

Table S1. Plasmids and primers used in this study.

Plasmids	Descriptions	Sources
pYHN3-pShEF1 α	Overexpression plasmid	Sang et al. (44)
pYHN3-ptrpC	Overexpression plasmid	This study
pYHN3-ptrpC-CYP561	CYP561 overexpression plasmid	This study
pYHN3-ptrpC-CYP65	CYP65 overexpression plasmid	This study
pYHN3-ptrpC-CYP68	CYP68 overexpression plasmid	This study
pYHN3-ptrpC-ShPDR1	ShPDR1 overexpression plasmid	This study
pYHN3-ptrpC-ShatrD	ShatrD overexpression plasmid	This study
Topo- Δ ShXDR1	ShXDR1 knock-out plasmid	This study
pYHN3-ptrpC-dsRNAXDR1	ShXDR1 knock-down plasmid	This study
p415-PtrpC-Cas9-TtrpC-CYC1t	Plasmid containing a Cas9 endonuclease (Addgene Plasmid #68059)	Matsu-ura et al (50)
p426-SNR52p-gRNA.csr-1.Y-SUP4t	Plasmid containing a gRNA-csr-1 construct (Addgene Plasmid #68060)	Matsu-ura et al (50)
p426-SNR52p-gRNA.ShXDR1.Y-SUP4t	Plasmid containing a gRNA-ShXDR1 construct	This study
Topo-ShXDR1 ^{M853}	Plasmid with the partial region of ShXDR1 ^{M853}	This study
pYHN3-MCS	Plasmid with multiple cloning sites	Sang et al. (44)
pYHN3-ShXDR1 ^{T853}	Plasmid with the upstream (1583 bp) and full length of ShXDR1 ^{T853}	This study
NeoR-ShXDR1 ^{T853}	Plasmid with the neomycin resistance gene and upstream (1583 bp) and full length of ShXDR1 ^{T853}	This study
pYHN3-303bp-pShPDR1	Plasmid with the upstream (303 bp) of ShPDR1	This study
pYHN3-354bp-pShPDR1	Plasmid with the upstream (354 bp) of ShPDR1	This study
pYHN3-479bp-pShPDR1	Plasmid with the upstream (479 bp) of ShPDR1	This study
pYHN3-1289bp-pShPDR1	Plasmid with the upstream (1289bp) of ShPDR1	This study
pPAD80	Plasmid containing HA	Delley and Hall (45)
pYHN3-ptrpC-ShXDR1HA	Plasmid with HA tagged ShXDR1	This study
pYES2-atrD	Galactose induced ShatrD plasmid	This study
pYHN3-ptrpC-TCONS_00005783	Glutathione S transferase overexpression plasmid	This study

Primer Name	Primer Sequence (5'-3')	Descriptions
Primers for qPCR analysis		
QF_CYP561	AGATCGATGGGAAGTTTGTCC	Quantify expression of CYP561 gene
QR_CYP561	GTTCTGGGTCCGAAATGTTG	
QF_CYP65	ATTCCAGATTATCCGAGCCAG	Quantify expression of CYP65 gene
QR_CYP65	GAGTGCTATATCCAGAACGC	
QF_CYP68	CAACCCGATCTCATAGACGC	Quantify expression of CYP68 gene
QR_CYP68	GATCCGGTGCATACTTACCTG	

QF_ShXDR1 QR_ShXDR1	GCTAGATCACGAGCTTGAAGAA GACGACAACATGGAGGATCAA	Quantify expression of <i>ShXDR1</i> gene
QF_10618 QR_10618	TGCATCCAGCGTTCTAGTATTC CGAACCAGCAGGTTGTTAGTA	Quantify expression of TCONS_00010618
QF_3057 QR_3057	AATGGCGGGAGTCTGTTG TCTGATCCAATGCCCAATTCT	Quantify expression of TCONS_00003057
QF_2727 QR_2727	TCTGCAGTCCGCAACTTATT GGGATCCGATTCATCTGTCTTC	Quantify expression of TCONS_00002727
QF_23546 QR_23546	CTTCTACCACCACCCTTTCTAC TCGACATCAGCACCGATTATAC	Quantify expression of TCONS_00023546
QF_5783 QR_5783	GCTCGAGGAGCTTAAAGAAGT AGATGGGAATTCGACCATTAGG	Quantify expression of TCONS_00005783
QF_YFP QR_YFP	GCACAAGCTGGAGTACAACATA TGTTGTGGCGGATCTTGAA	Quantify expression of YFP
QF_PDR1ChIP QR_PDR1ChIP	GTGTTTCGATTGTGTTTCGATTGT CTCTCCCATTCCACGGTATTATT	Quantify <i>ShPDR1</i> promoter enrichment
QF_CYP561ChIP QR_CYP561ChIP	GATGCTGCGTTCTGGTTATTG GCGGCAGCACAAACTTAAA	Quantify <i>CYP561</i> promoter enrichment
QF_Bcactin QR_Bcactin	CTGAGCGTGGTTACACTTTCT TGACTGGCGGTTTGGATT	Quantify expression of <i>Bcactin</i> gene
QF_BcatrD QR_BcatrD	TTCCGGTCTATTGCTTCACTATC GGGACCGCAAATCCAGTATAA	Quantify expression of <i>BcatrD</i> gene
QF_BcCYP65 QR_BcCYP65	GCTATGTCTCATGCCTTCTCTG TCGCTTCGTGCTCCAATTTA	Quantify expression of <i>BcCYP65</i> gene

Primers for generation of different types of mutants

F_ApaI_ptrpC R_NcoI_ptrpC	ATTTGGGCCCGTTAACTGATATTGAAGGA ATTCCCATGGTTGGATGCTTGGGTAGAATA	Amplification of ptrpC from pYHN3 vector
F_KpnI_CYP561 R_SpeI_CYP561	ATGTGGTACCATGTCTTCCCGTATCCCCAA GCGCACTAGTTCATTGTTTTCTGGAAGAGAACTTTATGTAC AGTG	Amplification of <i>CYP561</i> gene
F_NcoI_CYP65 R_SacI_CYP65	ATGTCCATGGATGTTGTCTAGTGGTTGCTCT ATGTGAGCTCTCAATATAGCCTCGGTGTCA	Amplification of CYP65 gene
F_KpnI_CYP68 R_NotI_CYP68	ATGCGGTACCATGGAGCCCTTAAAATCTTCAATTGTCCTG ATGCGCGGCCGCTACTCAAACCTTCAACACTT	Amplification of CYP68 gene
F_KpnI_ShPDR1 R_SpeI_ShPDR1	ATGCGGTACCATGTCTTTATTAGGGAATCTCAACCCTAAT ATGCACTAGTTCAAACCTTCGATCGTTTTCCC	Amplification of <i>ShPDR1</i> gene
F_SacI_ShatrD R_NotI_ShatrD R_XhoI_ShatrD	ATGCGAGCTCATGGCGACCTCGACAC ATTTGCGGCCGCTATTTCTTCTAAACCACT ATGCCTCGAGCTATTTCTTCTAAACC	Amplification of <i>ShatrD</i> gene
F_SacI_upXDR1 R_SpeI_upXDR1	ATAAGAGCTCTGCCATGCGAATAAGGA ACGCACTAGTCACTAATTATCGCATAGTAT	Amplification of upstream of <i>ShXDR1</i>

F_NotI_downXDR1 R_ApaI_downXDR1	ATTTGCGGCCGCGAGTTCGGTTTTAGCA ATACGGGCCACTCTTCGCATTCTCGTCC	Amplification of downstream of <i>ShXDR1</i>
F_upXDR1 R_YG	TGCCATGCGAATAAGGAGATGTTCCG GGATGCCTCCGCTCGAAGTA	Amplification of the upstream of <i>ShXDR1</i> and split marker
F_HY R_downXDR1	CGTTGCAAGACCTGCCTGAA ACTCTTCGCATTCTCGTCCCGGTTCC	Amplification of the downstream of <i>ShXDR1</i> and split marker
F_ApaI_upXDR1 R_NotI_ShXDR1	ATTTGGGCCCTTGTCATCTCTTACGGGAAT ATGCGCGGCCGCTTACATTCCACCTTGATGTTG	Amplification of the 1581bp of upstream region and full length of <i>ShXDR1</i>
F_SacI_XDR1SNP R_SpeI_XDR1SNP	ATAAGAGCTCGATTGGTTATATGTTAGACAAGG ACGCACTAGTTTACATTCCACCTTGATGTTG	Amplification of the partial sequences of <i>ShXDR1</i>
F_XDR1SNP	GATTGGTTATATGTTAGACAAGGATATCTG	Amplification of the partial sequences of <i>ShXDR1</i> and split marker with R_YG
F_det_upXDR1	CACTGAAGTCGATGGCGTCTATCTA	Amplification with R_YG to confirm HRI11(Δ ShXDR1)
R_det_downXDR1	TCCGTCAACCTAACCATGCC	Amplification with F_HY to confirm HRI11(Δ ShXDR1) and HRI11 (ShXDR1 ^{M853})
F_KpnI_00005783 R_NotI_00005783	GCCGGGTACCATGTCTTCCAGTTTCTACCTTG ATTTGCGGCCGCTACTTGGCCTGCCATTCT	Amplification of TCONS_00005783
F_AscI_dsXDR1 R_SwaI_dsXDR1	ATACGGCGCGCCCCCACCACAGATCTTCGGGG GGCCATTTAAATCGTACAAGCGGGTAGTTTTCCATC	Amplification of the sense of <i>ShXDR1</i> fragment
F_BamHI_dsXDR1 R_SpeI_dsXDR1	ATCGGGATCCCGTACAAGCGGGTAGTTT ATGCACTAGTCCCCACCACAGATCTTCG	Amplification of the antisense <i>ShXDR1</i> fragment
F_KpnI_ShXDR1 R_BamHI_ShXDR1	ATGCGGTACCATGATGGACTCCATGCATCGTGAAAGGAAT ATGCGGATCCCATCCACCTTGATGTTGCA	Amplification of <i>ShXDR1</i> without stop codon
R_NotI_ShXDR1HA	ATTTGCGGCCGCTTAAGCGTAATCTGGAACGTCATAT	Amplification of HA tagged <i>ShXDR1</i> with F_KpnI_ShXDR1
F_SacI_1289upPDR1 F_SacI_479upPDR1 F_SacI_354upPDR1 F_SacI_303upPDR1 R_NcoI_upPDR1	ATTTGAGCTCGAGGAGGAGCTTCGTGGAGC AGCGGAGCTCTGCATATGAAGTTGTTCTAT ATCGGAGCTCTGGAATGGGAGAGTTCCCTC ATCGGAGCTCTGGAATGGGCACCAGAAAT AGCGCCATGGGATGTGCTAGTCAGAGGATA	Amplification of different lengths of <i>ShPDR1</i> promoter

F_NheI_SNR52p	TTGGGCTAGCGGTAAAGGTGCGCATTTTTT	To insert gRNA-ShXDR1 target sequence into the vector containing gRNA constructs
R_gRNA_XDR1	ACATACCCAGGTCTGTTTCGCGATCATTTATCTTTCACTGC	
F_gRNA_XDR1	GCGAACAGACCTGGGTATGTGTTTTAGAGCTAGAAATAGC	
R_KpnI_CYC1t	ATTGGGTACCGGCCGCAAATTAAGCC	

Primers for amplification and sequencing of partial sequence of *ShXDR1* gene

F1_ShXDR1	ATTGTGACCTCACGAAGAGTTGTA
R1_ShXDR1	TCATATCAGAAAGTGCTTCTACCG
F2_ShXDR1	CACATCTCCGGAACAAAGTACC
R2_ShXDR1	CGATACTATGCGATAACCGAATG
F3_ShXDR1	GCCACCTAGTACCAAAAAGATGAAG
R3_ShXDR1	TCACTAATGCAGAAACAGGAAAGT
F4_ShXDR1	TCGACTTTCCAATTATGCTATTCA
R4_ShXDR1	GAGTTTCTAGTAAATGCGCCTCA
