

# Supporting Information

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**Table S1. Biological indexing of CTV deletion mutants on selected susceptible varieties of citrus**

Mutant	Plant no.	<i>C. macrophylla</i>	Mexican lime	Madam vinous	<i>C. indica</i>	<i>C. hystrix</i>	<i>C. micrantha</i>	Persian lime	Citron
CTV9	1	2.84 ± 0.03	3.11 ± 0.07	3.38 ± 0.02	1.82 ± 0.00	0.98 ± 0.01	1.52 ± 0.08	0.93 ± 0.03	1.77 ± 0.18
	2	1.83 ± 0.16	3.25 ± 0.06	3.37 ± 0.04	1.62 ± 0.00	0.97 ± 0.02	1.62 ± 0.03	1.60 ± 0.08	1.56 ± 0.18
	3	2.15 ± 0.03	3.18 ± 0.00	3.15 ± 0.21	1.13 ± 0.02	—	—	—	—
CTV9Δp33	1	3.05 ± 0.08	3.33 ± 0.06	2.56 ± 0.03	1.33 ± 0.01	1.25 ± 0.02	1.67 ± 0.06	1.08 ± 0.06	1.69 ± 0.22
	2	2.63 ± 0.07	3.30 ± 0.04	2.99 ± 0.10	2.12 ± 0.22	1.27 ± 0.04	1.49 ± 0.00	0.40 ± 0.02	1.50 ± 0.28
	3	2.66 ± 0.10	3.32 ± 0.06	3.26 ± 0.12	1.51 ± 0.19	—	—	—	—
CTV9Δp18	1	1.74 ± 0.28	3.33 ± 0.02	3.34 ± 0.19	0.98 ± 0.03	0.49 ± 0.00	0.60 ± 0.03	0.30 ± 0.00	0.80 ± 0.13
	2	1.78 ± 0.08	3.27 ± 0.06	2.94 ± 0.33	1.03 ± 0.01	0.58 ± 0.06	0.52 ± 0.00	0.33 ± 0.05	0.58 ± 0.11
	3	1.86 ± 0.04	3.17 ± 0.05	2.94 ± 0.15	0.94 ± 0.01	—	—	—	—
CTV9Δp13	1	3.00 ± 0.00	3.24 ± 0.02	2.51 ± 0.12	1.14 ± 0.00	0.95 ± 0.06	0.46 ± 0.00	0.48 ± 0.03	1.22 ± 0.32
	2	3.02 ± 0.07	3.27 ± 0.03	2.07 ± 0.08	1.46 ± 0.01	0.95 ± 0.04	1.67 ± 0.01	0.80 ± 0.00	1.29 ± 0.40
	3	3.14 ± 0.17	3.26 ± 0.06	2.62 ± 0.20	1.03 ± 0.01	—	—	—	—
CTV9Δp33Δp18	1	2.03 ± 0.01	3.28 ± 0.02	1.44 ± 0.06	2.47 ± 0.00	0.75 ± 0.03	1.16 ± 0.07	1.17 ± 0.04	0.92 ± 0.18
	2	1.98 ± 0.30	3.24 ± 0.03	3.42 ± 0.10	1.60 ± 0.01	0.84 ± 0.01	0.99 ± 0.02	0.94 ± 0.05	0.65 ± 0.14
	3	2.81 ± 0.05	3.16 ± 0.01	2.02 ± 0.02	2.24 ± 0.01	—	—	—	—
CTV9Δp33Δp13	1	2.61 ± 0.00	3.17 ± 0.08	2.14 ± 0.04	1.03 ± 0.02	1.26 ± 0.03	2.05 ± 0.11	0.60 ± 0.02	0.86 ± 0.01
	2	2.57 ± 0.15	0.21 ± 0.00	3.34 ± 0.04	0.56 ± 0.00	0.71 ± 0.02	—	0.53 ± 0.01	0.88 ± 0.05
	3	3.07 ± 0.06	3.21 ± 0.03	1.02 ± 0.08	1.03 ± 0.01	—	—	—	—
CTV9Δp18Δp13	1	2.23 ± 0.02	3.13 ± 0.03	1.61 ± 0.01	1.02 ± 0.01	1.26 ± 0.03	1.35 ± 0.02	0.97 ± 0.03	0.27 ± 0.05
	2	2.6 ± 0.04	3.04 ± 0.01	2.76 ± 0.25	1.96 ± 0.03	1.79 ± 0.02	1.11 ± 0.03	0.83 ± 0.00	0.49 ± 0.03
	3	2.47 ± 0.04	—	1.37 ± 0.08	1.04 ± 0.01	—	—	—	—
CTV9Δp33Δp13Δp18	1	2.10 ± 0.00	3.28 ± 0.04	0.94 ± 0.04	0.57 ± 0.00	0.98 ± 0.03	0.67 ± 0.02	0.44 ± 0.02	0.51 ± 0.02
	2	2.80 ± 0.12	3.26 ± 0.05	2.12 ± 0.11	1.60 ± 0.01	0.71 ± 0.00	1.11 ± 0.03	0.58 ± 0.01	0.79 ± 0.03
	3	2.78 ± 0.00	3.23 ± 0.04	1.45 ± 0.08	2.38 ± 0.05	—	—	—	—
Healthy	1	0.08 ± 0.01	0.03 ± 0.00	0.12 ± 0.00	0.13 ± 0.00	0.081 ± 0.00	0.09 ± 0.00	0.06 ± 0.00	0.07 ± 0.00
	2	0.07 ± 0.00	0.03 ± 0.00	0.09 ± 0.00	0.10 ± 0.00	—	0.08 ± 0.00	—	0.08 ± 0.00
	3	0.09 ± 0.01	0.03 ± 0.00	0.08 ± 0.00	0.11 ± 0.01	—	—	—	—

Citrus plants inoculated with CTV9 and its deletion mutants were assayed at 8 wk after inoculation by double antibody sandwich indirect ELISA. ELISA values (A405) are averages for three wells ± SDs.