaling	Tatematsu et al., (2004)
	6	<i>nph4-1/arf7</i>	No treatment	WT	Col-0	1/2 MS plate	Aerial part	Disruption in auxin signaling	Harper et al., (2000)
<b>Brassinosteroid</b>	7	<i>det2-1</i>	No treatment	WT	Col-0	1/2 MS plate	Aerial part	Deficient of brassinosteroid biosynthesis	Chory et al., (1991)
	8	<i>bri1-5</i>	No treatment	WT	Ws-2	1/2 MS plate	Aerial part	Deficiency of the brassinosteroid receptor	Noguchi et al., (1999)
	9	<i>cyp85a1 cyp85a2</i>	No treatment	WT	Col-0	1/2 MS plate	Aerial part	Deficient of brassinosteroid biosynthesis	Nomura et al., (2005)
	10	<i>bil1 bZR1</i>	No treatment	WT	Col-0	1/2 MS plate	Aerial part	Constant brassinosteroid responses	Wang et al., (2002)
<b>Cytokinin</b>	11	<i>ahk2 ahk3</i>	No treatment	WT	Col-0	1/2 MS plate	Aerial part	Disruption in cytokinin signaling	Higuchi et al., (2004)
	12	<i>wol-3</i>	No treatment	WT	Col-0	1/2 MS plate	Aerial part	Disruption in cytokinin signaling	Kuroha et al., (2006)
	13	<i>arr10 arr12</i>	No treatment	WT	Col-0	1/2 MS plate	Aerial part	Disruption in cytokinin signaling	Yokoyama et al., (2007)
	14	<i>cyp735a1 cyp735a2</i>	No treatment	WT	Col-0	1/2 MS plate	Aerial part	Deficiency of cytokinin biosynthesis	unpublished
	15	<i>ipt5-1</i>	No treatment	WT	Col-0	1/2 MS plate	Aerial part	Deficiency of cytokinin biosynthesis	unpublished
	16	<i>ipt3-1</i>	No treatment	WT	Nossen	1/2 MS plate	Aerial part	Deficiency of cytokinin biosynthesis	Takei et al., (2004)
<b>Gibberellin</b>	17	<i>gal-3</i>	No treatment	WT	Col-0	1/2 MS plate	Aerial part	Deficiency of gibberellin biosynthesis	Sun T-p. et al. (1994)
	18	<i>ga3ox1 ga3ox2</i>	No treatment	WT	Col-0	1/2 MS plate	Aerial part	Deficiency of gibberellin biosynthesis	Mitchum et al. (2006)
	19	<i>gai</i>	No treatment	WT	Ler	1/2 MS plate	Aerial part	Deficiency of gibberellin responses	Peng et al. (1997)
<b>Jasmonate</b>	20	<i>aos</i>	No treatment	WT	Col-0	1/2 MS liquid	Whole seedling	Deficiency of jasmonate biosynthesis	Park et al. (2002)
	21	<i>jar1</i>	No treatment	WT	Col-0	1/2 MS liquid	Whole seedling	Deficiency of jasmonyl-isoleucine biosynthesis	Staswick et al. (1992)
	22	<i>aos</i> (Wounding stress)	Shaking with beads	WT (Wounding stress)	Col-6	1/2 MS liquid	Whole seedling		
	23	<i>jar1</i> (Jasmonate treatment)	Methyl Jasmonate treatment 24 h	WT (Jasmonate treatment)	Col-0	1/2 MS liquid	Whole seedling		
	24	Jasmonate treatment	Methyl Jasmonate treatment 24 h	Col-0 mock treatment (0.1% DMSO)		1/2 MS liquid	Whole seedling		
<b>Abscisic acid</b>	25	<i>cyp707a1-1 cyp707a3-1</i>	No treatment	WT	Col-0	1/2 MS liquid	Whole seedling	Deficiency of abscisic acid catabolism	Okamoto et al. (2006)
	26	<i>aba2-2</i>	No treatment	WT	Col-0	1/2 MS liquid	Whole seedling	Deficiency of abscisic acid	Nambara et al. (1998)
	27	<i>abi1-1</i>	No treatment	WT	Ler	1/2 MS liquid	Whole seedling	Deficiency of abscisic acid responses	Koornneef et al. (1984)
	28	<i>aba2</i> (Osmotic stress)	Mannitol treatment 24 h	WT (Osmotic stress)	Col-0	1/2 MS liquid	Whole seedling		
	29	<i>abi1-1</i> (ABA treatment)	ABA treatment 24 h	WT (ABA treatment)	Ler	1/2 MS liquid	Whole seedling		
	30	ABA treatment	ABA treatment 24 h	Ler mock treatment (0.1% DMSO)		1/2 MS liquid	Whole seedling		
<b>Ethylen</b>	31	<i>ein2-5</i>	No treatment	WT	Col-0	1/2 MS liquid	Whole seedling	Deficiency of ethylen responses	Alonso et al. (1999)
	32	<i>ctr1-1</i>	No treatment	WT	Col-0	1/2 MS liquid	Whole seedling	Constant ethylen responses	Kieber et al. (1993)
	33	<i>eto1-5</i>	No treatment	WT	Col-0	1/2 MS liquid	Whole seedling	Constant ethylen biosynthesis	Wang et al. (2004)
	34	<i>hls1-1</i>	No treatment	WT	Col-0	1/2 MS liquid	Whole seedling	Partial deficiency of ethylen responses	Lehman et al. (1996)
	35	<i>ein2</i> (ACC treatment)	ACC treatment 24 h	WT (ACC treatment)					
	36	ACC treatment	ACC treatment 24 h	Col-0 mock treatment (0.1% DMSO)		1/2 MS liquid	Whole seedling		
<b>Other</b>	37	Cold stress	4 °C 24 h	Col-0 mock treatment (0.1% DMSO)		1/2 MS liquid	Whole seedling		
	38	Osmotic stress	Mannitol treatment 24 h	Col-0 mock treatment (0.1% DMSO)		1/2 MS liquid	Whole seedling		
	39	Wounding stress	Shaking with beads	Col-6 mock treatment (0.1% DMSO)		1/2 MS liquid	Whole seedling		