

Supplementary materials

Table S1. Information of *PAO* and *RBOH* genes for phylogenetic analysis. Different lowercase letters indicated that the values were significantly different among different treatments ($p < 0.05$).

Table S2. List of primers for qRT-PCR in this study.

Table S3. List of primers for plasmid construction in this study.

Table S4. List of genes involved in pepper AR formation.

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Figure S2. Effects of EBL on the activities of cytoplasmic PAO (CP-PAO) during AR formation in pepper hypocotyls.

Figure S3. Phylogenetic relationship, functional domains, and gene structure of *CaPAOs*. **(A)** Phylogenetic relationship among gene structures of *CaPAOs*. **(B)** Distribution of conserved functional domains in *CaPAO* proteins.

Figure S4. Phylogenetic relationship, functional domains, and gene structure of *CaRBOHs*. **(A)** Phylogenetic relationship among gene structures of *CaRBOHs*. **(B)** Distribution of conserved functional domains in *CaRBOH* proteins.

Figure S5. Domain structure and sequence alignment of *CaRBOH* proteins. **(A)** Schematic representation of the *CaRBOH* proteins with the respective functional domains, including EF-hands, transmembrane domains (TMs) and flavin adenine dinucleotide (FAD)-binding sites. **(B)** Sequence alignment of seven *CaRBOH* proteins. EF-hand domains are indicated by orange boxes. Conserved FAD-binding site are indicated by green box. Putative transmembrane domains predicted by TMHMM2.0 (<https://services.healthtech.dtu.dk/service.php?TMHMM-2.0>) are indicated by blue boxes.

Figure S6. Phenotypes of the VIGS seedlings. **(A)** The top- and side-view of the control (*TRV2:00*) and PDS-silenced pepper plants (*TRV2:PDS*). **(B)** The side-view of *CaPAO1*- and *CaRBOH*-silenced pepper plants.

Table S1. Information of *PAO* and *RBOH* genes for phylogenetic analysis

Species	<i>PAO</i> family		<i>RBOH</i> family	
	Gene name	Accession No.	Gene name	Accession No.
<i>Arabidopsis thaliana</i>	<i>AtPAO1</i>	At5g13700	<i>AtRBOHA</i>	At5g07390
	<i>AtPAO2</i>	At2g43020	<i>AtRBOHB</i>	At1g09090
	<i>AtPAO3</i>	At3g59050	<i>AtRBOHC</i>	At5g51060
	<i>AtPAO4</i>	At1g65840	<i>AtRBOHD</i>	At5g47910
	<i>AtPAO5</i>	At4g29720	<i>AtRBOHE</i>	At1g19230
	<i>AtPAO6</i>	At1g62830	<i>AtRBOHF</i>	At1g64060
	<i>AtPAO7</i>	At3g13682	<i>AtRBOHG</i>	At4g25090
	<i>AtPAO8</i>	At4g16310	<i>AtRBOHH</i>	At5g60010
	<i>AtPAO9</i>	At3g10390	<i>AtRBOHI</i>	At4g11230
			<i>AtRBOHJ</i>	At3g45810
<i>Solanum lycopersicum</i>	<i>SlPAO1</i>	Solyc01g087590	<i>SlRBOH1</i>	Solyc06g068680
	<i>SlPAO2</i>	Solyc07g043590	<i>SlRBOH2</i>	Solyc03g117980
	<i>SlPAO3</i>	Solyc12g006370	<i>SlRBOH3</i>	Solyc01g099620
	<i>SlPAO4</i>	Solyc02g081390	<i>SlRBOH4</i>	Solyc05g025680
	<i>SlPAO5</i>	Solyc03g031880	<i>SlRBOH5</i>	Solyc07g042460
	<i>SlPAO6</i>	Solyc05g018880	<i>SlRBOH6</i>	Solyc06g075570
	<i>SlPAO7</i>	Solyc07g039310	<i>SlRBOH7</i>	Solyc11g072800
	<i>SlPAO8</i>	Solyc12g008850	<i>SlRBOH8</i>	Solyc08g081690
	<i>SlPAO9</i>	Solyc07g063450		
	<i>SlPAO10</i>	Solyc07g063500		
	<i>SlPAO11</i>	Solyc04g081100		
<i>Capsicum annuum</i>	<i>CaPAO1</i>	LOC107858653	<i>CaRBOH1</i>	LOC107875997
	<i>CaPAO2</i>	LOC107878076	<i>CaRBOH2</i>	LOC107862088
	<i>CaPAO3</i>	LOC107841896	<i>CaRBOH3</i>	LOC107839607
	<i>CaPAO4</i>	LOC107859655	<i>CaRBOH5</i>	LOC107877834
	<i>CaPAO5</i>	LOC107870798	<i>CaRBOH6</i>	LOC107875569
	<i>CaPAO8</i>	LOC107840963	<i>CaRBOH7</i>	LOC107846897
	<i>CaPAO10</i>	LOC107878694	<i>CaRBOH8</i>	LOC107864242
	<i>CaPAO11</i>	LOC107866910		

Table S2. List of primers for qRT-PCR in this study.

Primer name	Primer sequences (5'-3')
qCaPAO1-F	AGTGGAATAGCAGCGGACTC
qCaPAO1-R	CGTTTTTGGTGTACTGGCTGG
qCaPAO2-F	GCTGAGGCTTCACCATCTGT
qCaPAO2-R	GCTGAGGCTTCACCATCTGT
qCaPAO3-F	GGAAGGAGGTCTGTGGCAA
qCaPAO3-R	GCATCATGAAGTGTGCGAGC
qCaPAO4-F	GAGTTGAGGCAAGAAGGGCT
qCaPAO4-R	CATGGCCACCAGTGAGAACT
qCaPAO5-F	GGCAGTCTGATGACCACCAA
qCaPAO5-R	TTAGGACCCCAAGCGACAC
qCaPAO8-F	GACGCGAAGTTGAACAACCC
qCaPAO8-R	TTGTTGTCGAGACCCCTTCG
qCaRBOH1-F	TTGTGTTTGTGTGCGCAAGG
qCaRBOH1-R	GCCACCGCCATCATTTTGTG
qCaRBOH2-F	TGTTTGTCAACTGTGCTGCG
qCaRBOH2-R	GGTGGTTGGCAAACCTCAGA
qCaRBOH3-F	AGGCGATTGGACATCTCAGC
qCaRBOH3-R	AGAGCTTTGGCAATCTAGGCT
qCaRBOH5-F	TCTGGCAGTGGTGTATGTGC
qCaRBOH5-R	TCCTGGAAGTACAGAAACCTTCA
qCaRBOH6-F	GCAGTCTCCCCACTAGAACC
qCaRBOH6-R	TCGCCCTCTTTCCCTGTAGT
qCaRBOH7-F	GGGTTCAAGAGCCTGCATT
qCaRBOH7-R	CAAATTCCTTGCTTTCCATTCCTAT
qCaRBOH8-F	TGCAACAAGCGAACAACCAG
qCaRBOH8-R	TCTCGATGACTCCCCGTTGA
qCaLBD16-F	CCGTTTCCTAGTCTGCTCGT
qCaLBD16-R	TTGCATGCACCACAAGGTGA
qCaLBD29-F	AGCAGCAGCTCAAACTTGC
qCaLBD29-R	TGGGGCATAGTGCTTGGATT
qCaCYCD3;1-F	GTCATGTGGTGGGTAGCACT
qCaCYCD3;1-R	TGCAATCCACCAGCTAACCA
qCaCDKA1-F	CATACTCAAAGAGTCCATCCAGC
qCaCDKA1-R	TCCACGATCACGAGCTTTGT
qCaCDKD3-F	GGCCGCTGCATGTATCTTTG
qCaCDKD3-R	ACTGTGAAGGCTTTGGGGTC
qCaUBI3-F	TGTCCATCTGCTCTCTGTTG
qCaUBI3-R	CACCCCAAGCACAATAAGAC

Table S3. List of primers for plasmid construction in this study.

Primer name	Primer sequences (5'-3')
1. Construction of VIGS vectors	
TRV2-CaPAO1-F	gtgagtaagggtaccgaattcAATATCTTCCCACTGTGATCATAGATG
TRV2-CaPAO1-R	cgtgagctcggtagcgatccTCGCTCCTCTGTAATCATCGTCG
TRV2-CaRBOH2-F	gtgagtaagggtaccgaattcTTAGCCAATAAAGCCAACCTCCG
TRV2-CaRBOH2-R	cgtgagctcggtagcgatccATGCAGAATTCGGAAAATCATCA
TRV2-CaRBOH5-F	gtgagtaagggtaccgaattcAGCTTCTTCTTCGCCTTCATCA
TRV2-CaRBOH5-R	cgtgagctcggtagcgatccATGCAGCTGAAATCATTCTTGAGG
TRV2-CaRBOH6-F	gtgagtaagggtaccgaattcATTTCGTGGTACAACCTCCACTCCTT
TRV2-CaRBOH6-R	cgtgagctcggtagcgatccGCACTATGGTTTTTAAAAACGTTGTAT
2. Construction of transient expression vectors	
2300-CaPAO1-F	tatgaccatgattacgaattcATGCAGAATTCGGAAAATCATCA
2300-CaPAO1-R	caggtcgactctagaggatccTCAAAAATTTCTTTATGGAAATCAAA
2300-CaRBOH2-F	tatgaccatgattacgaattcATGCAGAATTCGGAAAATCATCA
2300-CaRBOH2-R	caggtcgactctagaggatccTCAAAAATTTCTTTATGGAAATCAAA
2300-CaRBOH5-F	tatgaccatgattacgaattcATGCAGCTGAAATCATTCTTGAGG
2300-CaRBOH5-R	caggtcgactctagaggatccTCATACCCGAGTGCCAGACAG
2300-CaRBOH6-F	tatgaccatgattacgaattcATGGTGCCCATGACAATGG
2300-CaRBOH6-R	caggtcgactctagaggatccCTAGAAATTTCTTTGTGGAAATTGAA

Table S4. List of genes involved in pepper AR formation

Gene name	Accession No.
<i>CaLBD29</i>	LOC107853240
<i>CaLBD16</i>	LOC107853239
<i>CaCYCD3;1</i>	LOC107840237
<i>CaCDKA-1</i>	LOC107850646
<i>CaCDKD-3</i>	LOC107864765



Figure S1. Effects of KI, DMTU, MDL72527, 2-HEH or DPI on AR formation in pepper hypocotyls. Different lowercase letters indicated that the values were significantly different among different treatments ($p < 0.05$).

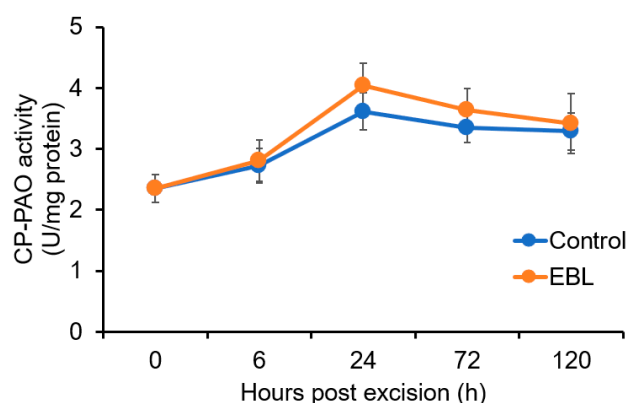


Figure S2. Effects of EBL on the activities of cytoplasmic PAO (CP-PAO) during AR formation in pepper hypocotyls.

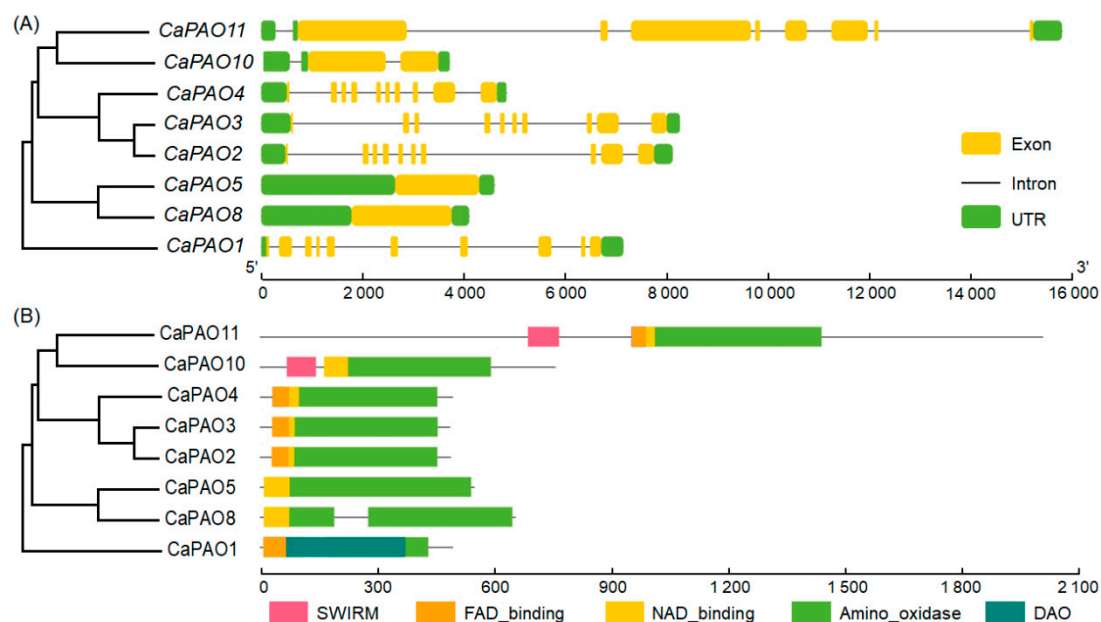


Figure S3. Phylogenetic relationship, functional domains, and gene structure of *CaPAOs*. (A) Phylogenetic relationship among gene structures of *CaPAOs*. (B) Distribution of conserved functional domains in *CaPAO* proteins.



Figure S4. Phylogenetic relationship, functional domains, and gene structure of *CaRBOHs*. **(A)** Phylogenetic relationship among gene structures of *CaRBOHs*. **(B)** Distribution of conserved functional domains in *CaRBOH* proteins.

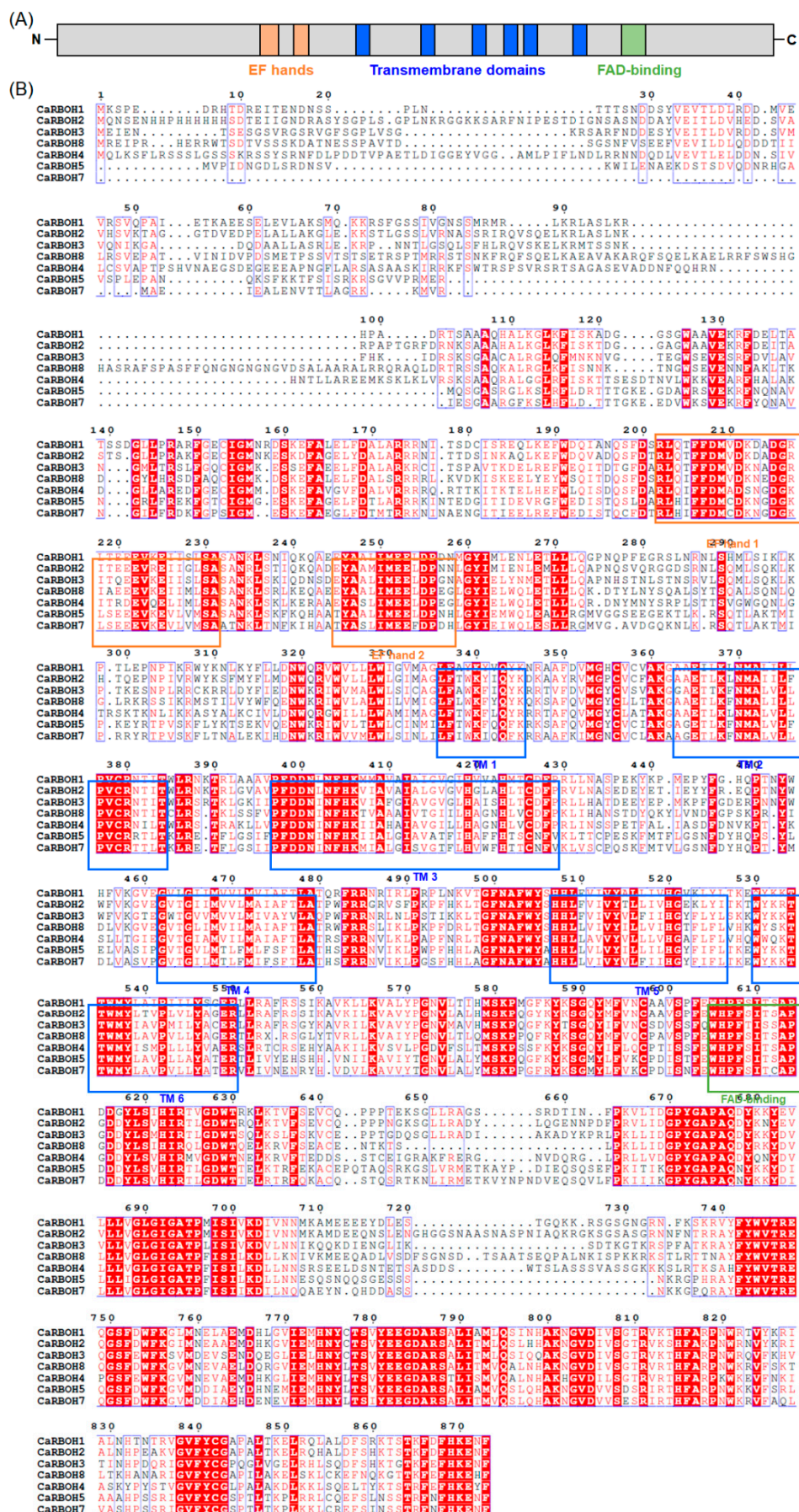


Figure S5. Domain structure and sequence alignment of CaRBOH proteins. (A) Schematic representation of the CaRBOH proteins with the respective functional domains, including EF-hands, transmembrane domains (TMs) and flavin adenine dinucleotide (FAD)-binding sites. (B) Sequence alignment of seven CaRBOH proteins. EF-hand domains are indicated by orange boxes. Conserved FAD-binding site are indicated by green box. Putative transmembrane domains predicted by TMHMM2.0 (<https://services.healthtech.dtu.dk/service.php?TMHMM-2.0>, accessed on 15 March 2023) are indicated by blue boxes.

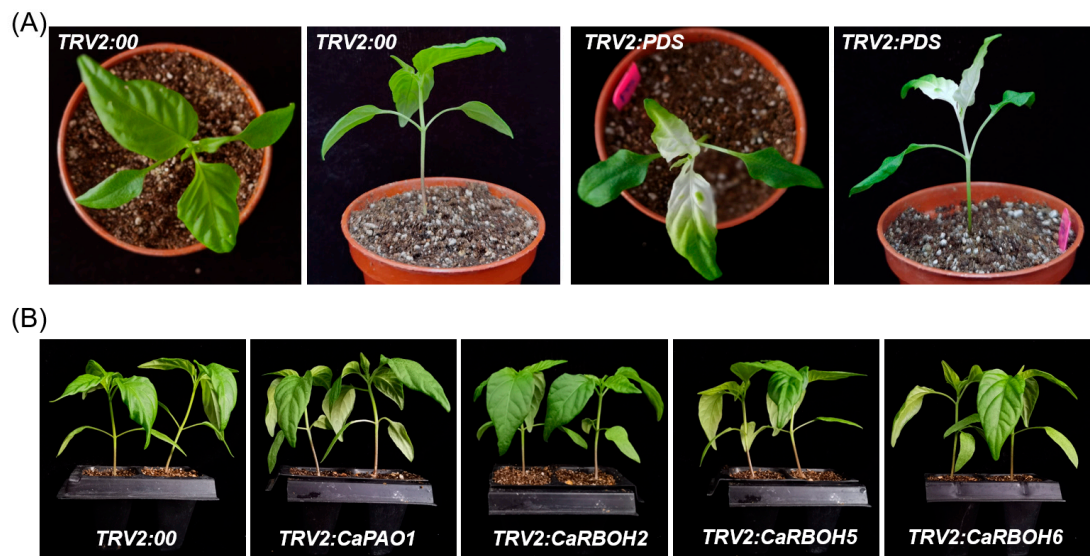


Figure S6. Phenotypes of the VIGS seedlings. **(A)** The top- and side-view of the control (*TRV2:00*) and PDS-silenced pepper plants (*TRV2:PDS*). **(B)** The side-view of *CaPAO1*- and *CaRBOH*-silenced pepper plants.