

1 **Supplemental Table 1.** The raw data for root lengths for Figure 1. Three-day-old rice
2 seedlings were treated with a 0.5 mM CaCl₂ solution with or without 50 μM Al under
3 ambient or elevated CO₂ for 24 h (pH 4.5). Root length was measured before and after
4 treatment.
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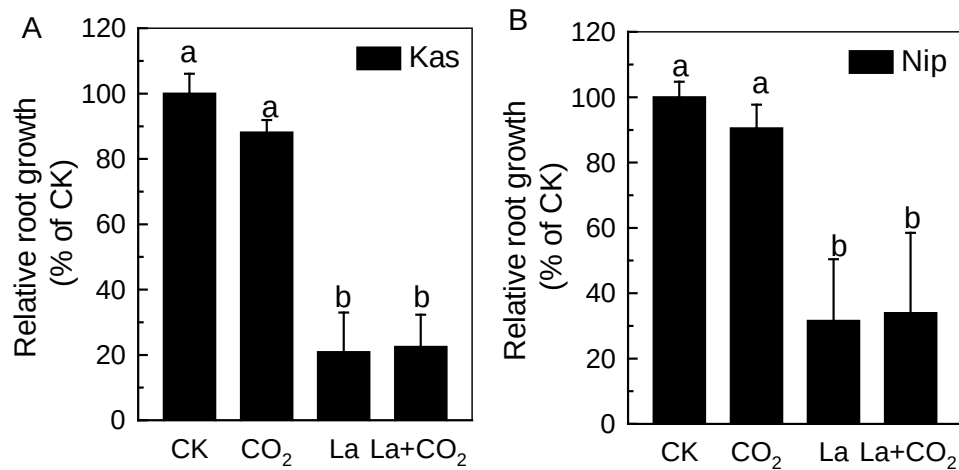
Before treatment	kas CK	kas CO ₂	kas Al	kas Al+CO ₂	Nip CK	Nip CO ₂	Nip Al	Nip Al+CO ₂
	3.5	3	2.1	2	2	3.3	1.7	2.2
	3	3	2.3	2	2.3	2.5	3.3	1.4
	3.4	2.8	2.6	2.5	2.5	2.6	3.2	2.5
	2.5	2.9	2.4	1.8	2	1.9	2	2.7
	3.5	3.2	4.1	5.5	2.7	1.5	2.5	2.8
	3.2	2.8	3.2	3.2	1.3	2	3.2	2.5
	3.8	2.8	2.8	2.6	2.7	1.5	3.1	1.9
	2.9	2.6	3.5	2.6	3.6	2.7	1.9	3.2
	3.5	2.6	2.5	2.9	3.5	2.5	2.2	2.5
	2.5	2.5	2.1	3	1.8	2.4	1.2	1.6
After treatment	kas CK	kas CO ₂	kas Al	kas Al+CO ₂	Nip CK	Nip CO ₂	Nip Al	Nip Al+CO ₂
	5.8	5.5	2.8	3	3.5	4.9	2.4	3
	4.7	5.4	3.1	3.8	3.4	4.2	4	2.3
	5.6	5.5	3.4	3.5	3.8	3.8	3.8	3.7
	4.8	5.4	3.1	2.7	3.3	3.3	2.6	3.6
	5.3	6	4.9	6.6	4	3	3.3	3.7
	5.3	5	3.7	4.2	2.7	3.7	3.8	3.6
	6.1	5.6	3.5	3.6	4.5	2.8	3.6	3.1
	5	5	4.1	3.6	5.2	4	2.6	4.2
	5.9	5	3	4	5.2	4.1	3.1	3.5
	4.8	4.7	2.8	4.2	3.5	4	2.2	2.7
Root elongation	kas CK	kas CO ₂	kas Al	kas Al+CO ₂	Nip CK	Nip CO ₂	Nip Al	Nip Al+CO ₂
	2.3	2.5	0.7	1	1.5	1.6	0.7	0.8
	1.7	2.4	0.8	1.8	1.1	1.7	0.7	0.9
	2.2	2.7	0.8	1	1.3	1.2	0.6	1.2
	2.3	2.5	0.7	0.9	1.3	1.4	0.6	0.9
	1.8	2.8	0.8	1.1	1.3	1.5	0.8	0.9
	2.1	2.2	0.5	1	1.4	1.7	0.6	1.1
	2.3	2.8	0.7	1	1.8	1.3	0.5	1.2
	2.1	2.4	0.6	1	1.6	1.3	0.7	1
	2.4	2.4	0.5	1.1	1.7	1.6	0.9	1
	2.3	2.2	0.7	1.2	1.7	1.6	1	1.1

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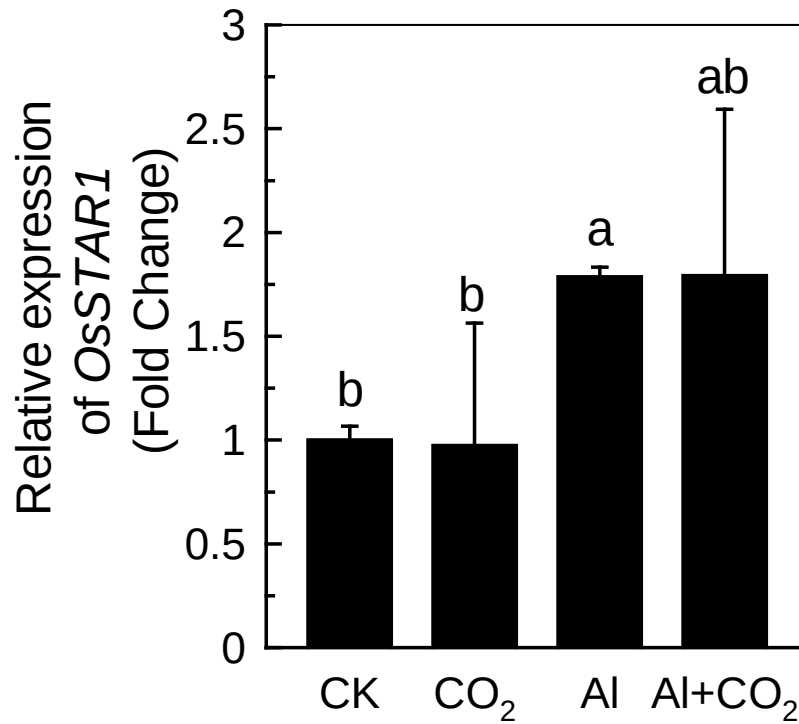
15 **Supplemental Table 2.** The raw data for root lengths for Figure 8. Three-day-old rice
16 seedlings were treated with a 0.5 mM CaCl₂ solution with or without 50 µM Al under
17 ambient or elevated CO₂ for 24 h in the presence or absence of c-PTIO (pH 4.5). Root
18 length was measured before and after treatment.

Before treatment	Kas CK	Kas CO ₂	Kas cPTIO	Kas CO ₂ +cPTIO	Kas Al	Kas Al+CO ₂	Kas Al+cPTIO	Kas Al+CO ₂ +cPTIO
	5.4	4.1	2.6	4.1	2.8	4	2.4	1.8
	3.5	2.7	6.5	4.5	2.8	2.9	4	2.8
	6.4	5.1	3.6	4.4	2.1	2.1	3.1	3.4
	3	3.6	4.8	4.6	3.1	3.6	4.4	3.7
	3	2.1	2.7	1.7	1.7	2.9	4	3.5
	3	3.2	3.8	4	3	1.4	1.6	4.4
	3.8	3	2.4	2.6	2.5	1.9	2	2.6
	2.8	5	2.6	3.1	2.1	4.1	2.6	2.4
	4.5	4.8	2.2	2.1	1.7	2	2.4	5.3
	4	4.5	2.2	2.4	1.5	2.4	2	2.2
After treatment	Kas CK	Kas CO ₂	Kas cPTIO	Kas CO ₂ +cPTIO	Kas Al	Kas Al+CO ₂	Kas Al+cPTIO	Kas Al+CO ₂ +cPTIO
	8.4	5.4	5.1	7.2	3.8	5.7	3.4	3.2
	6.3	5.4	9	7.4	3.5	3.8	4.9	3.8
	8.9	8.4	6.2	5.8	3	3.2	4	4.5
	5.8	6.4	7.2	7.7	3.8	4.7	4.8	5.1
	4.8	4.3	5.2	4.4	2.1	3.8	4.9	4.9
	5.8	6	6.5	5.8	3.6	2.4	2.4	5.2
	6.6	5.5	5	5.5	3.2	2.8	2.8	3.5
	5.4	7.5	5.1	5.5	2.8	5	3.7	3.4
	7.1	7.4	4.6	4.8	2.6	2.9	3.2	6
	6.6	7.2	4.5	5.3	2.1	3.2	2.9	3.2
Root elongation	Kas CK	Kas CO ₂	Kas cPTIO	Kas CO ₂ +cPTIO	Kas Al	Kas Al+CO ₂	Kas Al+cPTIO	Kas Al+CO ₂ +cPTIO
	3	1.3	2.5	3.1	1	1.7	1	1.4
	2.8	2.7	2.5	2.9	0.7	0.9	0.9	1
	2.5	3.3	2.6	1.4	0.9	1.1	0.9	1.1
	2.8	2.8	2.4	3.1	0.7	1.1	0.4	1.4
	1.8	2.2	2.5	2.7	0.4	0.9	0.9	1.4
	2.8	2.8	2.7	1.8	0.6	1	0.8	0.8
	2.8	2.5	2.6	2.9	0.7	0.9	0.8	0.9
	2.6	2.5	2.5	2.4	0.7	0.9	1.1	1
	2.6	2.6	2.4	2.7	0.9	0.9	0.8	0.7
	2.6	2.7	2.3	2.9	0.6	0.8	0.9	1

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Supplemental Figure 1. Effects of elevated CO₂ on the relative root growth of ‘Kasalath’ (Kas) (A) and ‘Nipponbare’ (Nip) (B). Three-day-old rice seedlings were treated with 0.5 mM CaCl₂ solution with or without 10 μM La under ambient (400 μL·L⁻¹; CK) or elevated (600 μL·L⁻¹; CO₂) CO₂ for 24 h. Root length was measured before and after treatment. Data are means ± SD (n = 10). Columns with different letters are significantly different at P < 0.05.



Supplemental Figure 2. Effects of elevated CO₂ treatment on the expression of *OsSTAR1* in Kas. Three-day-old rice seedlings were treated with 0.5 mM CaCl₂ solution with or without 50 μM Al under ambient (400 μL·L⁻¹; CK) or elevated (600 μL·L⁻¹; CO₂) CO₂ for 24 h. The root apex was excised for RNA extraction. Expression levels of plants grown in ambient CO₂ were assigned an expression level of 1. Data are means ± SD (n = 4). Columns with different letters are significantly different at P < 0.05.