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CORESTA 2021 Agro-Phyto Virtu@l

A novel NAC transcription factor, NtNAC060 enhances the bacterial wilt resistance and salt stress tolerance in tobacco

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R. solanacearum **is a devastating pathogen that causes bacterial wilt disease on more than 200 plant species including tobacco**

Ralstonia solanacearum

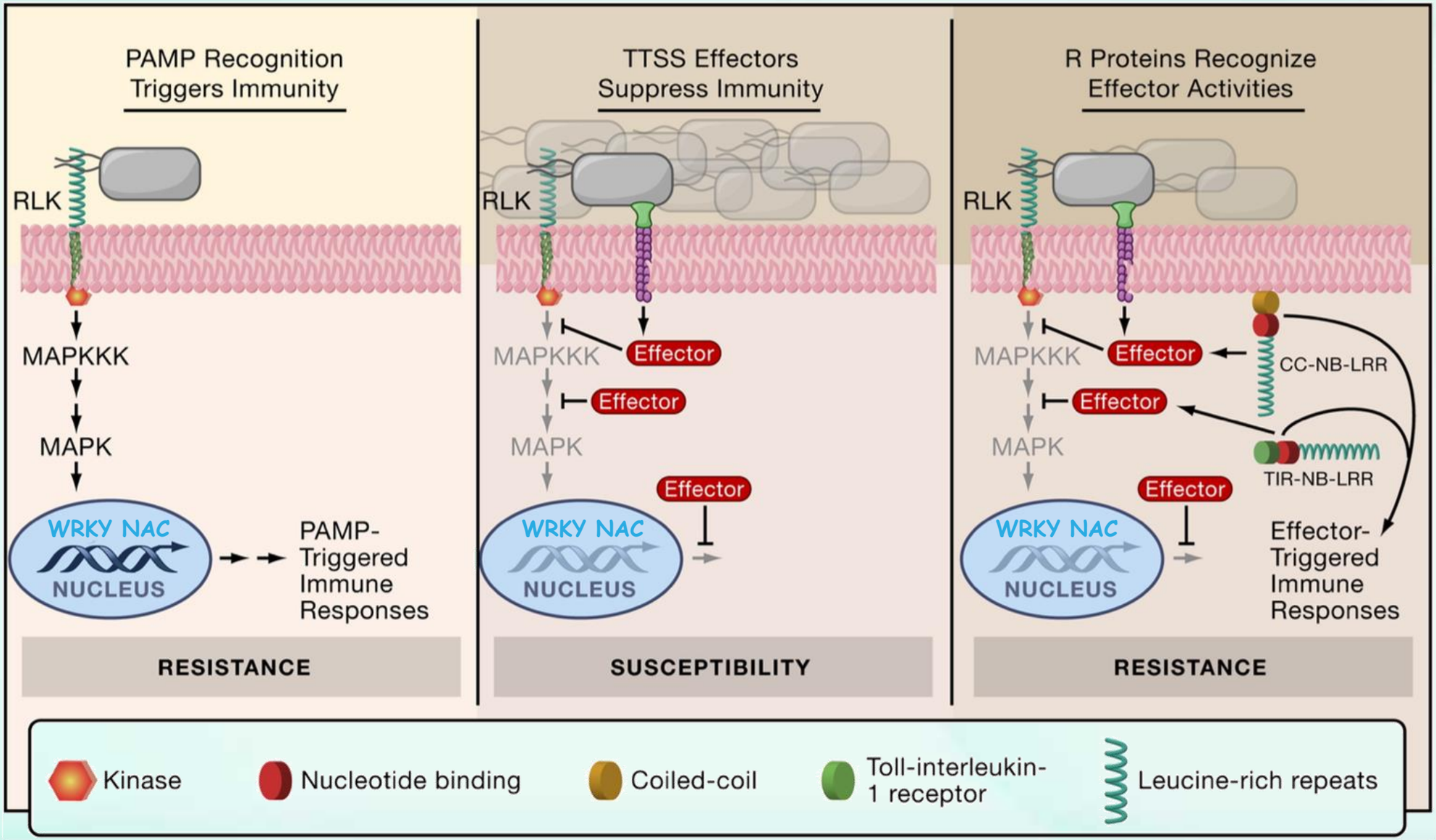

Tomato


Eggplant


Potato

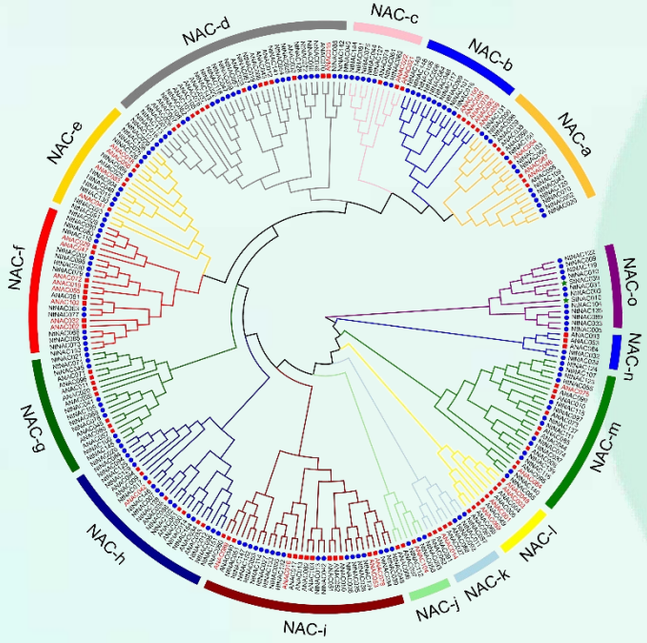

Banana

Basic principles of host-microbe interactions and plant immunity

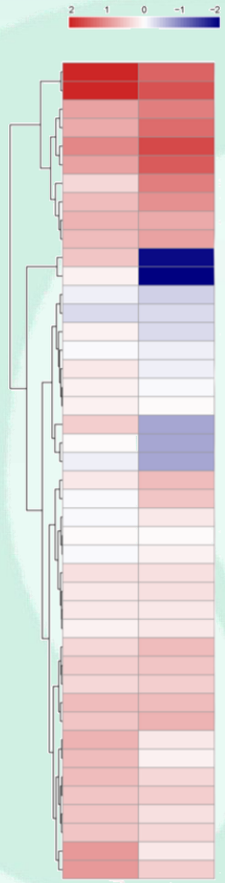


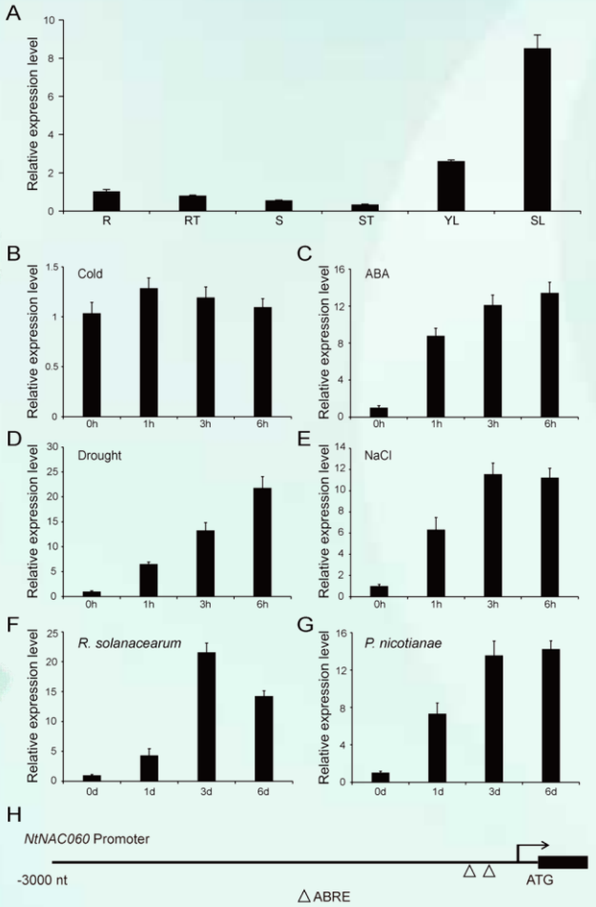
Chisholm et al., 2006

Systematic analysis of NAC family members in tobacco



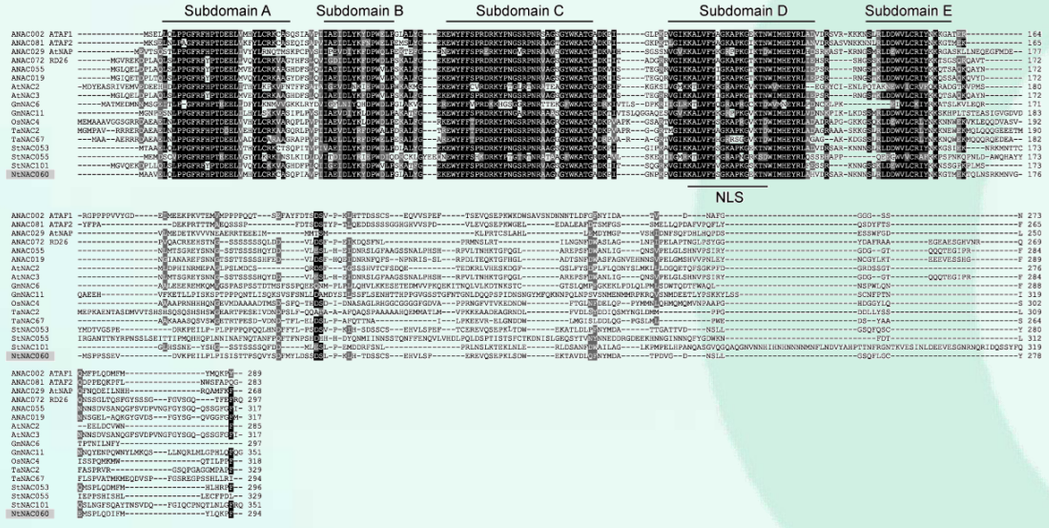
Phylogenetic analysis



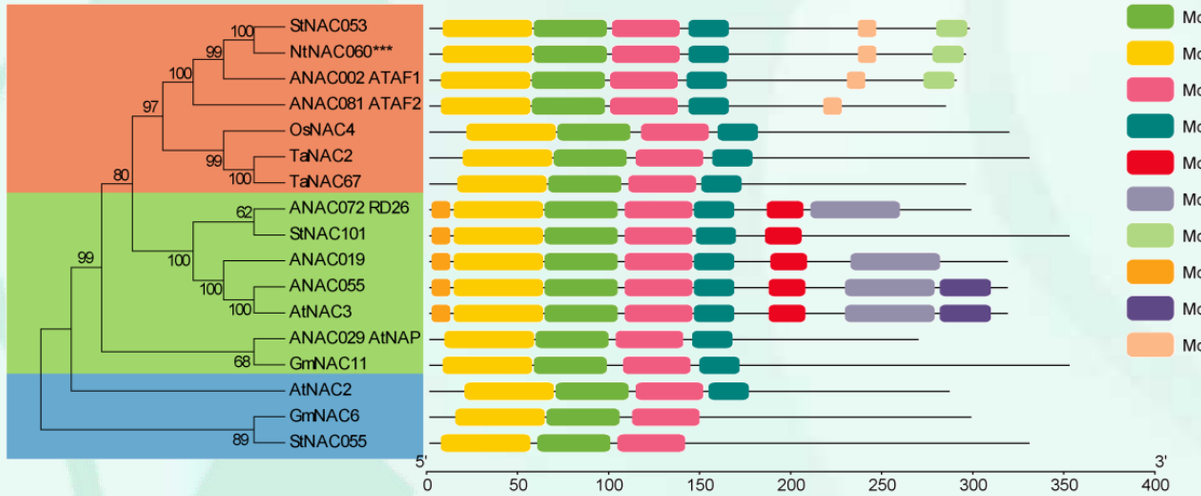


Expression pattern of *NtNAC060* gene

Identification of NtNAC060 in tobacco

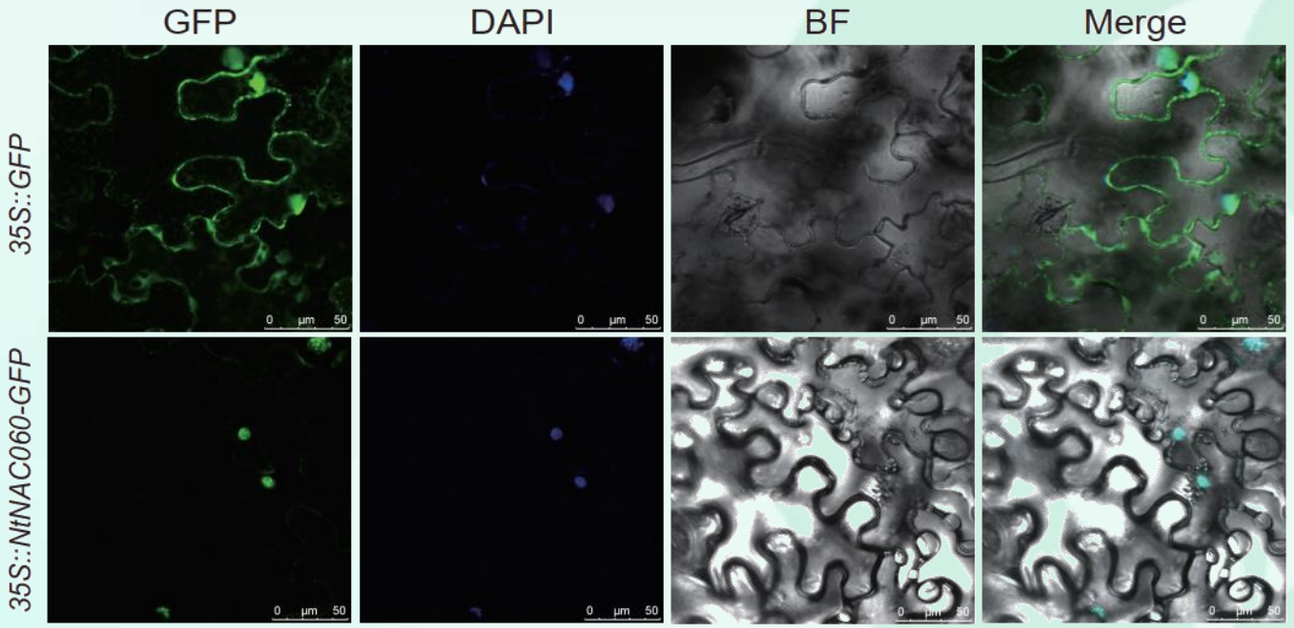


The *NtNAC060* gene encode
a typical NAC transcriptional factor

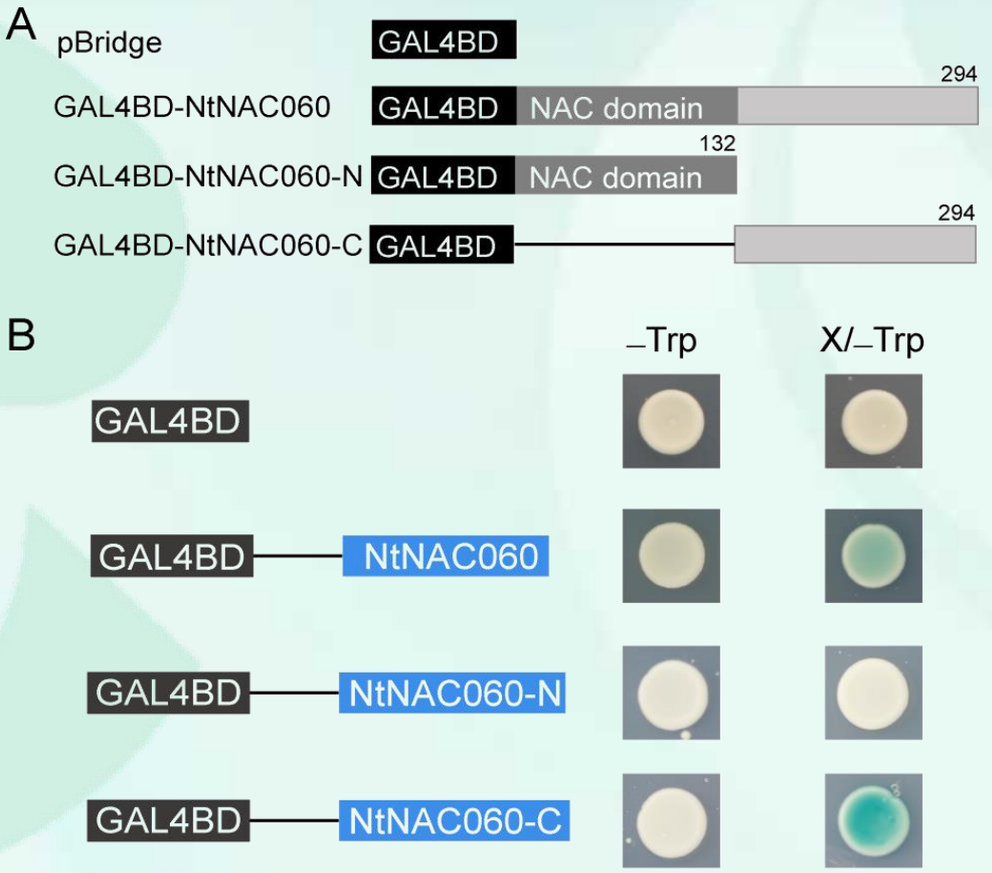


the NtNAC060 is clustered with Arabidopsis
ANAC002/ATAF1 in ATAF1 subgroup

Identification of NtNAC060 in tobacco



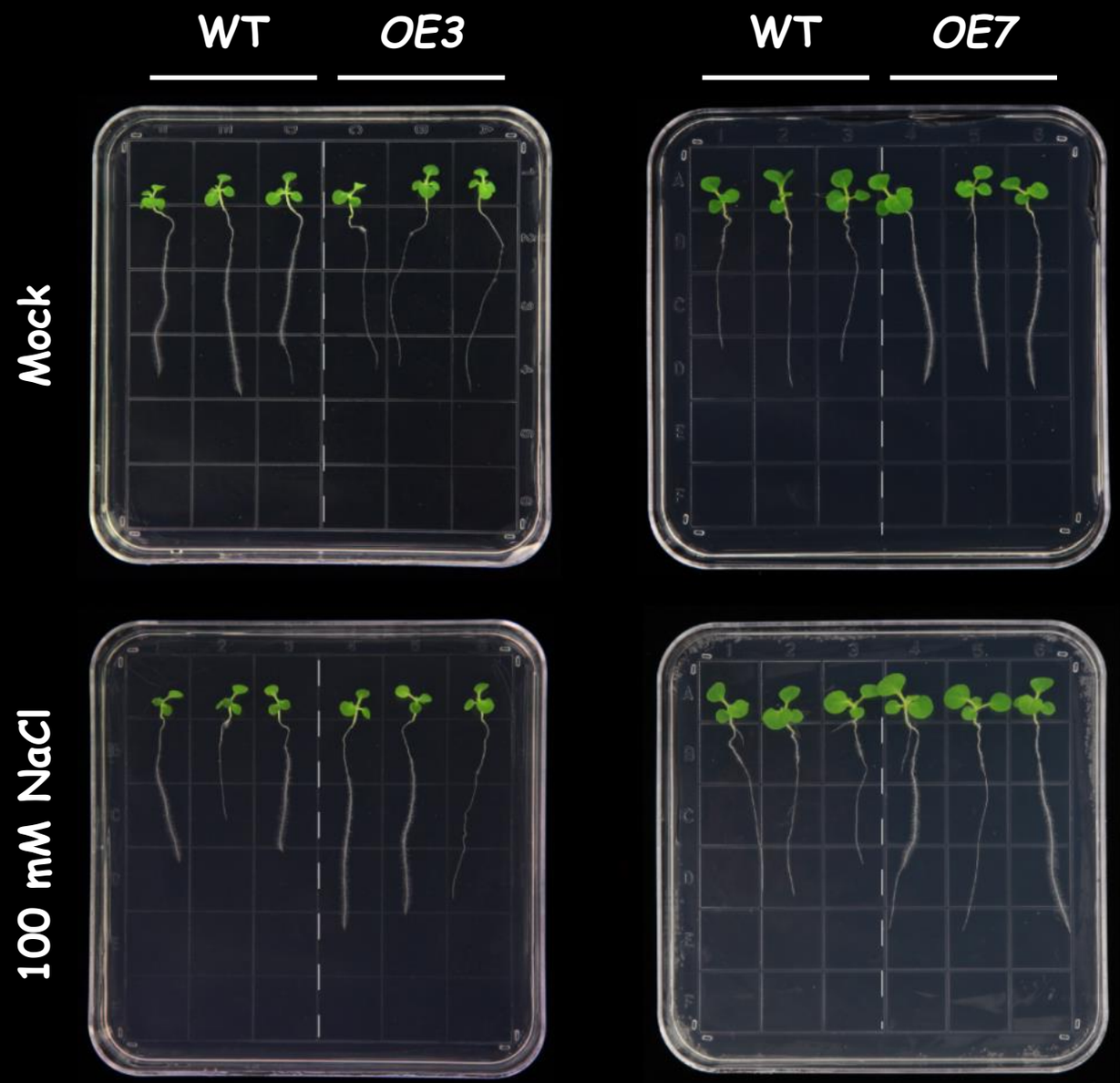
Subcellular localization analysis of NtNAC060



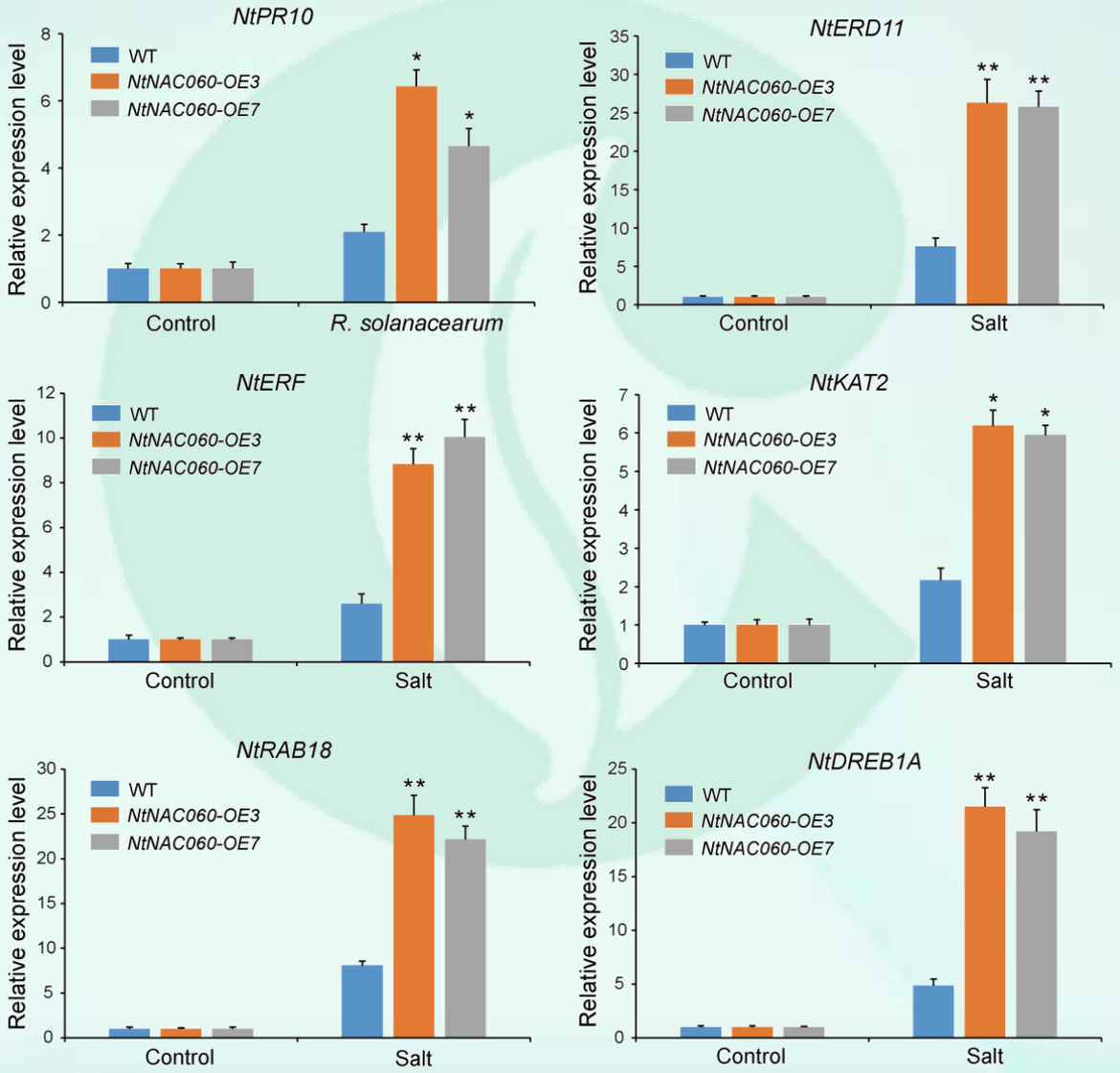
Transactivation analysis of NtNAC060 in yeast

The overexpression of *NtNAC060* gene enhances the bacterial wilt resistance

The overexpression of *NtNAC060* gene enhances the salt stress tolerance

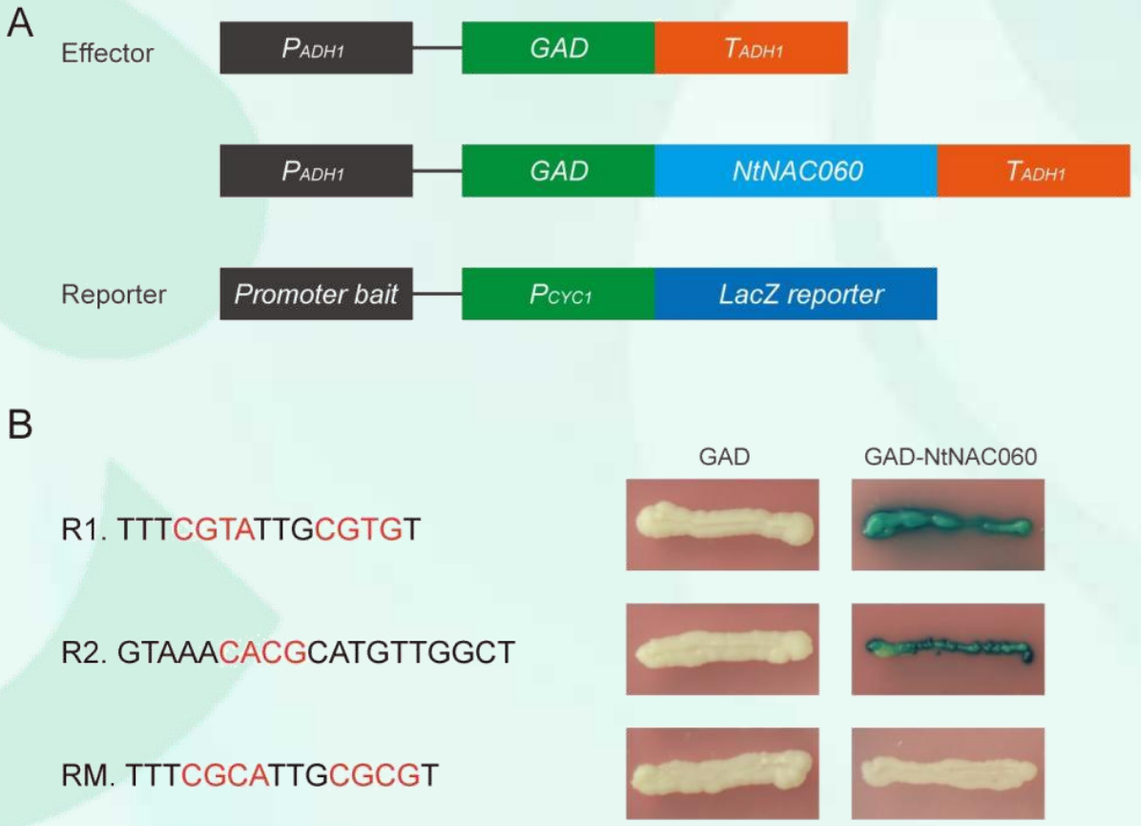


The expression patters of stress-responsive genes in overexpression lines



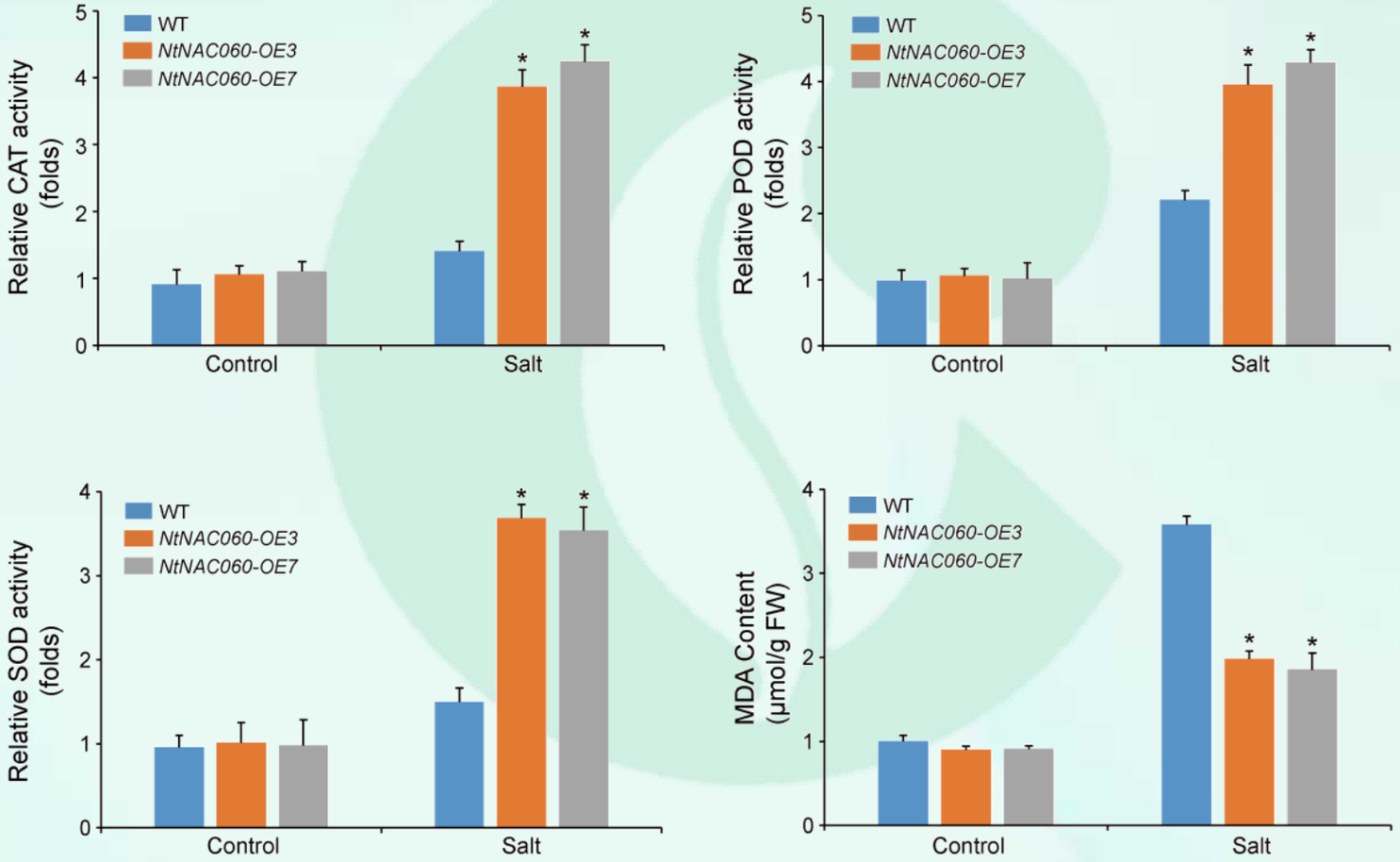
Analysis of DNA-binding sites of NtNAC060 transcriptional factor

Gene name	NAC binding sites on promoter	Number
NtDREB1A	CGTA/CGTG/CACG	13
NtRAB18	CGTA/CGTG/CACG	13
NtERF5	CGTA/CGTG/CACG	18
NtKAT2	CGTA/CGTG/CACG	13
NtERD11	CGTA/CGTG/CACG	8
NtPR10	CGTA/CGTG/CACG	10

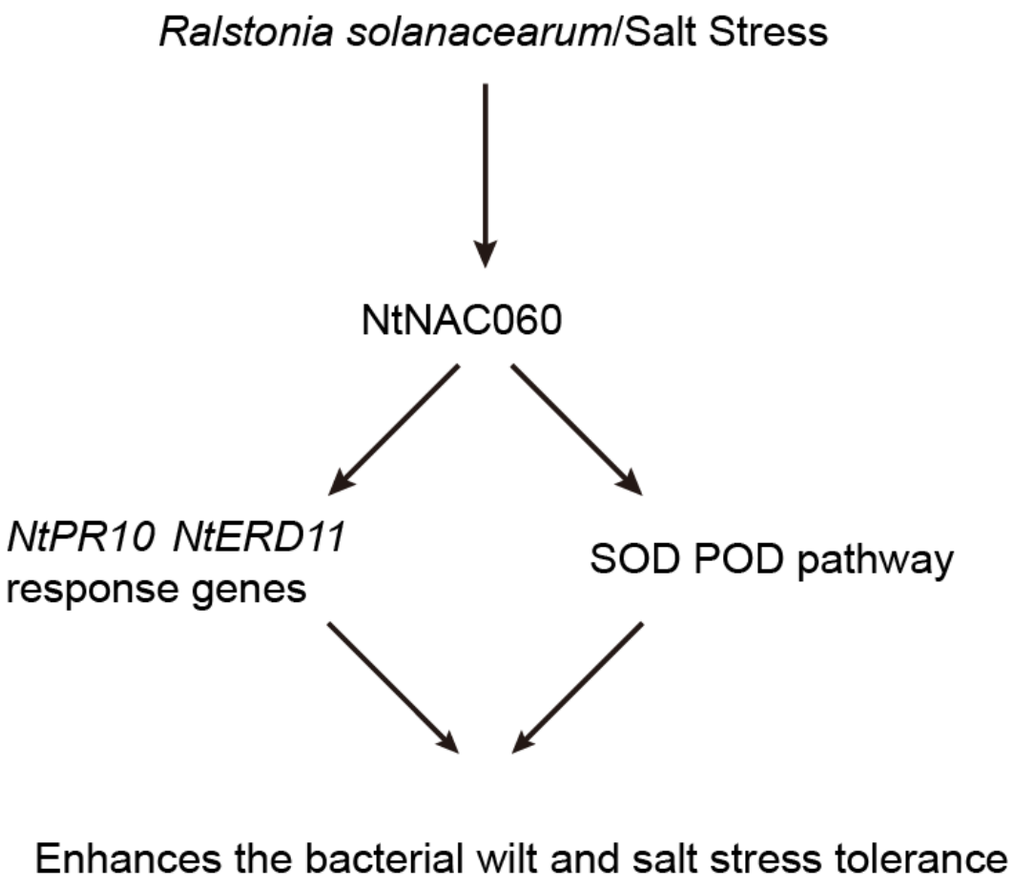


Y1H analysis of NtNAC060

Analysis of SOD POD pathway of NtNAC060 transcriptional factor



Current understanding of NtNAC060 in regulating stress tolerances



- Systematic analysis of NAC family members in tobacco indicted that NtNAC060 was cluster within ATAF1 subgroup and could be **induced by both *Ralstonia solanacearum* and salt stress** treatments;
- The overexpression of NtNAC060 gene could **enhance the *Ralstonia solanacearum* and salt stress** in tobacco;
- The NtNAC060 could **bind the promoter of several reported stress response genes directly** and active those genes, including *NtPR10* and *NtERD11*;
- The NtNAC060 could **active SOD POD pathway** to confer the stress tolerance in tobacco.

Acknowledgements

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Thank you for your attention