

Supplemental Data. Li et al. (2009). Nuclear activity of ROXY1, a glutaredoxin interacting with TGA factors, is required for petal development in *Arabidopsis thaliana*.

**Supplemental Table 1.** ROXY1 interacts with TGA factors in the nuclei of transiently transformed *Nicotiana benthamiana* leaves when the C-terminus of YFP (YC) was in-frame fused C-terminally to TGA2, TGA3, TGA7 and PAN, respectively.

	PAN-YC	TGA2-YC	TGA3-YC	TGA7-YC
YN-ROXY1	✓ <sup>a</sup>	✓	✓	✓

<sup>a</sup>Ticks indicate YFP fluorescence reconstituted by an interaction.

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**Supplemental Table 2.** Floral phenotypes induced by expression of the chimeric *PAN* repressor *PANSRDX* under the control of the endogeneous regulatory sequence of *PAN* (*PANpro:PANSRDX*).

	Percentage of floral phenotypes of <i>PANpro:PANSRDX</i> T <sub>1</sub> transgenic plants <sup>a</sup>
Tetramerous wild type flowers developing four normal sepals, petals and stamens	14.6%
Pentamerous flowers with five normal sepals, petals and stamens	18.2%
Tetramerous flowers forming four petals with normal, small or folded shapes and four normal sepals and stamens	18.6%
Pentamerous flowers with five normal, small or folded petals and five normal sepals and stamens	48.6%

<sup>a</sup>500 flowers from 50 T<sub>1</sub> transgenic plants and 10 flowers per T<sub>1</sub> transgenic plant examined.

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**Supplemental Table 3.** Primers Used in This Study.

Name	Sequence	Purpose
<b>Primers for yeast-two hybrid screen</b>		
AL2016	CAGAGTGGCCCATATGGCCATGAGAGATGCTUCCTCTCACCACAACTGGCGCGAGGCCGCGAACAGCTTCCTTC	PCR-Rec in pGADT7-Rec first step-fwd
AL2017	CAGAGTGGCCATTATGGCCCATGAAATTGACATGACCACTTTGG	PCR-Rec in pGADT7-Rec first step-rev
AL2018	CGCGCGAGGCCGCGCACAGTCATGGTGTTCAGATGCGAATGG	PCR-Rec in pGADT7-Rec first step-fwd
AL2019	CAGAGTGGCCATTATGGCCCATGAAATTGACATGACCACTTTGG	PCR-Rec in pGADT7-Rec first step-rev
AL2020	CGCGCGAGGCCGCGCACAGTCATGGTGTTCAGATGCGAATGG	PCR-Rec in pGADT7-Rec first step-fwd
AL2021	CAGAGTGGCCATTATGGCCCATGAAATTGACATGACCACTTTGG	PCR-Rec in pGADT7-Rec first step-rev
AL2022	CGCGCGAGGCCGCGCACAGTCATGGTGTTCAGATGCGAATGG	PCR-Rec in pGADT7-Rec first step-fwd
AL2023	TCCCCACCAAACAGTGATTAACACGAGATGGCCCATATGGCCC	PCR-Rec in pGADT7-Rec first step-rev
AL2024	GATCGATGCCAACCTCTAGAGGCGCCGAGTCACAGTCATGG	PCR-Rec in pGADT7-Rec first step-rev
MZ2032	CGAGCGAGGCCGCGCACAGTCATGGTGTTCAGATGCGAATGG	PCR-Rec in pGADT7-Rec first step-rev
MZ2033	CGAGCGAGGCCGCGCACAGTCATGGTGTTCAGATGCGAATGG	PCR-Rec in pGADT7-Rec first step-rev
MZ2034	CGAGCGAGGCCGCGCACAGTCATGGTGTTCAGATGCGAATGG	PCR-Rec in pGADT7-Rec first step-rev
MZ2035	CGAGCGAGGCCGCGCACAGTCATGGTGTTCAGATGCGAATGG	PCR-Rec in pGADT7-Rec first step-rev
MZ2036	CGAGCGAGGCCGCGCACAGTCATGGTGTTCAGATGCGAATGG	PCR-Rec in pGADT7-Rec first step-rev
MZ2037	CGAGCGAGGCCGCGCACAGTCATGGTGTTCAGATGCGAATGG	PCR-Rec in pGADT7-Rec first step-rev
MZ2038	CGAGCGAGGCCGCGCACAGTCATGGTGTTCAGATGCGAATGG	PCR-Rec in pGADT7-Rec first step-rev
AL1377	CGCGCGAGGCCGCGCACAGTCATGGTGTTCAGATGCGAATGG	PCR-Rec in pGADT7-Rec first step-rev
AL1378	CGCGCGAGGCCGCGCACAGTCATGGTGTTCAGATGCGAATGG	PCR-Rec in pGADT7-Rec first step-rev
ROXY1-AN-F	CGCGCGAGGCCGCGCACAGTCATGGTGTTCAGATGCGAATGG	PCR-Rec in pGADT7-Rec first step-rev
ROXY1-AN-R	CGCGCGAGGCCGCGCACAGTCATGGTGTTCAGATGCGAATGG	PCR-Rec in pGADT7-Rec first step-rev
ROXY1-AM-F	CGCGCGAGGCCGCGCACAGTCATGGTGTTCAGATGCGAATGG	PCR-Rec in pGADT7-Rec first step-rev
ROXY1-AM-R	CGCGCGAGGCCGCGCACAGTCATGGTGTTCAGATGCGAATGG	PCR-Rec in pGADT7-Rec first step-rev
<b>Primers for BiFC experiments</b>		
PAN-SVCF-F	GGGGACAATTTGTCACAAAAGAACAGCTTACATGAGAACAGCTTACACCGT	amplifying the codon sequence of <i>PAN</i> for SPLIT YFP analysis
PAN-SVCF-R	GGGGACCACTTTACAAAGAACAGCTTACATGAGAACAGCTTACACCGT	amplifying the codon sequence of <i>PAN</i> for SPLIT YFP analysis
PAN-SPCF-E	GGGGACCACTTTACAAAGAACAGCTTACATGAGAACAGCTTACACCGT	amplifying the codon sequence of <i>PAN</i> for SPLIT YFP analysis
PAN-SPCF-R	GGGGACCACTTTACAAAGAACAGCTTACATGAGAACAGCTTACACCGT	amplifying the codon sequence of <i>PAN</i> for SPLIT YFP analysis
ROXY1-phi-SPVF-F	GGGGACCAACTTACAAAGAACAGCTTACATGAGAACAGCTTACACCGT	amplifying the codon sequence of <i>ROXY1</i> for SPLIT YFP analysis
ROXY1-phi-SPVF-R	GGGGACCAACTTACAAAGAACAGCTTACATGAGAACAGCTTACACCGT	amplifying the codon sequence of <i>ROXY1</i> for SPLIT YFP analysis
ROXY1CMC-phi-SPVF-R	GGGGACCAACTTACAAAGAACAGCTTACATGAGAACAGCTTACACCGT	amplifying the codon sequence of <i>ROXY1CMC</i> for SPLIT YFP analysis
TGA1-jspYCF-F	GGGGACCAACTTACAAAGAACAGCTTACATGAGAACAGCTTACACCGT	amplifying the codon sequence of <i>TGA1</i> for SPLIT YFP analysis
TGA1-jspYCF-R	GGGGACCAACTTACAAAGAACAGCTTACATGAGAACAGCTTACACCGT	amplifying the codon sequence of <i>TGA1</i> for SPLIT YFP analysis
TGA3-jspYCF-F	GGGGACCAACTTACAAAGAACAGCTTACATGAGAACAGCTTACACCGT	amplifying the codon sequence of <i>TGA3</i> for SPLIT YFP analysis
TGA3-jspYCF-R	GGGGACCAACTTACAAAGAACAGCTTACATGAGAACAGCTTACACCGT	amplifying the codon sequence of <i>TGA3</i> for SPLIT YFP analysis
TGA4-jspYCF-F	GGGGACCAACTTACAAAGAACAGCTTACATGAGAACAGCTTACACCGT	amplifying the codon sequence of <i>TGA4</i> for SPLIT YFP analysis
TGA4-jspYCF-R	GGGGACCAACTTACAAAGAACAGCTTACATGAGAACAGCTTACACCGT	amplifying the codon sequence of <i>TGA4</i> for SPLIT YFP analysis
TGA5-jspYCF-F	GGGGACCAACTTACAAAGAACAGCTTACATGAGAACAGCTTACACCGT	amplifying the codon sequence of <i>TGA5</i> for SPLIT YFP analysis
TGA5-jspYCF-R	GGGGACCAACTTACAAAGAACAGCTTACATGAGAACAGCTTACACCGT	amplifying the codon sequence of <i>TGA5</i> for SPLIT YFP analysis
TGA6-jspYCF-F	GGGGACCAACTTACAAAGAACAGCTTACATGAGAACAGCTTACACCGT	amplifying the codon sequence of <i>TGA6</i> for SPLIT YFP analysis
TGA6-jspYCF-R	GGGGACCAACTTACAAAGAACAGCTTACATGAGAACAGCTTACACCGT	amplifying the codon sequence of <i>TGA6</i> for SPLIT YFP analysis
TGA7-jspYCF-F	GGGGACCAACTTACAAAGAACAGCTTACATGAGAACAGCTTACACCGT	amplifying the codon sequence of <i>TGA7</i> for SPLIT YFP analysis
TGA7-jspYCF-R	GGGGACCAACTTACAAAGAACAGCTTACATGAGAACAGCTTACACCGT	amplifying the codon sequence of <i>TGA7</i> for SPLIT YFP analysis
ROXY1-AN-phi-SPVF-R	GGGGACCAACTTACAAAGAACAGCTTACATGAGAACAGCTTACACCGT	amplifying the coding sequence of <i>ROXY1AN</i> for SPLIT YFP analysis
ROXY1-AN-phi-SPVF-R	GGGGACCAACTTACAAAGAACAGCTTACATGAGAACAGCTTACACCGT	amplifying the coding sequence of <i>ROXY1AN</i> for SPLIT YFP analysis
<b>Primers for <i>in situ</i> hybridization</b>		
ROXY1-124 bp-T3-F	GGGGAAATAAATCCCTACTAAAGGGCAACAAACCTTACCGAAC	Amplifying a 124 bp fragment from the <i>ROXY1</i> 5' end for mRNA in situ hybridization
ROXY1-124 bp-T7-R	GCTGTTAAACAGCTTACATGAGGCAGCTGTCAGCTGAGTCAGTCATG	Amplifying a 124 bp fragment from the <i>ROXY1</i> 3' end for mRNA in situ hybridization
ROXY1-122 bp-T3-F	GGGGAAATAAATCCCTACTAAAGGGCAACAACTCTCTCTCTCT	Amplifying a 122 bp fragment from the <i>ROXY1</i> 5' end for mRNA in situ hybridization
ROXY1-122 bp-T7-R	GCGGCTTAATACGCTTACACTAAGGGCTTTGTTTATGATGTTATGAT	Amplifying a 122 bp fragment from the <i>ROXY1</i> 3' end for mRNA in situ hybridization
PAN-588 bp-T3-F	GATGATGATGATGATGATGATGATGATGATGATGATGATGATGATG	Amplifying a 588 bp fragment from the <i>PAN</i> 5' end for mRNA in situ hybridization
PAN-588 bp-T7-R	GCTGTTAAACAGCTTACATGAGGCAGCTGTCAGTGTAGTGTAGTGT	Amplifying a 588 bp fragment from the <i>PAN</i> 3' end for mRNA in situ hybridization
TGA2-371 bp-F	CTCTTTTGTCTGTCAGTCAGTCAGTCAGTCAGTCAGTCAGTCAGTC	Amplifying a 371 bp fragment from the <i>TGA2</i> 5' end for mRNA in situ hybridization
TGA2-371 bp-T7-R	GCTCTAAAGCTTACATGAGCTTACATGAGCTTACATGAGCTTACATG	Amplifying a 371 bp fragment from the <i>TGA2</i> 3' end for mRNA in situ hybridization
<b>Primers for generating <i>PAN</i> double mutants</b>		
S72712	TCCAGTGTGGTCATCAATAC	3' primer for <i>PAN</i> gene cloning, PCR with ST13 for an about 900 bp wild type band
S72713	CGTTCAGTTCATCTCTGATTTC	5' primer for <i>PAN</i> gene cloning, start from -15 bp from ATG <i>ROXY1</i>
S72711	GGCTGGAGCCGCTTCGTCGAAT	LBS of eB1H pROX2 for SALK line, 110bp from LB of TDNA
SX898	CGAGATGAGTACCTGAGAGGTGAGTGTAGG	5' primer for <i>roxy1</i> genotyping, start from -145 bp from ATG <i>ROXY1</i>
SX897	GAAATAGTACGCGTCAGTAACTACCG	3' primer for <i>PAN</i> revgenotype, PCR with SX896 for an about 864 bp wild type band
SX851	GATAAAGGAAAGGCCATCGT	TDNA right border primer used by GABI-KAT to mutants for sequencing, pAC161, start from 3007 bp in pAC161 for sequencing for right border
<b>Primers for generating PAN-SRDx repressors</b>		
35Spro-PAN-F	CCCCGGGACCATCGAGAGCAGCTTACACCGT	5' primer for amplification of PAN coding region
35Spro-PAN-SRDx-R	GAGGGACAGATGTTCTCTTGGAGGTTTC	3' primer for amplification of wild type PAN coding region with 5' primer 35Spro-PAN-F
PANpro-PAN-SRDx-F	GGGGACCACTTACAAAGAACAGCTTACATGAGAACAGCTTACACCGT	5' primer for mutationization of PAN C275
PANpro-PAN-SRDx-R	GAGGGACCACTTACAAAGAACAGCTTACATGAGAACAGCTTACACCGT	3' primer for mutationization of PAN C275
PANpro-PAN-SRDx-m-F	CCCCGGGACCATCGAGAGCAGCTTACACCGT	5' primer for mutationization of PAN C68S
PANpro-PAN-SRDx-m-R	GAGGGACCACTTACAAAGAACAGCTTACATGAGAACAGCTTACACCGT	3' primer for mutationization of PAN C68S
PANpro-PAN-SRDx-m-F	CCCCGGGACCATCGAGAGCAGCTTACACCGT	5' primer for mutationization of PAN C375
PANpro-PAN-SRDx-m-R	GAGGGACCACTTACAAAGAACAGCTTACATGAGAACAGCTTACACCGT	3' primer for mutationization of PAN C375
PANpro-PAN-SRDx-m-F	CCCCGGGACCATCGAGAGCAGCTTACACCGT	5' primer for mutationization of PAN C114S
PANpro-PAN-SRDx-m-R	GAGGGACCACTTACAAAGAACAGCTTACATGAGAACAGCTTACACCGT	3' primer for mutationization of PAN C114S
PANpro-PAN-SRDx-m-F	CCCCGGGACCATCGAGAGCAGCTTACACCGT	5' primer for mutationization of PAN C145S
PANpro-PAN-SRDx-m-R	GAGGGACCACTTACAAAGAACAGCTTACATGAGAACAGCTTACACCGT	3' primer for mutationization of PAN C145S
PANpro-PAN-SRDx-m-F	CCCCGGGACCATCGAGAGCAGCTTACACCGT	5' primer for mutationization of PAN C340S
PANpro-PAN-SRDx-m-R	GAGGGACCACTTACAAAGAACAGCTTACATGAGAACAGCTTACACCGT	3' primer for mutationization of PAN C340S
<b>Primers for mutagenesis of PAN Cysteines and complementation analysis</b>		
3Spro-YEP1-F	CCCCGGGACCATCGAGAGCAGCTTACACCGT	3' primer for amplification of wild type PAN coding region
3Spro-YEP1 (without TCA)-m-R	GAGGTTCAGAACCTTACATGAGCTTACATGAGCTTACACCGT	5' primer for mutationization of PAN C275
3Spro-YEP1 (without TCA)-m-F	CTCGAGGCCCTTCAGAGTTTGACACCTGTCAGCTTACACCGT	3' primer for mutationization of PAN C275
3Spro-ROXY1-m-F	GCTCTAGATGAGTACGAGAGGAGCAGCGGCTTCT	5' primer for mutationization of PAN C68S
3Spro-ROXY1-m-R	GCTCTAGATGAGTACGAGAGGAGCAGCGGCTTCT	3' primer for mutationization of PAN C68S
3Spro-ROXY1-R	GATGATGATGATGATGATGATGATGATGATGATGATGATGATG	5' primer for mutationization of PAN C375
3Spro-YEP1 (without TCA)-R	GCTCTAGATGAGTACGAGAGGAGCAGCGGCTTCT	3' primer for mutationization of PAN C375
3Spro-Spe I + Nhe I-YFP2-3'-F	GGGACTAGCTCTAGATGAGTACGAGGGGAGGAGCTTC	5' primer for amplifying the coding sequence of YFP and introducing the first YFP fragment
3Spro-Spe I + Nhe I-YFP2-3'-R	GGGACTAGCTCTAGATGAGTACGAGGGGAGGAGCTTC	5' primer for amplifying the coding sequence of YFP and introducing the second and third YFP fragments
<b>Primers for studies on intracellular localization of ROXY1</b>		
35Spro-YEP1-F	CCCCGGGACATGGTGAGCAAGGGGGAGGGCTGTTTC	5' primer for amplifying the coding region of YFP
35Spro-YEP1 (without TCA)-m-R	GAGGTTCAGAACCTTACATGAGCTTACATGAGCTTACACCGT	3' primer for amplifying the coding sequence of ROXY1 and constructing YFP-ROXY1
35Spro-ROXY1-m-F	CTCGAGGCCCTTCAGAGTTTGACACCTGTCAGCTTACACCGT	5' primer for amplifying the coding sequence of ROXY1
35Spro-ROXY1-R	GCTCTAGATGAGTACGAGAGGAGCAGCGGCTTCT	3' primer for amplifying the coding sequence of ROXY1
3Spro-Spe I + Nhe I-YFP2	GATGATGATGATGATGATGATGATGATGATGATGATGATGATG	5' primer for amplifying the coding sequence of YFP and introducing the first YFP fragment
3Spro-Spe I + Nhe I-YFP2 (without TCA)-R	GCTCTAGATGAGTACGAGGGGAGGAGCTTC	5' primer for amplifying the coding sequence of YFP (without the stop codon) and introducing the second YFP fragment
<b>Primers for complementation analysis of wild type ROXY1 and its mutants in <i>Arabidopsis</i> and <i>Arabidopsis</i> selected 12 CC-type GRxs</b>		
ROXY1pro-ROXY1-F	GCTCTAGATGAGTACGAGGGGAGGAGCTTC	5' primer for amplifying the coding region of ROXY1
ROXY1pro-ROXY1-R	GCTCTAGATGAGTACGAGGGGAGGAGCTTC	3' primer for amplifying the coding region of ROXY1
ROXY1pro-ROXY1AN-F	GCTCTAGATGAGTACGAGGGGAGGAGCTTC	5' primer for amplifying the coding region of ROXY1AN
ROXY1pro-ROXY1AC-R	GCTCTAGATGAGTACGAGGGGAGGAGCTTC	3' primer for amplifying the coding region of ROXY1AC
ROXY2pro-ROXY2-F	GCTCTAGATGAGTACGAGGGGAGGAGCTTC	5' primer for amplifying the coding region of ROXY2
ROXY2pro-ROXY2-R	GCTCTAGATGAGTACGAGGGGAGGAGCTTC	3' primer for amplifying the coding region of ROXY2
ROXY3pro-ROXY3-F	GCTCTAGATGAGTACGAGGGGAGGAGCTTC	5' primer for amplifying the coding region of ROXY3
ROXY3pro-ROXY3-R	GCTCTAGATGAGTACGAGGGGAGGAGCTTC	3' primer for amplifying the coding region of ROXY3
ROXY4pro-ROXY4-F	GCTCTAGATGAGTACGAGGGGAGGAGCTTC	5' primer for amplifying the coding region of ROXY4
ROXY4pro-ROXY4-R	GCTCTAGATGAGTACGAGGGGAGGAGCTTC	3' primer for amplifying the coding region of ROXY4
ROXY5pro-ROXY5-F	GCTCTAGATGAGTACGAGGGGAGGAGCTTC	5' primer for amplifying the coding region of ROXY5
ROXY5pro-ROXY5-R	GCTCTAGATGAGTACGAGGGGAGGAGCTTC	3' primer for amplifying the coding region of ROXY5
ROXY6pro-ROXY6-F	GCTCTAGATGAGTACGAGGGGAGGAGCTTC	5' primer for amplifying the coding region of ROXY6
ROXY6pro-ROXY6-R	GCTCTAGATGAGTACGAGGGGAGGAGCTTC	3' primer for amplifying the coding region of ROXY6
ROXY7pro-ROXY7-F	GCTCTAGATGAGTACGAGGGGAGGAGCTTC	5' primer for amplifying the coding region of ROXY7
ROXY7pro-ROXY7-R	GCTCTAGATGAGTACGAGGGGAGGAGCTTC	3' primer for amplifying the coding region of ROXY7
ROXY8pro-ROXY8-F	GCTCTAGATGAGTACGAGGGGAGGAGCTTC	5' primer for amplifying the coding region of ROXY8
ROXY8pro-ROXY8-R	GCTCTAGATGAGTACGAGGGGAGGAGCTTC	3' primer for amplifying the coding region of ROXY8
ROXY9pro-ROXY9-F	GCTCTAGATGAGTACGAGGGGAGGAGCTTC	5' primer for amplifying the coding region of ROXY9
ROXY9pro-ROXY9-R	GCTCTAGATGAGTACGAGGGGAGGAGCTTC	3' primer for amplifying the coding region of ROXY9
ROXY10pro-ROXY10-F	GCTCTAGATGAGTACGAGGGGAGGAGCTTC	5' primer for amplifying the coding region of ROXY10
ROXY10pro-ROXY10-R	GCTCTAGATGAGTACGAGGGGAGGAGCTTC	3' primer for amplifying the coding region of ROXY10
ROXY11pro-ROXY11-F	GCTCTAGATGAGTACGAGGGGAGGAGCTTC	5' primer for amplifying the coding region of ROXY11
ROXY11pro-ROXY11-R	GCTCTAGATGAGTACGAGGGGAGGAGCTTC	3' primer for amplifying the coding region of ROXY11
ROXY12pro-ROXY12-F	GCTCTAGATGAGTACGAGGGGAGGAGCTTC	5' primer for amplifying the coding region of ROXY12
ROXY12pro-ROXY12-R	GCTCTAGATGAGTACGAGGGGAGGAGCTTC	3' primer for amplifying the coding region of ROXY12
ROXY13pro-ROXY13-F	GCTCTAGATGAGTACGAGGGGAGGAGCTTC	5' primer for amplifying the coding region of ROXY13
ROXY13pro-ROXY13-R	GCTCTAGATGAGTACGAGGGGAGGAGCTTC	3' primer for amplifying the coding region of ROXY13
ROXY14pro-ROXY14-F	GCTCTAGATGAGTACGAGGGGAGGAGCTTC	5' primer for amplifying the coding region of ROXY14
ROXY14pro-ROXY14-R	GCTCTAGATGAGTACGAGGGGAGGAGCTTC	3' primer for amplifying the coding region of ROXY14
ROXY15pro-ROXY15-F	GCTCTAGATGAGTACGAGGGGAGGAGCTTC	5' primer for amplifying the coding region of ROXY15
ROXY15pro-ROXY15-R	GCTCTAGATGAGTACGAGGGGAGGAGCTTC	3' primer for amplifying the coding region of ROXY15
ROXY16pro-ROXY16-F	GCTCTAGATGAGTACGAGGGGAGGAGCTTC	5' primer for amplifying the coding region of ROXY16
ROXY16pro-ROXY16-R	GCTCTAGATGAGTACGAGGGGAGGAGCTTC	3' primer for amplifying the coding region of ROXY16
ROXY17pro-ROXY17-F	GCTCTAGATGAGTACGAGGGGAGGAGCTTC	5' primer for amplifying the coding region of ROXY17
ROXY17pro-ROXY17-R	GCTCTAGATGAGTACGAGGGGAGGAGCTTC	3' primer for amplifying the coding region of ROXY17
ROXY18pro-ROXY18-F	GCTCTAGATGAGTACGAGGGGAGGAGCTTC	5' primer for amplifying the coding region of ROXY18
ROXY18pro-ROXY18-R	GCTCTAGATGAGTACGAGGGGAGGAGCTTC	3' primer for amplifying the coding region of ROXY18
ROXY19pro-ROXY19-GX480-F	GCTCTAGATGAGTACGAGGGGAGGAGCTTC	5' primer for amplifying the coding region of ROXY19/GX480
ROXY19pro-ROXY19-GX480-R	GCTCTAGATGAGTACGAGGGGAGGAGCTTC	3' primer for amplifying the coding region of ROXY19/GX480
ROXY20pro-ROXY20-F	GCTCTAGATGAGTACGAGGGGAGGAGCTTC	5' primer for amplifying the coding region of ROXY20
ROXY20pro-ROXY20-R	GCTCTAGATGAGTACGAGGGGAGGAGCTTC	3' primer for amplifying the coding region of ROXY20
ROXY21pro-ROXY21-F	GCTCTAGATGAGTACGAGGGGAGGAGCTTC	5' primer for amplifying the coding region of ROXY21
ROXY21pro-ROXY21-R	GCTCTAGATGAGTACGAGGGGAGGAGCTTC	3' primer for amplifying the coding region of ROXY21

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**Supplemental Methods.** The recombination strategy used for cloning coding sequences of PAN and TGAs into the pGADT7-rec yeast expression vector.

Coding sequences of PAN and TGAs were cloned into the pGADT7-rec yeast expression vector following a recombination strategy. First, coding regions were amplified with primers that contain a gene specific sequence at the 3' end and part of the SMARTIII or CDSIII extension at the 5' end for the forward or reverse primers, respectively. The full length of the SMARTIII and CDSIII sequences were reconstructed by amplifying the PCR product with AL2023 and AL2024 primers. These primers correspond to the SMARTIII and CDSIII full length regions and mediate the in yeast recombination of the PCR fragment into the pGADT7-rec. The product of the second amplification was pooled with a SmaI-linearized pGADT7-rec vector and co-transformed into AH109 harbouring the bait to be tested. Transformed yeast was first plated on media lacking Trp and Leu to select for pGADT7-rec/PCR product successful recombination. Single colonies were then chosen to be challenged on SD-/Trp-His-Leu-Ade and 3.0 mM 3-AT. If needed, the pGADT7-rec insert was isolated from the chosen colonies by PCR with AL2023 and AL2024 primers and sequence

