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Engineering amino acid residues of pentacyclic triterpene synthases
for improving the activity

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This file includes:

Figure. S1 to S6

Table S1 to S3

References (1 to 2)

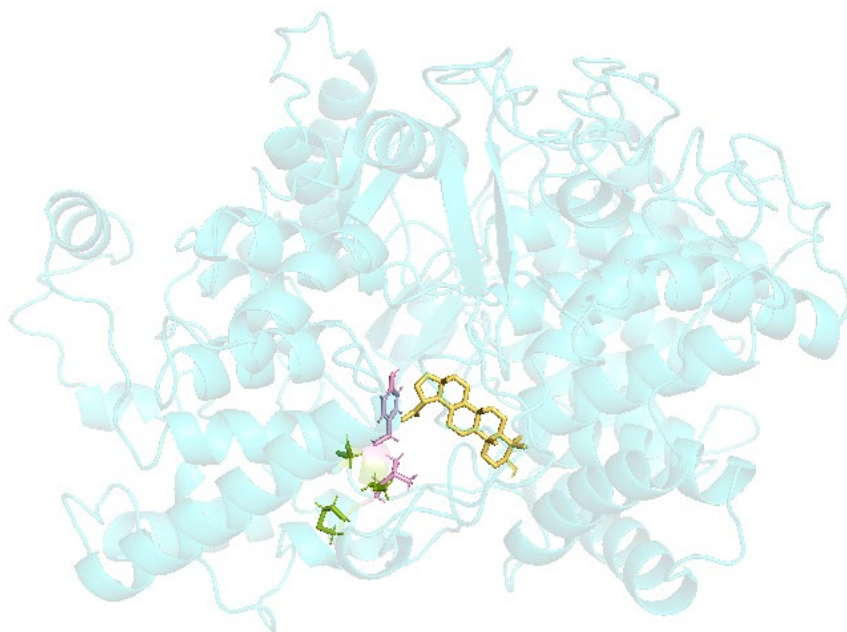


Figure S1 Molecular docking model of OEW and lupeol using PyMOL software.

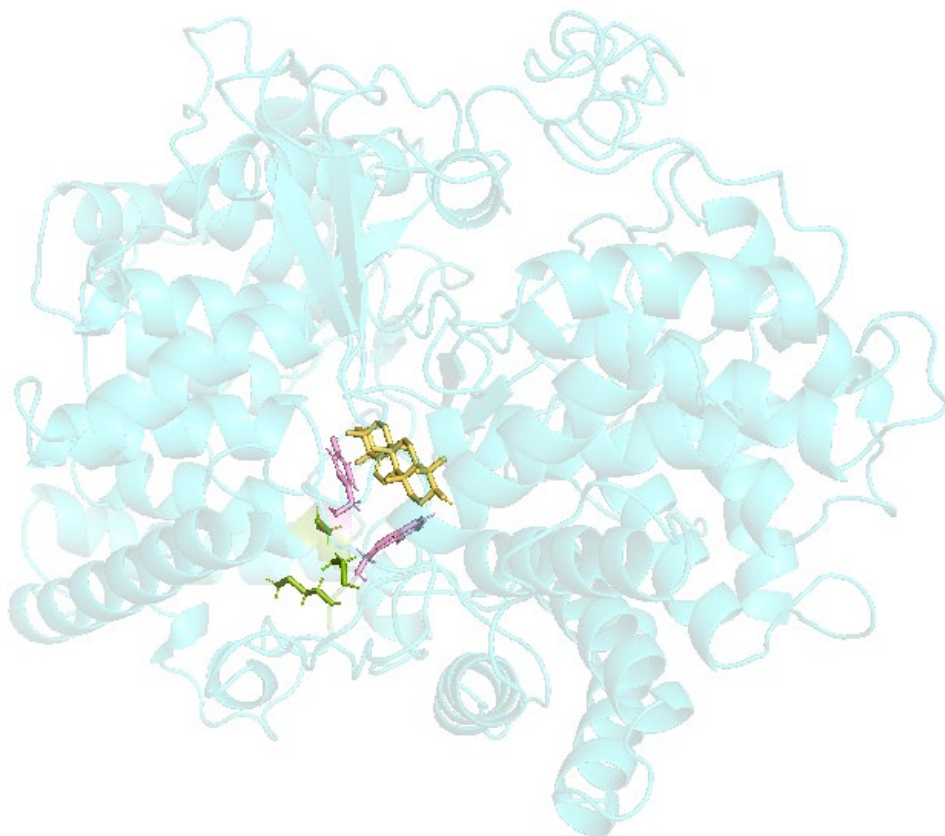


Figure S2 Molecular docking model of GgbAS and β -amyrin using PyMOL software.

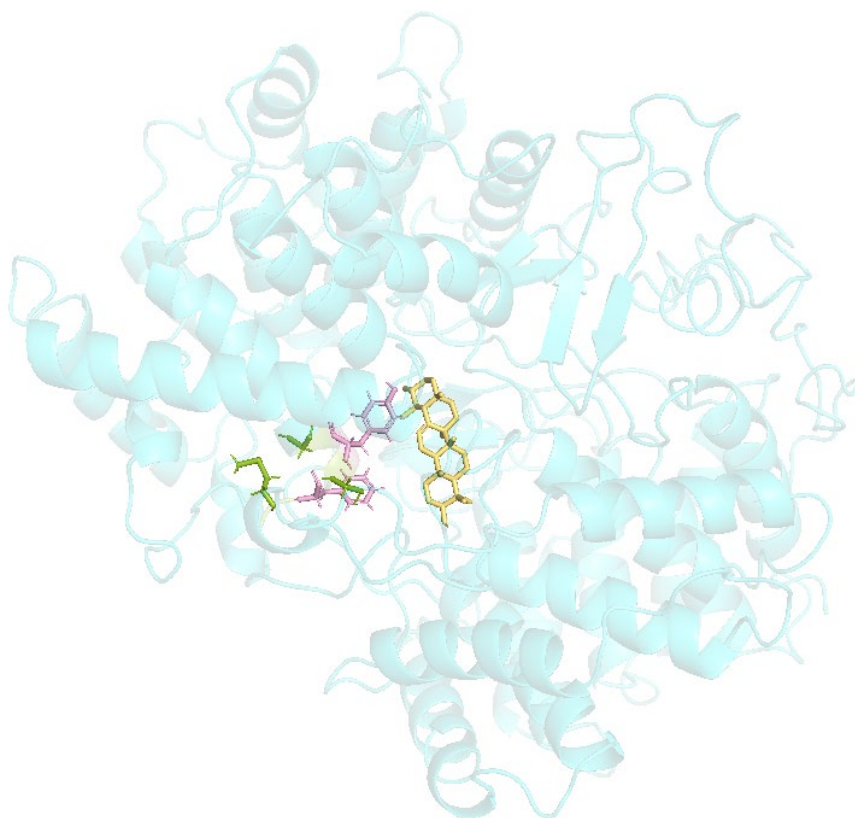


Figure S3 Molecular docking model of MdOSC1 and α -amyrin using PyMOL software.

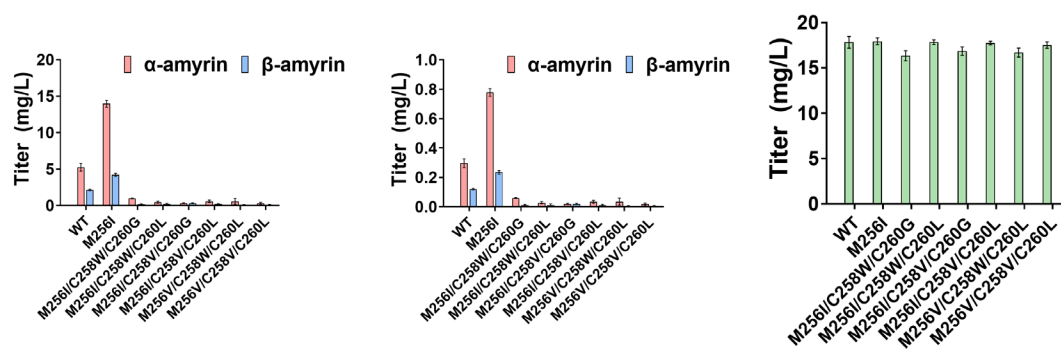


Figure S4 Influence of triple mutants on the activity of α -amyrin synthase from *Malus domestica* (MdOSC1) on its activity.

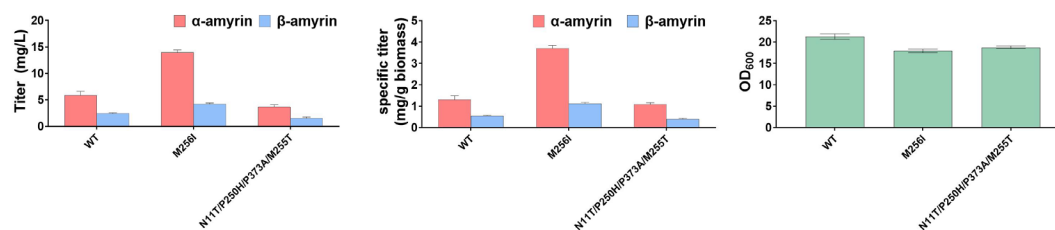


Figure S5 Influence of combinatorial mutagenesis of α -amyrin synthase from *Malus domestica* (MdOSC1) on its activity.

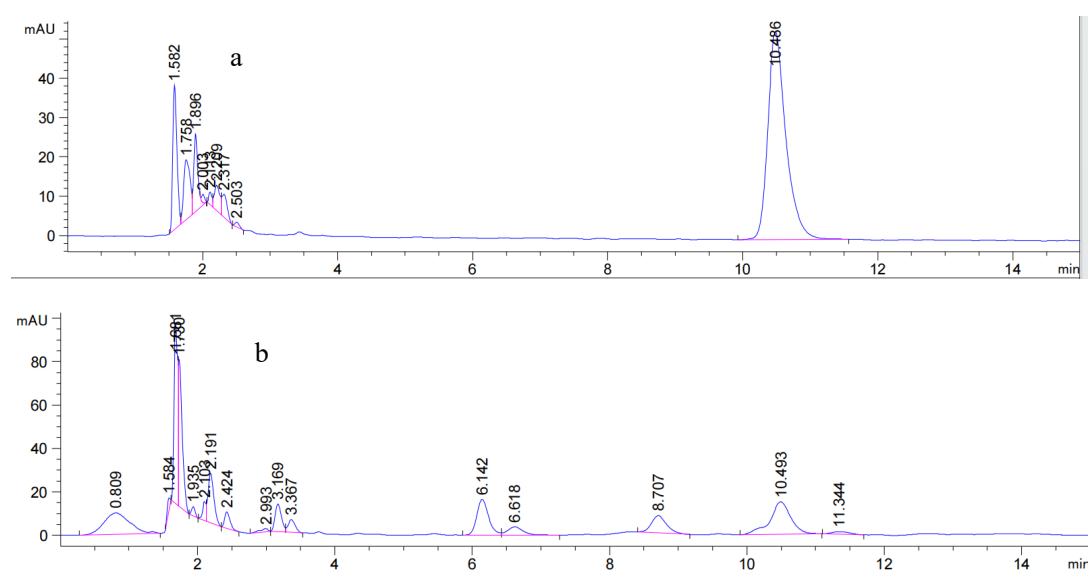


Figure S6 Representative chromatograms of (a) standard (b) sample.

Table S1 Plasmids used in this study

Plasmids and strains	Description	Source
Plasmids		
pCfB255	Amp ^R , pBR322 origin, <i>P_{PGK1}</i> , <i>P_{TEF1}</i> , <i>T_{ADH1}</i> , <i>T_{CYC1}</i> , URA3	(Jensen et al., 2014)
p056-LOXP-GgbAS1-URA	pCfB255 derivative, <i>P_{PGK1}</i> - <i>GgbAS1</i> - <i>T_{ADH1}</i> , <i>P_{TEF1}</i> , <i>T_{CYC1}</i> , URA3	This study
p056-LOXP-GgbAS1 ^{M256A} -URA	pCfB255 derivative, <i>P_{PGK1}</i> - <i>GgbAS</i> ^{M256A} - <i>T_{ADH1}</i> , <i>P_{TEF1}</i> , <i>T_{CYC1}</i> , URA3	This study
p056-LOXP-GgbAS ^{M256G} -URA	pCfB255 derivative, <i>P_{PGK1}</i> - <i>GgbAS</i> ^{M256G} - <i>T_{ADH1}</i> , <i>P_{TEF1}</i> , <i>T_{CYC1}</i> , URA3	This study
p056-LOXP-GgbAS ^{M256I} -URA	pCfB255 derivative, <i>P_{PGK1}</i> - <i>GgbAS</i> ^{M256I} - <i>T_{ADH1}</i> , <i>P_{TEF1}</i> , <i>T_{CYC1}</i> , URA3	This study
p056-LOXP-GgbAS ^{M256L} -URA	pCfB255 derivative, <i>P_{PGK1}</i> - <i>GgbAS</i> ^{M256L} - <i>T_{ADH1}</i> , <i>P_{TEF1}</i> , <i>T_{CYC1}</i> , URA3	This study

p056-LOXP- GgbAS ^{M256P} -URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS^{M256P}-T_{ADHI}</i> , <i>P_{TEF1}, T_{CYCI}</i> , URA3	This study
p056-LOXP- GgbAS ^{M256V} -URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS^{M256V}-T_{ADHI}</i> , <i>P_{TEF1}, T_{CYCI}</i> , URA3	This study
p056-LOXP- GgbAS ^{M256F} -URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS^{M256F}-T_{ADHI}</i> , <i>P_{TEF1}, T_{CYCI}</i> , URA3	This study
p056-LOXP- GgbAS ^{M256W} -URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS^{M256W}-T_{ADHI}</i> , <i>P_{TEF1}, T_{CYCI}</i> , URA3	This study
p056-LOXP- GgbAS ^{M256Y} -URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS^{M256Y}-T_{ADHI}</i> , <i>P_{TEF1}, T_{CYCI}</i> , URA3	This study
p056-LOXP- GgbAS ^{M256D} -URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS^{M256D}-T_{ADHI}</i> , <i>P_{TEF1}, T_{CYCI}</i> , URA3	This study
p056-LOXP- GgbAS ^{M256E} -URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS^{M256E}-T_{ADHI}</i> , <i>P_{TEF1}, T_{CYCI}</i> , URA3	This study
p056-LOXP- GgbAS ^{M256R} -URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS^{M256R}-T_{ADHI}</i> , <i>P_{TEF1}, T_{CYCI}</i> , URA3	This study
p056-LOXP- GgbAS ^{M256H} -URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS^{M256H}-T_{ADHI}</i> , <i>P_{TEF1}, T_{CYCI}</i> , URA3	This study
p056-LOXP- GgbAS ^{M256K} -URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS^{M256K}-T_{ADHI}</i> , <i>P_{TEF1}, T_{CYCI}</i> , URA3	This study
p056-LOXP- GgbAS ^{M256S} -URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS^{M256S}-T_{ADHI}</i> , <i>P_{TEF1}, T_{CYCI}</i> , URA3	This study
p056-LOXP- GgbAS ^{M256T} -URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS^{M256T}-T_{ADHI}</i> , <i>P_{TEF1}, T_{CYCI}</i> , URA3	This study
p056-LOXP- GgbAS ^{M256C} -URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS^{M256C}-T_{ADHI}</i> , <i>P_{TEF1}, T_{CYCI}</i> , URA3	This study
p056-LOXP- GgbAS ^{M256N} -URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS^{M256N}-T_{ADHI}</i> , <i>P_{TEF1}, T_{CYCI}</i> , URA3	This study
p056-LOXP- GgbAS ^{M256Q} -URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS^{M256Q}-T_{ADHI}</i> , <i>P_{TEF1}, T_{CYCI}</i> , URA3	This study
p056-LOXP- GgbAS ^{C258A} -URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS^{C258A}-T_{ADHI}</i> , <i>P_{TEF1}, T_{CYCI}</i> , URA3	This study
p056-LOXP- GgbAS ^{C258G} -URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS^{C258G}-T_{ADHI}</i> , <i>P_{TEF1}, T_{CYCI}</i> , URA3	This study
p056-LOXP- GgbAS ^{C258L} -URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS^{C258L}-T_{ADHI}</i> , <i>P_{TEF1}, T_{CYCI}</i> , URA3	This study
p056-LOXP- GgbAS ^{C258L} -URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS^{C258L}-T_{ADHI}</i> , <i>P_{TEF1}, T_{CYCI}</i> , URA3	This study

p056-LOXP- GgbAS ^{C258P} -URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS^{C258P}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP- GgbAS ^{C258V} -URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS^{C258V}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP- GgbAS ^{C258F} -URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS^{C258F}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP- GgbAS ^{C258W} -URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS^{C258W}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP- GgbAS ^{C258Y} -URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS^{C258Y}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP- GgbAS ^{C258D} -URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS^{C258D}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP- GgbAS ^{C258E} -URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS^{C258E}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP- GgbAS ^{C258R} -URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS^{C258R}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP- GgbAS ^{C258H} -URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS^{C258H}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP- GgbAS ^{C258K} -URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS^{C258K}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP- GgbAS ^{C258S} -URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS^{C258S}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP- GgbAS ^{C258T} -URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS^{C258T}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP- GgbAS ^{C258M} -URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS^{C258M}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP- GgbAS ^{C258N} -URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS^{C258N}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP- GgbAS ^{C258Q} -URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS^{C258Q}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP- GgbAS ^{C260A} -URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS^{C260A}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP- GgbAS ^{C260G} -URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS^{C260G}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP- GgbAS ^{C260I} -URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS^{C260I}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP- GgbAS ^{C260L} -URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS^{C260L}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study

p056-LOXP- <i>GgbAS</i> ^{C260P} -URA	pCfB255 derivative, <i>P_{PGKI}-GgbAS</i> ^{C260P} - <i>T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP- <i>GgbAS</i> ^{C260V} -URA	pCfB255 derivative, <i>P_{PGKI}-GgbAS</i> ^{C260V} - <i>T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP- <i>GgbAS</i> ^{C260F} -URA	pCfB255 derivative, <i>P_{PGKI}-GgbAS</i> ^{C260F} - <i>T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP- <i>GgbAS</i> ^{C260W} -URA	pCfB255 derivative, <i>P_{PGKI}-GgbAS</i> ^{C260W} - <i>T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP- <i>GgbAS</i> ^{C260Y} -URA	pCfB255 derivative, <i>P_{PGKI}-GgbAS</i> ^{C260Y} - <i>T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP- <i>GgbAS</i> ^{C260D} -URA	pCfB255 derivative, <i>P_{PGKI}-GgbAS</i> ^{C260D} - <i>T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP- <i>GgbAS</i> ^{C260E} -URA	pCfB255 derivative, <i>P_{PGKI}-GgbAS</i> ^{C260E} - <i>T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP- <i>GgbAS</i> ^{C260R} -URA	pCfB255 derivative, <i>P_{PGKI}-GgbAS</i> ^{C260R} - <i>T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP- <i>GgbAS</i> ^{C260H} -URA	pCfB255 derivative, <i>P_{PGKI}-GgbAS</i> ^{C260H} - <i>T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP- <i>GgbAS</i> ^{C260K} -URA	pCfB255 derivative, <i>P_{PGKI}-GgbAS</i> ^{C260K} - <i>T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP- <i>GgbAS</i> ^{C260S} -URA	pCfB255 derivative, <i>P_{PGKI}-GgbAS</i> ^{C260S} - <i>T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP- <i>GgbAS</i> ^{C260T} -URA	pCfB255 derivative <i>P_{PGKI}-GgbAS</i> ^{C260T} - <i>T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP- <i>GgbAS</i> ^{C260M} -URA	pCfB255 derivative, <i>P_{PGKI}-GgbAS</i> ^{C260M} - <i>T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP- <i>GgbAS</i> ^{C260N} -URA	pCfB255 derivative, <i>P_{PGKI}-GgbAS</i> ^{C260N} - <i>T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP- <i>GgbAS</i> ^{C260Q} -URA	pCfB255 derivative, <i>P_{PGKI}-GgbAS</i> ^{C260Q} - <i>T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP- <i>GgbAS</i> ^{M256Q/C258A} - URA	pCfB255 derivative, <i>P_{PGKI}-GgbAS</i> ^{M256Q/C258A} - <i>T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP- <i>GgbAS</i> ^{M256Q/C258V} - URA	pCfB255 derivative, <i>P_{PGKI}-GgbAS</i> ^{M256Q/C258V} - <i>T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP- <i>GgbAS</i> ^{M256A/C258A} -	pCfB255 derivative, <i>P_{PGKI}-GgbAS</i> ^{M256A/C258A} - <i>T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study

URA		
p056-LOXP- <i>GgbAS</i> ^{M256A/C258V} _ URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS</i> ^{M256A/C258V} _ <i>T_{ADH1}</i> , <i>P_{TEF1}</i> , <i>T_{CYC1}</i> , URA3	This study
p056-LOXP- <i>GgbAS</i> ^{M256Q/C260W} _ URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS</i> ^{M256Q/C260W} _ <i>T_{ADH1}</i> , <i>P_{TEF1}</i> , <i>T_{CYC1}</i> , URA3	This study
p056-LOXP- <i>GgbAS</i> ^{M256Q/C260H} _ URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS</i> ^{M256Q/C260H} _ <i>T_{ADH1}</i> , <i>P_{TEF1}</i> , <i>T_{CYC1}</i> , URA3	This study
p056-LOXP- <i>GgbAS</i> ^{M256A/C260W} _ URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS</i> ^{M256A/C260W} _ <i>T_{ADH1}</i> , <i>P_{TEF1}</i> , <i>T_{CYC1}</i> , URA3	This study
p056-LOXP- <i>GgbAS</i> ^{M256A/C260H} _ URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS</i> ^{M256A/C258H} _ <i>T_{ADH1}</i> , <i>P_{TEF1}</i> , <i>T_{CYC1}</i> , URA3	This study
p056-LOXP- <i>GgbAS</i> ^{C258A/C260W} _ URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS</i> ^{C258A/C260W} _ <i>T_{ADH1}</i> , <i>P_{TEF1}</i> , <i>T_{CYC1}</i> , URA3	This study
p056-LOXP- <i>GgbAS</i> ^{C258A/C260H} _ URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS</i> ^{C258A/C260H} _ <i>T_{ADH1}</i> , <i>P_{TEF1}</i> , <i>T_{CYC1}</i> , URA3	This study
p056-LOXP- <i>GgbAS</i> ^{C258V/C260W} _ URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS</i> ^{C258V/C260W} _ <i>T_{ADH1}</i> , <i>P_{TEF1}</i> , <i>T_{CYC1}</i> , URA3	This study
p056-LOXP- <i>GgbAS</i> ^{C258V/C260H} _ URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS</i> ^{C258V/C260H} _ <i>T_{ADH1}</i> , <i>P_{TEF1}</i> , <i>T_{CYC1}</i> , URA3	This study
p056-LOXP- <i>GgbAS</i> ^{M256A/C258A/C260W} -URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS</i> ^{M256A/C258A/C260W} - <i>T_{ADH1}</i> , <i>P_{TEF1}</i> , <i>T_{CYC1}</i> , URA3	This study
p056-LOXP- <i>GgbAS</i> ^{M256A/C258V/C260W} -URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS</i> ^{M256A/C258V/C260W} - <i>T_{ADH1}</i> , <i>P_{TEF1}</i> , <i>T_{CYC1}</i> , URA3	This study
p056-LOXP- <i>GgbAS</i> ^{M256A/C258A/C260H} -URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS</i> ^{M256A/C258A/C260H} - <i>T_{ADH1}</i> , <i>P_{TEF1}</i> , <i>T_{CYC1}</i> , URA3	This study

p056-LOXP- <i>GgbAS</i> ^{M256A/C258V/C260H} -URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS</i> M256A/C258V/C260H- <i>T_{ADH1}</i> , <i>P_{TEF1}</i> , <i>T_{CYC1}</i> , URA3	This study
p056-LOXP- <i>GgbAS</i> ^{M256Q/C258A/C260W} -URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS</i> M256Q/C258A/C260W- <i>T_{ADH1}</i> , <i>P_{TEF1}</i> , <i>T_{CYC1}</i> , URA3	This study
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p056-LOXP- <i>GgbAS</i> ^{M256Q/C258A/C260H} -URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS</i> M256Q/C258A/C260H- <i>T_{ADH1}</i> , <i>P_{TEF1}</i> , <i>T_{CYC1}</i> , URA3	This study
p056-LOXP- <i>GgbAS</i> ^{M256Q/C258V/C260H} -URA	pCfB255 derivative, <i>P_{PGK1}-GgbAS</i> M256Q/C258V/C260H- <i>T_{ADH1}</i> , <i>P_{TEF1}</i> , <i>T_{CYC1}</i> , URA3	This study
p056-LOXP-OEW- URA	pCfB255 derivative, <i>P_{PGK1}-OEW-<i>T_{ADH1}</i></i> , <i>P_{TEF1}</i> , <i>T_{CYC1}</i> , URA3	This study
p056-LOXP- OEW ^{M256A} -URA	pCfB255 derivative, <i>P_{PGK1}-OEW^{M256A}-<i>T_{ADH1}</i></i> , <i>P_{TEF1}</i> , <i>T_{CYC1}</i> , URA3	This study
p056-LOXP- OEW ^{M256G} -URA	pCfB255 derivative, <i>P_{PGK1}-OEW^{M256G}-<i>T_{ADH1}</i></i> , <i>P_{TEF1}</i> , <i>T_{CYC1}</i> , URA3	This study
p056-LOXP- OEW ^{M256I} -URA	pCfB255 derivative, <i>P_{PGK1}-OEW^{M256I}-<i>T_{ADH1}</i></i> , <i>P_{TEF1}</i> , <i>T_{CYC1}</i> , URA3	This study
p056-LOXP- OEW ^{M256L} -URA	pCfB255 derivative, <i>P_{PGK1}-OEW^{M256L}-<i>T_{ADH1}</i></i> , <i>P_{TEF1}</i> , <i>T_{CYC1}</i> , URA3	This study
p056-LOXP- OEW ^{M256P} -URA	pCfB255 derivative, <i>P_{PGK1}-OEW^{M256P}-<i>T_{ADH1}</i></i> , <i>P_{TEF1}</i> , <i>T_{CYC1}</i> , URA3	This study
p056-LOXP- OEW ^{M256V} -URA	pCfB255 derivative, <i>P_{PGK1}-OEW^{M256V}-<i>T_{ADH1}</i></i> , <i>P_{TEF1}</i> , <i>T_{CYC1}</i> , URA3	This study
p056-LOXP- OEW ^{M256F} -URA	pCfB255 derivative, <i>P_{PGK1}-OEW^{M256F}-<i>T_{ADH1}</i></i> , <i>P_{TEF1}</i> , <i>T_{CYC1}</i> , URA3	This study
p056-LOXP- OEW ^{M256W} -URA	pCfB255 derivative, <i>P_{PGK1}-OEW^{M256W}-<i>T_{ADH1}</i></i> , <i>P_{TEF1}</i> , <i>T_{CYC1}</i> , URA3	This study
p056-LOXP- OEW ^{M256Y} -URA	pCfB255 derivative, <i>P_{PGK1}-OEW^{M256Y}-<i>T_{ADH1}</i></i> , <i>P_{TEF1}</i> , <i>T_{CYC1}</i> , URA3	This study
p056-LOXP- OEW ^{M256D} -URA	pCfB255 derivative, <i>P_{PGK1}-OEW^{M256D}-<i>T_{ADH1}</i></i> , <i>P_{TEF1}</i> , <i>T_{CYC1}</i> , URA3	This study

p056-LOXP- OEW ^{M256E} -URA	pCfB255 derivative, <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	<i>P_{PGK1}</i> -OEW ^{M256E} - <i>T_{ADH1}</i> ,	This study
p056-LOXP- OEW ^{M256R} -URA	pCfB255 derivative, <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	<i>P_{PGK1}</i> -OEW ^{M256R} - <i>T_{ADH1}</i> ,	This study
p056-LOXP- OEW ^{M256H} -URA	pCfB255 derivative, <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	<i>P_{PGK1}</i> -OEW ^{M256H} - <i>T_{ADH1}</i> ,	This study
p056-LOXP- OEW ^{M256K} -URA	pCfB255 derivative, <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	<i>P_{PGK1}</i> -OEW ^{M256K} - <i>T_{ADH1}</i> ,	This study
p056-LOXP- OEW ^{M256S} -URA	pCfB255 derivative, <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	<i>P_{PGK1}</i> -OEW ^{M256S} - <i>T_{ADH1}</i> ,	This study
p056-LOXP- OEW ^{M256T} -URA	pCfB255 derivative, <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	<i>P_{PGK1}</i> -OEW ^{M256T} - <i>T_{ADH1}</i> ,	This study
p056-LOXP- OEW ^{M256C} -URA	pCfB255 derivative, <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	<i>P_{PGK1}</i> -OEW ^{M256C} - <i>T_{ADH1}</i> ,	This study
p056-LOXP- OEW ^{M256N} -URA	pCfB255 derivative, <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	<i>P_{PGK1}</i> -OEW ^{M256N} - <i>T_{ADH1}</i> ,	This study
p056-LOXP- OEW ^{M256Q} -URA	pCfB255 derivative, <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	<i>P_{PGK1}</i> -OEW ^{M256Q} - <i>T_{ADH1}</i> ,	This study
p056-LOXP- OEW ^{C258A} -URA	pCfB255 derivative, <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	<i>P_{PGK1}</i> -OEW ^{C258A} - <i>T_{ADH1}</i> ,	This study
p056-LOXP- OEW ^{C258G} -URA	pCfB255 derivative, <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	<i>P_{PGK1}</i> -OEW ^{C258G} - <i>T_{ADH1}</i> ,	This study
p056-LOXP- OEW ^{C258I} -URA	pCfB255 derivative, <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	<i>P_{PGK1}</i> -OEW ^{C258I} - <i>T_{ADH1}</i> ,	This study
p056-LOXP- OEW ^{C258L} -URA	pCfB255 derivative, <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	<i>P_{PGK1}</i> -OEW ^{C258L} - <i>T_{ADH1}</i> ,	This study
p056-LOXP- OEW ^{C258P} -URA	pCfB255 derivative, <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	<i>P_{PGK1}</i> -OEW ^{C258P} - <i>T_{ADH1}</i> ,	This study
p056-LOXP- OEW ^{C258V} -URA	pCfB255 derivative, <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	<i>P_{PGK1}</i> -OEW ^{C258V} - <i>T_{ADH1}</i> ,	This study
p056-LOXP- OEW ^{C258F} -URA	pCfB255 derivative, <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	<i>P_{PGK1}</i> -OEW ^{C258F} - <i>T_{ADH1}</i> ,	This study
p056-LOXP- OEW ^{C258W} -URA	pCfB255 derivative, <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	<i>P_{PGK1}</i> -OEW ^{C258W} - <i>T_{ADH1}</i> ,	This study
p056-LOXP- OEW ^{C258Y} -URA	pCfB255 derivative, <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	<i>P_{PGK1}</i> -OEW ^{C258Y} - <i>T_{ADH1}</i> ,	This study
p056-LOX P-OEW ^{C258D} -URA	pCfB255 derivative, <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	<i>P_{PGK1}</i> -OEW ^{C258D} - <i>T_{ADH1}</i> ,	This study

p056-LOXP- OEWC ^{258E} -URA	pCfB255 derivative, P_{TEF1} , T_{CYC1} , URA3	P_{PGK1} -OEWC ^{258E} - T_{ADH1} ,	This study
p056-LOXP- OEWC ^{258R} -URA	pCfB255 derivative, P_{TEF1} , T_{CYC1} , URA3	P_{PGK1} -OEWC ^{258R} - T_{ADH1} ,	This study
p056-LOXP- OEWC ^{258H} -URA	pCfB255 derivative, P_{TEF1} , T_{CYC1} , URA3	P_{PGK1} -OEWC ^{258H} - T_{ADH1} ,	This study
p056-LOXP- OEWC ^{258K} -URA	pCfB255 derivative, P_{TEF1} , T_{CYC1} , URA3	P_{PGK1} -OEWC ^{258K} - T_{ADH1} ,	This study
p056-LOXP- OEWC ^{258S} -URA	pCfB255 derivative, P_{TEF1} , T_{CYC1} , URA3	P_{PGK1} -OEWC ^{258S} - T_{ADH1} ,	This study
p056-LOXP- OEWC ^{258T} -URA	pCfB255 derivative, P_{TEF1} , T_{CYC1} , URA3	P_{PGK1} -OEWC ^{258T} - T_{ADH1} ,	This study
p056-LOXP- OEWC ^{258M} -URA	pCfB255 derivative, P_{TEF1} , T_{CYC1} , URA3	P_{PGK1} -OEWC ^{258M} - T_{ADH1} ,	This study
p056-LOXP- OEWC ^{258N} -URA	pCfB255 derivative, P_{TEF1} , T_{CYC1} , URA3	P_{PGK1} -OEWC ^{258N} - T_{ADH1} ,	This study
p056-LOXP- OEWC ^{258Q} -URA	pCfB255 derivative, P_{TEF1} , T_{CYC1} , URA3	P_{PGK1} -OEWC ^{258Q} - T_{ADH1} ,	This study
p056-LOXP- OEWC ^{260A} -URA	pCfB255 derivative, P_{TEF1} , T_{CYC1} , URA3	P_{PGK1} -OEWC ^{260A} - T_{ADH1} ,	This study
p056-LOXP- OEWC ^{260G} -URA	pCfB255 derivative, P_{TEF1} , T_{CYC1} , URA3	P_{PGK1} -OEWC ^{260G} - T_{ADH1} ,	This study
p056-LOXP- OEWC ^{260I} -URA	pCfB255 derivative, P_{TEF1} , T_{CYC1} , URA3	P_{PGK1} -OEWC ^{260I} - T_{ADH1} ,	This study
p056-LOXP- OEWC ^{260L} -URA	pCfB255 derivative, P_{TEF1} , T_{CYC1} , URA3	P_{PGK1} -OEWC ^{260L} - T_{ADH1} ,	This study
p056-LOXP- OEWC ^{260P} -URA	pCfB255 derivative, P_{TEF1} , T_{CYC1} , URA3	P_{PGK1} -OEWC ^{260P} - T_{ADH1} ,	This study
p056-LOXP- OEWC ^{260V} -URA	pCfB255 derivative, P_{TEF1} , T_{CYC1} , URA3	P_{PGK1} -OEWC ^{260V} - T_{ADH1} ,	This study
p056-LOXP- OEWC ^{260F} -URA	pCfB255 derivative, P_{TEF1} , T_{CYC1} , URA3	P_{PGK1} -OEWC ^{260F} - T_{ADH1} ,	This study
p056-LOXP- OEWC ^{260W} -URA	pCfB255 derivative, P_{TEF1} , T_{CYC1} , URA3	P_{PGK1} -OEWC ^{260W} - T_{ADH1} ,	This study
p056-LOXP- OEWC ^{260Y} -URA	pCfB255 derivative, P_{TEF1} , T_{CYC1} , URA3	P_{PGK1} -OEWC ^{260Y} - T_{ADH1} ,	This study
p056-LOXP- OEWC ^{260D} -URA	pCfB255 derivative, P_{TEF1} , T_{CYC1} , URA3	P_{PGK1} -OEWC ^{260D} - T_{ADH1} ,	This study

p056-LOXP- OEWC ^{260E} -URA	pCfB255 derivative, P_{PGK1} -OEWC ^{260E} - T_{ADH1} , P_{TEF1} , T_{CYC1} , URA3	This study
p056-LOXP- OEWC ^{260R} -URA	pCfB255 derivative, P_{PGK1} -OEWC ^{260R} - T_{ADH1} , P_{TEF1} , T_{CYC1} , URA3	This study
p056-LOXP- OEWC ^{260H} -URA	pCfB255 derivative, P_{PGK1} -OEWC ^{260H} - T_{ADH1} , P_{TEF1} , T_{CYC1} , URA3	This study
p056-LOXP- OEWC ^{260K} -URA	pCfB255 derivative, P_{PGK1} -OEWC ^{260K} - T_{ADH1} , P_{TEF1} , T_{CYC1} , URA3	This study
p056-LOXP- OEWC ^{260S} -URA	Amp ^R , pBR322 origin, P_{PGK1} -OEWC ^{260S} - T_{ADH1} , P_{TEF1} , T_{CYC1} , URA3	This study
p056-LOXP- OEWC ^{260T} -URA	Amp ^R , pBR322 origin, P_{PGK1} -OEWC ^{260T} - T_{ADH1} , P_{TEF1} , T_{CYC1} , URA3	This study
p056-LOXP- OEWC ^{260M} -URA	Amp ^R , pBR322 origin, P_{PGK1} -OEWC ^{260M} - T_{ADH1} , P_{TEF1} , T_{CYC1} , URA3	This study
p056-LOXP- OEWC ^{260N} -URA	Amp ^R , pBR322 origin, P_{PGK1} -OEWC ^{260N} - T_{ADH1} , P_{TEF1} , T_{CYC1} , URA3	This study
p056-LOXP- OEWC ^{260Q} -URA	Amp ^R , pBR322 origin, P_{PGK1} -OEWC ^{260Q} - T_{ADH1} , P_{TEF1} , T_{CYC1} , URA3	This study
p056-LOXP- OEWM ^{256V} /C ^{260A} -URA	Amp ^R , pBR322 origin, P_{PGK1} -OEWM ^{256V} /C ^{260A} - T_{ADH1} , P_{TEF1} , T_{CYC1} , URA3	This study
p056-LOXP- OEWM ^{256L} /C ^{260A} -URA	Amp ^R , pBR322 origin, P_{PGK1} -OEWM ^{256L} /C ^{260A} - T_{ADH1} , P_{TEF1} , T_{CYC1} , URA3	This study
p056-LOXP- OEWM ^{256C} /C ^{260A} -URA	Amp ^R , pBR322 origin, P_{PGK1} -OEWM ^{256C} /C ^{260A} - T_{ADH1} , P_{TEF1} , T_{CYC1} , URA3	This study
p056-LOXP- OEWM ^{256I} /C ^{260A} -URA	Amp ^R , pBR322 origin, P_{PGK1} -OEWM ^{256I} /C ^{260A} - T_{ADH1} , P_{TEF1} , T_{CYC1} , URA3	This study
p056-LOXP- OEWM ^{256Y} /C ^{260A} -URA	Amp ^R , pBR322 origin, P_{PGK1} -OEWM ^{256Y} /C ^{260A} - T_{ADH1} , P_{TEF1} , T_{CYC1} , URA3	This study
p056-LOXP- OEWM ^{256V} /C ^{260G} -URA	Amp ^R , pBR322 origin, P_{PGK1} -OEWM ^{256V} /C ^{260G} - T_{ADH1} , P_{TEF1} , T_{CYC1} , URA3	This study
p056-LOXP- OEWM ^{256L} /C ^{260G} -URA	Amp ^R , pBR322 origin, P_{PGK1} -OEWM ^{256L} /C ^{260G} - T_{ADH1} , P_{TEF1} , T_{CYC1} , URA3	This study
p056-LOXP- OEWM ^{256C} /C ^{260G} -URA	Amp ^R , pBR322 origin, P_{PGK1} -OEWM ^{256C} /C ^{260G} - T_{ADH1} , P_{TEF1} , T_{CYC1} , URA3	This study
p056-LOXP- OEWM ^{256I} /C ^{260G} -URA	Amp ^R , pBR322 origin, P_{PGK1} -OEWM ^{256I} /C ^{260G} - T_{ADH1} , P_{TEF1} , T_{CYC1} , URA3	This study
p056-LOXP- OEWM ^{256Y} /C ^{260G} -URA	Amp ^R , pBR322 origin, P_{PGK1} -OEWM ^{256Y} /C ^{260G} - T_{ADH1} , P_{TEF1} , T_{CYC1} , URA3	This study

p056-LOXP-MdOSC1-URA	Amp ^R , pBR322 origin, <i>P_{PGK1}-MdOSC1-T_{ADH1}</i> , <i>P_{TEF1}</i> , <i>T_{CYC1}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{M255A} -URA	Amp ^R , pBR322 origin, <i>P_{PGK1}-MdOSC1^{M255A}-T_{ADH1}</i> , <i>P_{TEF1}</i> , <i>T_{CYC1}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{M255G} -URA	Amp ^R , pBR322 origin, <i>P_{PGK1}-MdOSC1^{M255G}-T_{ADH1}</i> , <i>P_{TEF1}</i> , <i>T_{CYC1}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{M255I} -URA	Amp ^R , pBR322 origin, <i>P_{PGK1}-MdOSC1^{M255I}-T_{ADH1}</i> , <i>P_{TEF1}</i> , <i>T_{CYC1}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{M255L} -URA	pCfB255 derivative, <i>P_{PGK1}-MdOSC1^{M255L}-T_{ADH1}</i> , <i>P_{TEF1}</i> , <i>T_{CYC1}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{M255P} -URA	pCfB255 derivative, <i>P_{PGK1}-MdOSC1^{M255P}-T_{ADH1}</i> , <i>P_{TEF1}</i> , <i>T_{CYC1}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{M255V} -URA	pCfB255 derivative, <i>P_{PGK1}-MdOSC1^{M255V}-T_{ADH1}</i> , <i>P_{TEF1}</i> , <i>T_{CYC1}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{M255F} -URA	pCfB255 derivative, <i>P_{PGK1}-MdOSC1^{M255F}-T_{ADH1}</i> , <i>P_{TEF1}</i> , <i>T_{CYC1}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{M255W} -URA	pCfB255 derivative, <i>P_{PGK1}-MdOSC1^{M255W}-T_{ADH1}</i> , <i>P_{TEF1}</i> , <i>T_{CYC1}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{M255Y} -URA	pCfB255 derivative, <i>P_{PGK1}-MdOSC1^{M255Y}-T_{ADH1}</i> , <i>P_{TEF1}</i> , <i>T_{CYC1}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{M255D} -URA	pCfB255 derivative, <i>P_{PGK1}-MdOSC1^{M255A}-T_{ADH1}</i> , <i>P_{TEF1}</i> , <i>T_{CYC1}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{M255E} -URA	pCfB255 derivative, <i>P_{PGK1}-MdOSC1^{M255E}-T_{ADH1}</i> , <i>P_{TEF1}</i> , <i>T_{CYC1}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{M255R} -URA	pCfB255 derivative, <i>P_{PGK1}-MdOSC1^{M255R}-T_{ADH1}</i> , <i>P_{TEF1}</i> , <i>T_{CYC1}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{M255H} -URA	pCfB255 derivative, <i>P_{PGK1}-MdOSC1^{M255H}-T_{ADH1}</i> , <i>P_{TEF1}</i> , <i>T_{CYC1}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{M255K} -URA	pCfB255 derivative, <i>P_{PGK1}-MdOSC1^{M255A}-T_{ADH1}</i> , <i>P_{TEF1}</i> , <i>T_{CYC1}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{M255S} -URA	pCfB255 derivative, <i>P_{PGK1}-MdOSC1^{M255S}-T_{ADH1}</i> , <i>P_{TEF1}</i> , <i>T_{CYC1}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{M255T} -URA	pCfB255 derivative, <i>P_{PGK1}-MdOSC1^{M255T}-T_{ADH1}</i> , <i>P_{TEF1}</i> , <i>T_{CYC1}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{M255C} -URA	pCfB255 derivative, <i>P_{PGK1}-MdOSC1^{M255C}-T_{ADH1}</i> , <i>P_{TEF1}</i> , <i>T_{CYC1}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{M255N} -URA	pCfB255 derivative, <i>P_{PGK1}-MdOSC1^{M255N}-T_{ADH1}</i> , <i>P_{TEF1}</i> , <i>T_{CYC1}</i> , URA3	This study

p056-LOXP-MdOSC1 ^{M255Q} -URA	pCfB255 derivative, <i>P_{PGK1}-MdOSC1^{M255Q}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{C257A} -URA	pCfB255 derivative, <i>P_{PGK1}-MdOSC1^{C257A}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{C257G} -URA	pCfB255 derivative, <i>P_{PGK1}-MdOSC1^{C257G}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{C257I} -URA	pCfB255 derivative, <i>P_{PGK1}-MdOSC1^{C257I}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{C257L} -URA	pCfB255 derivative, <i>P_{PGK1}-MdOSC1^{C257L}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{C257P} -URA	pCfB255 derivative, <i>P_{PGK1}-MdOSC1^{C257P}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{C257V} -URA	pCfB255 derivative, <i>P_{PGK1}-MdOSC1^{C257V}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{C257F} -URA	pCfB255 derivative, <i>P_{PGK1}-MdOSC1^{C257F}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{C257W} -URA	pCfB255 derivative, <i>P_{PGK1}-MdOSC1^{C257W}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{C257Y} -URA	pCfB255 derivative, <i>P_{PGK1}-MdOSC1^{C257Y}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{C257D} -URA	pCfB255 derivative, <i>P_{PGK1}-MdOSC1^{C257D}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{C257E} -URA	pCfB255 derivative, <i>P_{PGK1}-MdOSC1^{C257E}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{C257R} -URA	pCfB255 derivative, <i>P_{PGK1}-MdOSC1^{C257R}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{C257H} -URA	pCfB255 derivative, <i>P_{PGK1}-MdOSC1^{C257H}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{C257K} -URA	pCfB255 derivative, <i>P_{PGK1}-MdOSC1^{C257K}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{C257S} -URA	pCfB255 derivative, <i>P_{PGK1}-MdOSC1^{C257S}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{C257T} -URA	pCfB255 derivative, <i>P_{PGK1}-MdOSC1^{C257T}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{C257M} -URA	pCfB255 derivative, <i>P_{PGK1}-MdOSC1^{C257M}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{C257N} -URA	pCfB255 derivative, <i>P_{PGK1}-MdOSC1^{C257N}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study

p056-LOXP-MdOSC1 ^{C257Q} -URA	pCfB255 derivative, <i>P_{PGK1}-MdOSC1^{C257Q}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{C259A} -URA	Amp ^R , pBR322 origin, <i>P_{PGK1}-MdOSC1^{M255A}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{C259G} -URA	pCfB255 derivative, <i>P_{PGK1}-MdOSC1^{C259G}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{C259I} -URA	pCfB255 derivative, <i>P_{PGK1}-MdOSC1^{C259I}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{C259L} -URA	pCfB255 derivative, <i>P_{PGK1}-MdOSC1^{C259L}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{C259P} -URA	pCfB255 derivative, <i>P_{PGK1}-MdOSC1^{C259P}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{C259V} -URA	pCfB255 derivative, <i>P_{PGK1}-MdOSC1^{C259V}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{C259F} -URA	pCfB255 derivative, <i>P_{PGK1}-MdOSC1^{C259F}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{C259W} -URA	pCfB255 derivative, <i>P_{PGK1}-MdOSC1^{C259W}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{C259Y} -URA	pCfB255 derivative, <i>P_{PGK1}-MdOSC1^{C259Y}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{C259D} -URA	pCfB255 derivative, <i>P_{PGK1}-MdOSC1^{C259D}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{C259E} -URA	pCfB255 derivative, <i>P_{PGK1}-MdOSC1^{C259E}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{C259R} -URA	pCfB255 derivative, <i>P_{PGK1}-MdOSC1^{C259R}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{C259H} -URA	pCfB255 derivative, <i>P_{PGK1}-MdOSC1^{C259H}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{C259K} -URA	pCfB255 derivative, <i>P_{PGK1}-MdOSC1^{C259K}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{C259S} -URA	pCfB255 derivative, <i>P_{PGK1}-MdOSC1^{C259S}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{C259T} -URA	pCfB255 derivative, <i>P_{PGK1}-MdOSC1^{C259T}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{C259M} -URA	pCfB255 derivative, <i>P_{PGK1}-MdOSC1^{C259M}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study
p056-LOXP-MdOSC1 ^{C259N} -URA	pCfB255 derivative, <i>P_{PGK1}-MdOSC1^{C259N}-T_{ADHI}</i> , <i>P_{TEF1}</i> , <i>T_{CYCI}</i> , URA3	This study

p056-LOXP-MdOSCI ^{C259Q} -URA	pCfB255 derivative, P_{PGK1} -MdOSCI ^{C259Q} - T_{ADHI} , P_{TEF1} , T_{CYC1} , URA3	This study
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Table S2 Strains used in this study

<i>E. coli</i> strains		
XL10-Gold	<i>TetrD(mcrA)183 D(mcrCB-hsdSMR-mrr)173 endA1 supE44 thi-1recA1 gyrA96 relA1 lac Hte [F' proAB lacIqZΔM15 Tn10 (Tet^r) Amy Cam^r]</i>	This study
SP1	<i>Saccharomyces cerevisiae</i> BY4742-TRP, ddNA:: P_{PGK1} - <i>tHMG1</i> - T_{ADHI} - P_{TEF1} - <i>LYS2</i> - T_{CYC1}	(Dai et al., 2014)
CTT1	SP1 derivative; P_{TEF1} - <i>GgbAS1</i> - T_{ADHI} , URA3	This study
CTT2	SP1 derivative; P_{TEF1} - <i>GgbAS1</i> ^{M256A} - T_{ADHI} , URA3	This study
CTT3	SP1 derivative; P_{TEF1} - <i>GgbAS1</i> ^{M256G} - T_{ADHI} , URA3	This study
CTT4	SP1 derivative; P_{TEF1} - <i>GgbAS1</i> ^{M256I} - T_{ADHI} , URA3	This study
CTT5	SP1 derivative; P_{TEF1} - <i>GgbAS1</i> ^{M256L} - T_{ADHI} , URA3	This study
CTT6	SP1 derivative; P_{TEF1} - <i>GgbAS1</i> ^{M256P} - T_{ADHI} , URA3	This study
CTT7	SP1 derivative; P_{TEF1} - <i>GgbAS1</i> ^{M256V} - T_{ADHI} , URA3	This study
CTT8	SP1 derivative; P_{TEF1} - <i>GgbAS1</i> ^{M256F} - T_{ADHI} , URA3	This study
CTT9	SP1 derivative; P_{TEF1} - <i>GgbAS1</i> ^{M256W} - T_{ADHI} , URA3	This study

CTT10	SP1 derivative; P_{TEFI} - $GgbAS1^{M256Y}$ - T_{ADH1} , URA3	This study
CTT11	SP1 derivative; P_{TEFI} - $GgbAS1^{M256D}$ - T_{ADH1} , URA3	This study
CTT12	SP1 derivative; P_{TEFI} - $GgbAS1^{M256E}$ - T_{ADH1} , URA3	This study
CTT13	SP1 derivative; P_{TEFI} - $GgbAS1^{M256R}$ - T_{ADH1} , URA3	This study
CTT14	SP1 derivative; P_{TEFI} - $GgbAS1^{M256H}$ - T_{ADH1} , URA3	This study
CTT15	SP1 derivative; P_{TEFI} - $GgbAS1^{M256K}$ - T_{ADH1} , URA3	This study
CTT16	SP1 derivative; P_{TEFI} - $GgbAS1^{M256S}$ - T_{ADH1} , URA3	This study
CTT17	SP1 derivative; P_{TEFI} - $GgbAS1^{M256T}$ - T_{ADH1} , URA3	This study
CTT18	SP1 derivative; P_{TEFI} - $GgbAS1^{M256C}$ - T_{ADH1} , URA3	This study
CTT19	SP1 derivative; P_{TEFI} - $GgbAS1^{M256N}$ - T_{ADH1} , URA3	This study
CTT20	SP1 derivative; P_{TEFI} - $GgbAS1^{M256Q}$ - T_{ADH1} , URA3	This study
CTT21	SP1 derivative; P_{TEFI} - $GgbAS1^{C258A}$ - T_{ADH1} , URA3	This study
CTT22	SP1 derivative; P_{TEFI} - $GgbAS1^{C258G}$ - T_{ADH1} , URA3	This study

CTT23	SP1 derivative; P_{TEFI} - $GgbAS1^{C258I}$ - T_{ADH1} , URA3	This study
CTT24	SP1 derivative; P_{TEFI} - $GgbAS1^{C258L}$ - T_{ADH1} , URA3	This study
CTT25	SP1 derivative; P_{TEFI} - $GgbAS1^{C258P}$ - T_{ADH1} , URA3	This study
CTT26	SP1 derivative; P_{TEFI} - $GgbAS1^{C258V}$ - T_{ADH1} , URA3	This study
CTT27	SP1 derivative; P_{TEFI} - $GgbAS1^{C258F}$ - T_{ADH1} , URA3	This study
CTT28	SP1 derivative; P_{TEFI} - $GgbAS1^{C258W}$ - T_{ADH1} , URA3	This study
CTT29	SP1 derivative; P_{TEFI} - $GgbAS1^{C258Y}$ - T_{ADH1} , URA3	This study
CTT30	SP1 derivative; P_{TEFI} - $GgbAS1^{C258D}$ - T_{ADH1} , URA3	This study
CTT31	SP1 derivative; P_{TEFI} - $GgbAS1^{C258E}$ - T_{ADH1} , URA3	This study
CTT32	SP1 derivative; P_{TEFI} - $GgbAS1^{C258R}$ - T_{ADH1} , URA3	This study
CTT33	SP1 derivative; P_{TEFI} - $GgbAS1^{C258H}$ - T_{ADH1} , URA3	This study
CTT34	SP1 derivative; P_{TEFI} - $GgbAS1^{C258K}$ - T_{ADH1} , URA3	This study
CTT35	SP1 derivative; P_{TEFI} - $GgbAS1^{C258S}$ - T_{ADH1} , URA3	This study

CTT36	SP1 derivative; P_{TEFI} - $GgbAS1^{C258T}$ - T_{ADH1} , URA3	This study
CTT37	SP1 derivative; P_{TEFI} - $GgbAS1^{C258M}$ - T_{ADH1} , URA3	This study
CTT38	SP1 derivative; P_{TEFI} - $GgbAS1^{C258N}$ - T_{ADH1} , URA3	This study
CTT39	SP1 derivative; P_{TEFI} - $GgbAS1^{C258Q}$ - T_{ADH1} , URA3	This study
CTT40	SP1 derivative; P_{TEFI} - $GgbAS1^{C260A}$ - T_{ADH1} , URA3	This study
CTT41	SP1 derivative; P_{TEFI} - $GgbAS1^{C260G}$ - T_{ADH1} , URA3	This study
CTT42	SP1 derivative; P_{TEFI} - $GgbAS1^{C260I}$ - T_{ADH1} , URA3	This study
CTT43	SP1 derivative; P_{TEFI} - $GgbAS1^{C260L}$ - T_{ADH1} , URA3	This study
CTT44	SP1 derivative; P_{TEFI} - $GgbAS1^{C260P}$ - T_{ADH1} , URA3	This study
CTT45	SP1 derivative; P_{TEFI} - $GgbAS1^{C260V}$ - T_{ADH1} , URA3	This study
CTT46	SP1 derivative; P_{TEFI} - $GgbAS1^{C260F}$ - T_{ADH1} , URA3	This study
CTT47	SP1 derivative; P_{TEFI} - $GgbAS1^{C260W}$ - T_{ADH1} , URA3	This study
CTT48	SP1 derivative; P_{TEFI} - $GgbAS1^{C260Y}$ - T_{ADH1} , URA3	This study

CTT49	SP1 derivative; P_{TEFI} - $GgbAS1^{C260D}$ - T_{ADH1} , URA3	This study
CTT50	SP1 derivative; P_{TEFI} - $GgbAS1^{C260E}$ - T_{ADH1} , URA3	This study
CTT51	SP1 derivative; P_{TEFI} - $GgbAS1^{C260R}$ - T_{ADH1} , URA3	This study
CTT52	SP1 derivative; P_{TEFI} - $GgbAS1^{C260H}$ - T_{ADH1} , URA3	This study
CTT53	SP1 derivative; P_{TEFI} - $GgbAS1^{C260K}$ - T_{ADH1} , URA3	This study
CTT54	SP1 derivative; P_{TEFI} - $GgbAS1^{C260S}$ - T_{ADH1} , URA3	This study
CTT55	SP1 derivative; P_{TEFI} - $GgbAS1^{C260T}$ - T_{ADH1} , URA3	This study
CTT56	SP1 derivative; P_{TEFI} - $GgbAS1^{C260M}$ - T_{ADH1} , URA3	This study
CTT57	SP1 derivative; P_{TEFI} - $GgbAS1^{C260N}$ - T_{ADH1} , URA3	This study
CTT58	SP1 derivative; P_{TEFI} - $GgbAS1^{C260Q}$ - T_{ADH1} , URA3	This study
CTT59	SP1 derivative; P_{TEFI} - OEW - T_{ADH1} , URA3	This study
CTT60	SP1 derivative; P_{TEFI} - OEW^{M256A} - T_{ADH1} , URA3	This study
CTT61	SP1 derivative; P_{TEFI} - OEW^{M256G} - T_{ADH1} , URA3	This study

CTT62	SP1 derivative; P_{TEF1} - $OE W^{M256L}$ - T_{ADH1} , URA3	This study
CTT63	SP1 derivative; P_{TEF1} - $OE W^{M256L}$ - T_{ADH1} , URA3	This study
CTT64	SP1 derivative; P_{TEF1} - $OE W^{M256P}$ - T_{ADH1} , URA3	This study
CTT65	SP1 derivative; P_{TEF1} - $OE W^{M256V}$ - T_{ADH1} , URA3	This study
CTT66	SP1 derivative; P_{TEF1} - $OE W^{M256F}$ - T_{ADH1} , URA3	This study
CTT67	SP1 derivative; P_{TEF1} - $OE W^{M256W}$ - T_{ADH1} , URA3	This study
CTT68	SP1 derivative; P_{TEF1} - $OE W^{M256Y}$ - T_{ADH1} , URA3	This study
CTT69	SP1 derivative; P_{TEF1} - $OE W^{M256D}$ - T_{ADH1} , URA3	This study
CTT70	SP1 derivative; P_{TEF1} - $OE W^{M256E}$ - T_{ADH1} , URA3	This study
CTT71	SP1 derivative; P_{TEF1} - $OE W^{M256R}$ - T_{ADH1} , URA3	This study
CTT72	SP1 derivative; P_{TEF1} - $OE W^{M256H}$ - T_{ADH1} , URA3	This study
CTT73	SP1 derivative; P_{TEF1} - $OE W^{M256K}$ - T_{ADH1} , URA3	This study
CTT74	SP1 derivative; P_{TEF1} - $OE W^{M256S}$ - T_{ADH1} , URA3	This study

CTT75	SP1 derivative; P_{TEF1} - $OE W^{M256T}$ - T_{ADH1} , URA3	This study
CTT76	SP1 derivative; P_{TEF1} - $OE W^{M256M}$ - T_{ADH1} , URA3	This study
CTT77	SP1 derivative; P_{TEF1} - $OE W^{M256N}$ - T_{ADH1} , URA3	This study
CTT78	SP1 derivative; P_{TEF1} - $OE W^{M256Q}$ - T_{ADH1} , URA3	This study
CTT79	SP1 derivative; P_{TEF1} - $OE W^{C258A}$ - T_{ADH1} , URA3	This study
CTT80	SP1 derivative; P_{TEF1} - $OE W^{C258G}$ - T_{ADH1} , URA3	This study
CTT81	SP1 derivative; P_{TEF1} - $OE W^{C258I}$ - T_{ADH1} , URA3	This study
CTT82	SP1 derivative; P_{TEF1} - $OE W^{C258L}$ - T_{ADH1} , URA3	This study
CTT83	SP1 derivative; P_{TEF1} - $OE W^{C258P}$ - T_{ADH1} , URA3	This study
CTT84	SP1 derivative; P_{TEF1} - $OE W^{C258V}$ - T_{ADH1} , URA3	This study
CTT85	SP1 derivative; P_{TEF1} - $OE W^{C258F}$ - T_{ADH1} , URA3	This study
CTT86	SP1 derivative; P_{TEF1} - $OE W^{C258W}$ - T_{ADH1} , URA3	This study
CTT87	SP1 derivative; P_{TEF1} - $OE W^{C258Y}$ - T_{ADH1} , URA3	This study

CTT88	SP1 derivative; P_{TEF1} - OEW^{C258D} - T_{ADH1} , URA3	This study
CTT89	SP1 derivative; P_{TEF1} - OEW^{C258E} - T_{ADH1} , URA3	This study
CTT90	SP1 derivative; P_{TEF1} - OEW^{C258R} - T_{ADH1} , URA3	This study
CTT91	SP1 derivative; P_{TEF1} - OEW^{C258H} - T_{ADH1} , URA3	This study
CTT92	SP1 derivative; P_{TEF1} - OEW^{C258K} - T_{ADH1} , URA3	This study
CTT93	SP1 derivative; P_{TEF1} - OEW^{C258S} - T_{ADH1} , URA3	This study
CTT94	SP1 derivative; P_{TEF1} - OEW^{C258T} - T_{ADH1} , URA3	This study
CTT95	SP1 derivative; P_{TEF1} - OEW^{C258M} - T_{ADH1} , URA3	This study
CTT96	SP1 derivative; P_{TEF1} - OEW^{C258N} - T_{ADH1} , URA3	This study
CTT97	SP1 derivative; P_{TEF1} - OEW^{C258Q} - T_{ADH1} , URA3	This study
CTT98	SP1 derivative; P_{TEF1} - OEW^{C260A} - T_{ADH1} , URA3	This study
CTT99	SP1 derivative; P_{TEF1} - OEW^{C260G} - T_{ADH1} , URA3	This study
CTT100	SP1 derivative; P_{TEF1} - OEW^{C260I} - T_{ADH1} , URA3	This study

CTT101	SP1 derivative; P_{TEF1} - $OE W^{C260L}$ - T_{ADH1} , URA3	This study
CTT102	SP1 derivative; P_{TEF1} - $OE W^{C260P}$ - T_{ADH1} , URA3	This study
CTT103	SP1 derivative; P_{TEF1} - $OE W^{C260V}$ - T_{ADH1} , URA3	This study
CTT104	SP1 derivative; P_{TEF1} - $OE W^{C260F}$ - T_{ADH1} , URA3	This study
CTT105	SP1 derivative; P_{TEF1} - $OE W^{C260W}$ - T_{ADH1} , URA3	This study
CTT106	SP1 derivative; P_{TEF1} - $OE W^{C260Y}$ - T_{ADH1} , URA3	This study
CTT107	SP1 derivative; P_{TEF1} - $OE W^{C260D}$ - T_{ADH1} , URA3	This study
CTT108	SP1 derivative; P_{TEF1} - $OE W^{C260E}$ - T_{ADH1} , URA3	This study
CTT109	SP1 derivative; P_{TEF1} - $OE W^{C260R}$ - T_{ADH1} , URA3	This study
CTT110	SP1 derivative; P_{TEF1} - $OE W^{C260H}$ - T_{ADH1} , URA3	This study
CTT111	SP1 derivative; P_{TEF1} - $OE W^{C260K}$ - T_{ADH1} , URA3	This study
CTT112	SP1 derivative; P_{TEF1} - $OE W^{C260S}$ - T_{ADH1} , URA3	This study
CTT113	SP1 derivative; P_{TEF1} - $OE W^{C260T}$ - T_{ADH1} , URA3	This study

CTT114	SP1 derivative; P_{TEF1} - $OEWC^{260M}$ - T_{ADH1} , URA3	This study
CTT115	SP1 derivative; P_{TEF1} - $OEWC^{260N}$ - T_{ADH1} , URA3	This study
CTT116	SP1 derivative; P_{TEF1} - $OEWC^{260Q}$ - T_{ADH1} , URA3	This study
CTT117	SP1 derivative; P_{TEF1} - $MdOSCI$ - T_{ADH1} , URA3	This study
CTT118	SP1 derivative; P_{TEF1} - $MdOSCI^{M255A}$ - T_{ADH1} , URA3	This study
CTT119	SP1 derivative; P_{TEF1} - $MdOSCI^{M255G}$ - T_{ADH1} , URA3	This study
CTT120	SP1 derivative; P_{TEF1} - $MdOSCI^{M255I}$ - T_{ADH1} , URA3	This study
CTT121	SP1 derivative; P_{TEF1} - $MdOSCI^{M255L}$ - T_{ADH1} , URA3	This study
CTT122	SP1 derivative; P_{TEF1} - $MdOSCI^{M255P}$ - T_{ADH1} , URA3	This study
CTT123	SP1 derivative; P_{TEF1} - $MdOSCI^{M255V}$ - T_{ADH1} , URA3	This study
CTT124	SP1 derivative; P_{TEF1} - $MdOSCI^{M255F}$ - T_{ADH1} , URA3	This study
CTT125	SP1 derivative; P_{TEF1} - $MdOSCI^{M255W}$ - T_{ADH1} , URA3	This study
CTT126	SP1 derivative; P_{TEF1} - $MdOSCI^{M255Y}$ - T_{ADH1} , URA3	This study

CTT127	SP1 derivative; P_{TEF1} - $MdOSC1^{M255D}$ - T_{ADH1} , URA3	This study
CTT128	SP1 derivative; P_{TEF1} - $MdOSC1^{M255E}$ - T_{ADH1} , URA3	This study
CTT129	SP1 derivative; P_{TEF1} - $MdOSC1^{M255R}$ - T_{ADH1} , URA3	This study
CTT130	SP1 derivative; P_{TEF1} - $MdOSC1^{M255H}$ - T_{ADH1} , URA3	This study
CTT131	SP1 derivative; P_{TEF1} - $MdOSC1^{M255K}$ - T_{ADH1} , URA3	This study
CTT132	SP1 derivative; P_{TEF1} - $MdOSC1^{M255S}$ - T_{ADH1} , URA3	This study
CTT133	SP1 derivative; P_{TEF1} - $MdOSC1^{M255T}$ - T_{ADH1} , URA3	This study
CTT134	SP1 derivative; P_{TEF1} - $MdOSC1^{M255M}$ - T_{ADH1} , URA3	This study
CTT135	SP1 derivative; P_{TEF1} - $MdOSC1^{M255N}$ - T_{ADH1} , URA3	This study
CTT136	SP1 derivative; P_{TEF1} - $MdOSC1^{M255Q}$ - T_{ADH1} , URA3	This study
CTT137	SP1 derivative; P_{TEF1} - $MdOSC1^{C257A}$ - T_{ADH1} , URA3	This study
CTT138	SP1 derivative; P_{TEF1} - $MdOSC1^{C257G}$ - T_{ADH1} , URA3	This study
CTT139	SP1 derivative; P_{TEF1} - $MdOSC1^{C257L}$ - T_{ADH1} , URA3	This study

CTT140	SP1 derivative; P _{TEF1} -MdOSC1 ^{C257L} -T _{ADH1} , URA3	This study
CTT141	SP1 derivative; P _{TEF1} -MdOSC1 ^{C257P} -T _{ADH1} , URA3	This study
CTT142	SP1 derivative; P _{TEF1} -MdOSC1 ^{C257V} -T _{ADH1} , URA3	This study
CTT143	SP1 derivative; P _{TEF1} -MdOSC1 ^{C257F} -T _{ADH1} , URA3	This study
CTT144	SP1 derivative; P _{TEF1} -MdOSC1 ^{C257W} -T _{ADH1} , URA3	This study
CTT145	SP1 derivative; P _{TEF1} -MdOSC1 ^{C257Y} -T _{ADH1} , URA3	This study
CTT146	SP1 derivative; P _{TEF1} -MdOSC1 ^{C257D} -T _{ADH1} , URA3	This study
CTT147	SP1 derivative; <i>P_{TEF1}-MdOSC1^{C257E}-T_{ADH1}</i> , URA3	This study
CTT148	SP1 derivative; <i>P_{TEF1}-MdOSC1^{C257R}-T_{ADH1}</i> , URA3	This study
CTT149	SP1 derivative; <i>P_{TEF1}-MdOSC1^{C257H}-T_{ADH1}</i> , URA3	This study
CTT150	SP1 derivative; <i>P_{TEF1}-MdOSC1^{C257K}-T_{ADH1}</i> , URA3	This study
CTT151	SP1 derivative; <i>P_{TEF1}-MdOSC1^{C257S}-T_{ADH1}</i> , URA3	This study
CTT152	SP1 derivative; <i>P_{TEF1}-MdOSC1^{C257T}-T_{ADH1}</i> , URA3	This study

CTT153	SP1 derivative; P_{TEF1} - $MdOSCI^{C257M}$ - T_{ADH1} , URA3	This study
CTT154	SP1 derivative; P_{TEF1} - $MdOSCI^{C257N}$ - T_{ADH1} , URA3	This study
CTT155	SP1 derivative; P_{TEF1} - $MdOSCI^{C257Q}$ - T_{ADH1} , URA3	This study
CTT156	SP1 derivative; P_{TEF1} - $MdOSCI^{C257A}$ - T_{ADH1} , URA3	This study
CTT157	SP1 derivative; P_{TEF1} - $MdOSCI^{C257G}$ - T_{ADH1} , URA3	This study
CTT158	SP1 derivative; P_{TEF1} - $MdOSCI^{C257I}$ - T_{ADH1} , URA3	This study
CTT159	SP1 derivative; P_{TEF1} - $MdOSCI^{C257L}$ - T_{ADH1} , URA3	This study
CTT160	SP1 derivative; P_{TEF1} - $MdOSCI^{C257P}$ - T_{ADH1} , URA3	This study
CTT161	SP1 derivative; P_{TEF1} - $MdOSCI^{C257V}$ - T_{ADH1} , URA3	This study
CTT162	SP1 derivative; P_{TEF1} - $MdOSCI^{C257F}$ - T_{ADH1} , URA3	This study
CTT163	SP1 derivative; P_{TEF1} - $MdOSCI^{C257W}$ - T_{ADH1} , URA	This study
CTT164	SP1 derivative; P_{TEF1} - $MdOSCI^{C257Y}$ - T_{ADH1} , URA3	This study
CTT165	SP1 derivative; P_{TEF1} - $MdOSCI^{C257D}$ - T_{ADH1} , URA3	This study

CTT166	SP1 derivative; P_{TEF1} - $MdOSCI^{C2597E}$ - T_{ADH1} , URA3	This study
CTT167	SP1 derivative; P_{TEF1} - $MdOSCI^{C2597R}$ - T_{ADH1} , URA3	This study
CTT168	SP1 derivative; P_{TEF1} - $MdOSCI^{C2597H}$ - T_{ADH1} , URA3	This study
CTT169	SP1 derivative; P_{TEF1} - $MdOSCI^{C2597K}$ - T_{ADH1} , URA3	This study
CTT170	SP1 derivative; P_{TEF1} - $MdOSCI^{C2597S}$ - T_{ADH1} , URA3	This study
CTT171	SP1 derivative; P_{TEF1} - $MdOSCI^{C2597T}$ - T_{ADH1} , URA3	This study
CTT172	SP1 derivative; P_{TEF1} - $MdOSCI^{C2597M}$ - T_{ADH1} , URA3	This study
CTT173	SP1 derivative; P_{TEF1} - $MdOSCI^{C2597N}$ - T_{ADH1} , URA3	This study
CTT174	SP1 derivative; P_{TEF1} - $MdOSCI^{C2597Q}$ - T_{ADH1} , URA3	This study
CTT175	SP1 derivative; P_{TEF1} -GgbAS1 ^{M256Q/C258A} - T_{ADH1} , URA3	This study
CTT176	SP1 derivative; P_{TEF1} -GgbAS1 ^{M256Q/C258V} - T_{ADH1} , URA3	This study
CTT177	SP1 derivative; P_{TEF1} -GgbAS1 ^{M256A/C258A} - T_{ADH1} , URA3	This study
CTT178	SP1 derivative; P_{TEF1} -GgbAS1 ^{M256A/C258V} - T_{ADH1} , URA3	This study

CTT179	SP1 derivative; P_{TEF1} - <i>GgbAS1</i> ^{M256Q/C260W} - <i>T_{ADH1}</i> , URA3	This study
CTT180	SP1 derivative; P_{TEF1} - <i>GgbAS1</i> ^{M256Q/C260H} - <i>T_{ADH1}</i> , URA3	This study
CTT181	SP1 derivative; P_{TEF1} - <i>GgbAS1</i> ^{M256A/C260W} - <i>T_{ADH1}</i> , URA3	This study
CTT182	SP1 derivative; P_{TEF1} - <i>GgbAS1</i> ^{M256A/C260H} - <i>T_{ADH1}</i> , URA3	This study
CTT183	SP1 derivative; P_{TEF1} - <i>GgbAS1</i> ^{C258A/C260W} - <i>T_{ADH1}</i> , URA3	This study
CTT184	SP1 derivative; P_{TEF1} - <i>GgbAS1</i> ^{C258A/C260H} - <i>T_{ADH1}</i> , URA3	This study
CTT185	SP1 derivative; P_{TEF1} - <i>GgbAS1</i> ^{C258V/C260W} - <i>T_{ADH1}</i> , URA3	This study
CTT186	SP1 derivative; P_{TEF1} - <i>GgbAS1</i> ^{C258V/C260H} - <i>T_{ADH1}</i> , URA3	This study
CTT187	SP1 derivative; P_{TEF1} - <i>GgbAS1</i> ^{M256A/C258A/C260W} - <i>T_{ADH1}</i> , URA3	This study
CTT188	SP1 derivative; P_{TEF1} - <i>GgbAS1</i> ^{M256A/C258V/C260W} - <i>T_{ADH1}</i> , URA3	This study
CTT189	SP1 derivative; P_{TEF1} - <i>GgbAS1</i> ^{M256A/C258A/C260H} - <i>T_{ADH1}</i> , URA3	This study
CTT190	SP1 derivative; P_{TEF1} - <i>GgbAS1</i> ^{M256A/C258V/C260H} - <i>T_{ADH1}</i> , URA3	This study
CTT191	SP1 derivative; P_{TEF1} - <i>GgbAS1</i> ^{M256Q/C258A/C260W} - <i>T_{ADH1}</i> , URA3	This study

CTT192	SP1 derivative; P_{TEF1} - $GgbAS1^{M256Q/C258V/C260W}$ - T_{ADH1} , URA3	This study
CTT193	SP1 derivative; P_{TEF1} - $GgbAS1^{M256Q/C258A/C260H}$ - T_{ADH1} , URA3	This study
CTT194	SP1 derivative; P_{TEF1} - $GgbAS1^{M256Q/C258V/C260H}$ - T_{ADH1} , URA3	This study
CTT195	SP1 derivative; P_{TEF1} - $OEW^{M255V/C259A}$ - T_{ADH1} , URA3	This study
CTT196	SP1 derivative; P_{TEF1} - $OEW^{M255L/C259A}$ - T_{ADH1} , URA3	This study
CTT197	SP1 derivative; P_{TEF1} - $OEW^{M255C/C259A}$ - T_{ADH1} , URA3	This study
CTT198	SP1 derivative; P_{TEF1} - $OEW^{M255I/C259A}$ - T_{ADH1} , URA3	This study
CTT199	SP1 derivative; P_{TEF1} - $OEW^{M255Y/C259A}$ - T_{ADH1} , URA3	This study
CTT200	SP1 derivative; P_{TEF1} - $OEW^{M255V/C259G}$ - T_{ADH1} , URA3	This study
CTT201	SP1 derivative; P_{TEF1} - $OEW^{M255L/C259G}$ - T_{ADH1} , URA3	This study
CTT202	SP1 derivative; P_{TEF1} - $OEW^{M255V/C259G}$ - T_{ADH1} , URA3	This study
CTT203	SP1 derivative; P_{TEF1} - $OEW^{M255I/C259G}$ - T_{ADH1} , URA3	This study
CTT204	SP1 derivative; P_{TEF1} - $OEW^{M256Y/C259G}$ - T_{ADH1} , URA3	This study

CTT205

SP1 derivative; *P_{TEF1}-MdOSC1*
N11T/P250H/P373A/M255T-*T_{ADH1}*, URA3

This study

Table S3 Primers used in this study

Name	Sequence	Application	Length
GgbAS1F	ATGTGGAGATTAAAGATTGCTGAAGG		
GgbAS1R	TCAAGTCAAGCAAAGTGGTGTAGATG		
GgbAS1BBF	CCATCTACACCAGTTTGCTTGACTTGAATC GCTCGGCATGCCGGTA		
GgbAS1BBR	ACCTTCAGCAATCTTTAATCTCCACATACCT GGTCTTAGATTAGATTGCTATGC		
OEWF	TTAAGTTTGTGCATGCAATATTCTTCT		
OEWR	CAACTTGATACCTCTATGGATAGGACC		
OEWBBF	GTCCTATCCATAGAGGTATCAAGTTGACCT GGTCTTAGATTAGATTGCTATGC		
OEWBRR	GAAGAATATTGCATGCACAACTTAAATCG CTCGGCATGCCGGTAGA		
MdOSC1F	ATGTGGAAGATTAAAGTTTGGTGAAGGA		
MdOSC1R	TCAAGCAATTTTCTTAATTGGCAATG		
MdOSC1BBF	CATTGCCAATTAAGAAAATTGCTTGATCGG CATGCCGGTAGAGGTGTGGT		
MdOSC1BBR	CTTCACCAAAGCTTAATCTTCCACATGGTATA TCTCCTTCTTAAAGCTTAGATTAGATTGC		

GgbAS1 M256AF	ATCCTGCAAAAAGCTTGGTGTATTGCAGAT TGGTTTA
GgbAS1 M256AR	TGCAATAACACCAAGCTTTTGCAGGATGCA TTG
GgbAS1 M256GF	ATCCTGCAAAAAGGTTGGTGTATTGCAGAT TGGTTTA
GgbAS1 M256GR	TGCAATAACACCAACCTTTTGCAGGATGCA TTG
GgbAS1 M256IF	ATCCTGCAAAAATTTGGTGTATTGCAGATT GGTTTA
GgbAS1 M256IR	TGCAATAACACCAAATTTTGCAGGATGCA TTG
GgbAS1 M256LF	ATCCTGCAAAACTTTGGTGTATTGCAGAT TGGTTTA
GgbAS1 M256LR	TGCAATAACACCAAAGTTTGCAGGATGCA TTG
GgbAS1 M256PF	ATCCTGCAAAAACCTTGGTGTATTGCAGAT TGGTTTA
GgbAS1 M256PR	TGCAATAACACCAAGGTTTGCAGGATGCA TTG
GgbAS1 M256VF	ATCCTGCAAAAAGTTTGGTGTATTGCAGAT TGGTTTA
GgbAS1 M256VR	TGCAATAACACCAAACCTTTGCAGGATGCA TTG
GgbAS1 M256FF	ATCCTGCAAAAATTTGGTGTATTGCAGATT GGTTTA
GgbAS1 M256FR	TGCAATAACACCAAATTTTGCAGGATGCA TTG

GgbAS1 M256WF	ATCCTGCAAAATGGTGGTGTATTGCAGAT TGGTTTA
GgbAS1 M256WR	TGCAATAACACCACCATTTTGCAGGATGCA TTG
GgbAS1 M256YF	ATCCTGCAAAATATTGGTGTATTGCAGATT GGTTTA
GgbAS1 M256YR	TGCAATAACACCAATATTTTGCAGGATGCA TTG
GgbAS1 M256DF	ATCCTGCAAAAAGATTGGTGTATTGCAGAT TGGTTTA
GgbAS1 M256DR	TGCAATAACACCAATCTTTTGCAGGATGCA TTG
GgbAS1 M256EF	ATCCTGCAAAAAGAATGGTGTATTGCAGAT TGGTTTA
GgbAS1 M256ER	TGCAATAACACCATTCTTTTGCAGGATGCA TTG
GgbAS1 M256RF	ATCCTGCAAAACGTTGGTGTATTGCAGAT TGGTTTA
GgbAS1 M256RR	TGCAATAACACCAACGTTTGCAGGATGCA TTG
GgbAS1 M256HF	ATCCTGCAAAACATTGGTGTATTGCAGAT TGGTTTA
GgbAS1 M256HR	TGCAATAACACCAATGTTTTGCAGGATGCA TTG
GgbAS1 M256KF	ATCCTGCAAAAAAATGGTGTATTGCAGAT TGGTTTA
GgbAS1 M256KR	TGCAATAACACCATTTTTTGCAGGATGCAT TG

GgbAS1 M256SF	ATCCTGCAAAATCTTGGTGTTATTGCAGATT GGTTTA
GgbAS1 M256SR	TGCAATAACACCAAGATTTTGCAGGATGCA TTG
GgbAS1 M256TF	ATCCTGCAAAAACTTGGTGTTATTGCAGAT TGGTTTA
GgbAS1 M256TR	TGCAATAACACCAAGTTTTTGCAGGATGCA TTG
GgbAS1 M256CF	ATCCTGCAAAATGTTGGTGTTATTGCAGATT GGTTTA
GgbAS1 M256CR	TGCAATAACACCAACATTTTGCAGGATGCA TTG
GgbAS1 M256NF	ATCCTGCAAAAAATTGGTGTTATTGCAGAT TGGTTTA
GgbAS1 M256NR	TGCAATAACACCAATTTTTTGCAGGATGCA TTG
GgbAS1 M256QF	ATCCTGCAAAACAATGGTGTTATTGCAGAT TGGTTTA
GgbAS1 M256QR	TGCAATAACACCATTGTTTTGCAGGATGCA TTG
GgbAS1 C258AF	ATGTGGGCTTATTGCAGATTGGTTTACATGC
GgbAS1 C258AR	TCTGCAATAAGCCCACATTTTGCAGGATG C
GgbAS1 C258GF	ATGTGGGGTTATTGCAGATTGGTTTACATGC
GgbAS1 C258GR	TCTGCAATAACCCCACATTTTGCAGGATG C

GgbAS1 C258IF	ATGTGGATCTATTGCAGATTGGTTTACATGC
GgbAS1 C258IR	TCTGCAATAGATCCACATTTTTGCAGGATG C
GgbAS1 C258LF	ATGTGGTTATATTGCAGATTGGTTTACATGC
GgbAS1 C258LR	TCTGCAATATAACCACATTTTTGCAGGATGC
GgbAS1 C258PF	ATGTGGCCTTATTGCAGATTGGTTTACATGC
GgbAS1 C258PR	TCTGCAATAAGGCCACATTTTTGCAGGATG C
GgbAS1 C258VF	ATGTGGGTTTATTGCAGATTGGTTTACATGC
GgbAS1 C258VR	TCTGCAATAAACCCACATTTTTGCAGGATG C
GgbAS1 C258FF	ATGTGGTTTTATTGCAGATTGGTTTACATGC
GgbAS1 C258FR	TCTGCAATAAAACCACATTTTTGCAGGATG C
GgbAS1 C258WF	ATGTGGTGGTATTGCAGATTGGTTTACATGC
GgbAS1 C258WR	TCTGCAATACCACCACATTTTTGCAGGATG C
GgbAS1 C258YF	ATGTGGTATTATTGCAGATTGGTTTACATGC
GgbAS1 C258YR	TCTGCAATAATACCACATTTTTGCAGGATGC

GgbAS1 C258DF	ATGTGGGATTATTGCAGATTGGTTTACATGC
GgbAS1 C258DR	TCTGCAATAATCCCACATTTTGCAGGATGC
GgbAS1 C258EF	ATGTGGGAATATTGCAGATTGGTTTACATGC
GgbAS1 C258ER	TCTGCAATATTCCCACATTTTGCAGGATGC
GgbAS1 C258RF	ATGTGGCGTTATTGCAGATTGGTTTACATGC
GgbAS1 C258RR	TCTGCAATAACGCCACATTTTGCAGGATG C
GgbAS1 C258HF	ATGTGGCATTATTGCAGATTGGTTTACATGC
GgbAS1 C258HR	TCTGCAATAATGCCACATTTTGCAGGATG C
GgbAS1 C258KF	ATGTGGAAATATTGCAGATTGGTTTACATGC
GgbAS1 C258KR	TCTGCAATATTCCACATTTTGCAGGATGC
GgbAS1 C258SF	ATGTGGAGTTATTGCAGATTGGTTTACATGC
GgbAS1 C258SR	TCTGCAATAACTCCACATTTTGCAGGATG C
GgbAS1 C258TF	ATGTGGACTTATTGCAGATTGGTTTACATGC
GgbAS1 C258TR	TCTGCAATAAGTCCACATTTTGCAGGATG C

GgbAS1 C258MF	ATGTGGATGTATTGCAGATTGGTTTACATGC
GgbAS1 C258MR	TCTGCAATACATCCACATTTTGCAGGATGC
GgbAS1 C258NF	ATGTGGAATTATTGCAGATTGGTTTACATGC
GgbAS1 C258NR	TCTGCAATAATTCCACATTTTGCAGGATGC
GgbAS1 C258QF	ATGTGGCAATATTGCAGATTGGTTTACATGC
GgbAS1 C258QR	TCTGCAATATTGCCACATTTTGCAGGATGC
GgbAS1 C260AF	TGTGGTGTTATGCTAGATTGGTTTACATGCC A
GgbAS1 C260AR	ATGTAAACCAATCTAGCATAACACCACATT TTGC
GgbAS1 C260GF	TGTGGTGTTATGGTAGATTGGTTTACATGCC A
GgbAS1 C260GR	ATGTAAACCAATCTACCATAACACCACATTT TTGC
GgbAS1 C260IF	TGTGGTGTTATATTAGATTGGTTTACATGCC A
GgbAS1 C260IR	ATGTAAACCAATCTAATATAACACCACATTT TTGC
GgbAS1 C260LF	TGTGGTGTTATCTTAGATTGGTTTACATGCC A
GgbAS1 C260LR	ATGTAAACCAATCTAAGATAACACCACATT TTGC

GgbAS1 C260PF	TGTGGTGTTATCCTAGATTGGTTTACATGCC A
GgbAS1 C260PR	ATGTAAACCAATCTAGGATAACACCACATT TTTGC
GgbAS1 C260VF	TGTGGTGTTATGTAGATTGGTTTACATGCC A
GgbAS1 C260VR	ATGTAAACCAATCTAACATAACACCACATT TTTGC
GgbAS1 C260FF	TGTGGTGTTATTTTAGATTGGTTTACATGCC A
GgbAS1 C260FR	ATGTAAACCAATCTAAAATAACACCACATT TTTGC
GgbAS1 C260WF	TGTGGTGTTATTGGAGATTGGTTTACATGCC A
GgbAS1 C260WR	ATGTAAACCAATCTCCAATAACACCACATT TTTGC
GgbAS1 C260YF	TGTGGTGTTATTATAGATTGGTTTACATGCC A
GgbAS1 C260YR	ATGTAAACCAATCTATAATAACACCACATTT TTGC
GgbAS1 C260DF	TGTGGTGTTATGATAGATTGGTTTACATGCC A
GgbAS1 C260DR	ATGTAAACCAATCTATCATAACACCACATTT TTGC
GgbAS1 C260EF	TGTGGTGTTATGAAAGATTGGTTTACATGC CA
GgbAS1 C260ER	ATGTAAACCAATCTTTCATAACACCACATTT TTGC

GgbAS1 C260RF	TGTGGTGTATCGTAGATTGGTTTACATGCC A
GgbAS1 C260RR	ATGTAAACCAATCTACGATAACACCACATT TTGC
GgbAS1 C260HF	TGTGGTGTATCATAGATTGGTTTACATGCC A
GgbAS1 C260HR	ATGTAAACCAATCTATGATAACACCACATTT TTGC
GgbAS1 C260KF	TGTGGTGTATAAAAGATTGGTTTACATGCC A
GgbAS1 C260KR	ATGTAAACCAATCTTTTATAACACCACATTT TTGC
GgbAS1 C260SF	TGTGGTGTATTCTAGATTGGTTTACATGCC A
GgbAS1 C260SR	ATGTAAACCAATCTAGAATAACACCACATT TTGC
GgbAS1 C260TF	TGTGGTGTATACTAGATTGGTTTACATGCC A
GgbAS1 C260TR	ATGTAAACCAATCTAGTATAACACCACATTT TTGC
GgbAS1 C260MF	TGTGGTGTATATGAGATTGGTTTACATGCC A
GgbAS1 C260MR	ATGTAAACCAATCTCATATAACACCACATTT TTGC
GgbAS1 C260NF	TGTGGTGTATAATAGATTGGTTTACATGCC A
GgbAS1 C260NR	ATGTAAACCAATCTATTATAACACCACATTT TTGC

GgbAS1 C260QF	TGTGGTGTATCAAAGATTGGTTTACATGC CA
GgbAS1 C260QR	ATGTAAACCAATCTTTGATAACACCACATTT TTGC
GgbAS1M256QC2 58V-F	AAACAATGGGTTTATTGCAGATTGGTTTAC ATGCCAATGTCTT
GgbAS1M256QC2 58V-R	AATCTGCAATAAACCCATTGTTTTGCAGGA TGCATTGGCAAG
GgbAS1M256QC2 58A-F	AAACAATGGGCTTATTGCAGATTGGTTTAC ATGCCAATGTCTT
GgbAS1M256QC2 58A-R	AATCTGCAATAAGCCCATTGTTTTGCAGGA TGCATTGGCAAG
GgbAS1M256AC2 58A-F	AAAGCTTGGGCTTATTGCAGATTGGTTTAC ATGCCAATGTCTT
GgbAS1M256AC2 58A-R	AATCTGCAATAAGCCCAAGCTTTGCAGGA TGCATTGGCAAG
GgbAS1M256AC2 58V-F	AAAGCTTGGGTTTATTGCAGATTGGTTTAC ATGCCAATGTCTT
GgbAS1M256AC2 58V-R	AATCTGCAATAAACCCAAGCTTTGCAGGA TGCATTGGCAAG
GgbAS1M256QC2 60W-F	AAACAATGGTGTATTGGAGATTGGTTTAC ATGCCAATGTCTT
GgbAS1M256QC2 60W-R	AATCTCCAATAACACCATTGTTTTGCAGGA TGCATTGGCAAG
GgbAS1M256QC2 60H-F	AAACAATGGTGTATCATAGATTGGTTTACA TGCCAATGTCTT
GgbAS1M256QC2 60H-R	AATCTATGATAACACCATTGTTTTGCAGGAT GCATTGGCAAG

GgbAS1M256AC2 60H-F	AAAGCTTGGTGTTCATAGATTGGTTTACA TGCCAATGTCTT
GgbAS1M256AC2 60H-R	AATCTATGATAACACCAAGCTTTTGCAGGA TGCATTGGCAAG
GgbAS1M256AC2 60W-F	AAAGCTTGGTGTATTGGAGATTGGTTTAC ATGCCAATGTCTT
GgbAS1M256AC2 60W-R	AATCTCCAATAACACCAAGCTTTTGCAGGA TGCATTGGCAAG
GgbAS1C258AC26 0W-F	AAAATGTGGGCTTATTGGAGATTGGTTTAC ATGCCAATGTCTT
GgbAS1C258AC26 0W-R	AATCTCCAATAAGCCCACATTTTGCAGGA TGCATTGGCAAG
GgbAS1C258AC26 0H-F	AAAATGTGGGCTTATCATAGATTGGTTTACA TGCCAATGTCTT
GgbAS1C258AC26 0H-R	AATCTATGATAAGCCCACATTTTGCAGGAT GCATTGGCAAG
GgbAS1C258VC26 0H-F	AAAATGTGGGTTTATCATAGATTGGTTTACA TGCCAATGTCTT
GgbAS1C258VC26 0H-R	AATCTATGATAAACCACATTTTGCAGGAT GCATTGGCAAG
GgbAS1C258VC26 0W-F	AAAATGTGGGTTTATTGGAGATTGGTTTAC ATGCCAATGTCTT
GgbAS1C258VC26 0W-R	AATCTCCAATAAACCACATTTTGCAGGA TGCATTGGCAAG
ggbas M256AC258AC260 W-F	GCATCCTGCAAAAGCTTGGGCTTATTGGAG ATTGGTTTACATGCCAATGTCTT
GgbAS1 M256AC258AC260 W-R	ACCAATCTCCAATAAGCCCAAGCTTTTGCA GGATGCATTGGCAAGAACTAG

GgbAS1	GCATCCTGCAAAAAGCTTGGGTTTATTGGAG
M256AC258VC260	ATTGGTTTACATGCCAATGTCTT
W-F	
GgbAS1	ACCAATCTCCAATAAACCCAAGCTTTTGCA
M256AC258VC260	GGATGCATTGGCAAGAAACTAG
W-R	
GgbAS1	GCATCCTGCAAAAAGCTTGGATTATTGGAG
M256AC258IC260	ATTGGTTTACATGCCAATGTCTT
W-F	
GgbAS1	ACCAATCTCCAATAAATCCAAGCTTTTGCA
M256AC258IC260	GGATGCATTGGCAAGAAACTAG
W-R	
GgbAS1	GCATCCTGCAAAAAGCTTGGGTTTATCTTAG
M256AC258VC260	ATTGGTTTACATGCCAATGTCTT
L-F	
GgbAS1	ACCAATCTAAGATAAACCCAAGCTTTTGCA
M256AC258VC260	GGATGCATTGGCAAGAAACTAG
L-R	
GgbAS1	GCATCCTGCAAAAAGCTTGGGTTTATGAAAG
M256AC258VC260	ATTGGTTTACATGCCAATGTCTT
E-F	
GgbAS1	CTAGTTTCTTGCCAATGCATCCTGCAAAAAG
M256AC258VC260	CTTGGGTTTATGAAAGATTGGT
E-R	
GgbAS1	GCATCCTGCAAAAAGCTTGGGTTTATACTAG
M256AC258VC260	ATTGGTTTACATGCCAATGTCTT
T-F	
GgbAS1	CTAGTTTCTTGCCAATGCATCCTGCAAAAAG
M256AC258VC260	CTTGGGTTTATACTAGATTGGT
T-R	
GgbAS1	GCATCCTGCAAAAACATTGGGTTTATTGGAG
M256HC258VC260	ATTGGTTTACATGCCAATGTCTT
W-F	
GgbAS1	CTAGTTTCTTGCCAATGCATCCTGCAAAAAC
M256HC258VC260	ATTGGGTTTATTGGAGATTGGT
W-R	
GgbAS1	GCATCCTGCAAAAACCTTGGGTTTATTGGAG
M256PC258VC260	ATTGGTTTACATGCCAATGTCTT
W-F	

GgbAS1	CTAGTTTCTTGCCAATGCATCCTGCAAAAC
M256PC258VC260	CTTGGGTTTATTGGAGATTGGT
W-R	
GgbAS1	CCTGCAAAACAATGGGTTTATTGGAGATTG
M256QC258VC260	GTTTACATGCCAATGTCTT
W-F	
GgbAS1	AATCTCCAATAAACCCATTGTTTTGCAGGA
M256QC258VC260	TGCATTGGCAAGAACTAG
W-R	
GgbAS1	CCTGCAAAACAATGGGCTTATTGGAGATTG
M256QC258AC260	GTTTACATGCCAATGTCTT
W-F	
GgbAS1	AATCTCCAATAAGCCCATTGTTTTGCAGGA
M256QC258AC260	TGCATTGGCAAGAACTAG
W-R	
GgbAS1	CCTGCAAAACAATGGGTTTATCATAGATTG
M256QC258VC260	GTTTACATGCCAATGTCTT
H-F	
GgbAS1	AATCTATGATAAACCCATTGTTTTGCAGGAT
M256QC258VC260	GCATTGGCAAGAACTAG
H-R	
GgbAS1	CCTGCAAAACAATGGGCTTATCATAGATTG
M256QC258AC260	GTTTACATGCCAATGTCTT
H-F	
GgbAS1	AATCTATGATAAGCCCATTGTTTTGCAGGAT
M256QC258AC260	GCATTGGCAAGAACTAG
H-R	
GgbAS1	CCTGCAAAAGCTTGGGTTTATCATAGATTG
M256AC258VC260	GTTTACATGCCAATGTCTT
H-F	
GgbAS1	AATCTATGATAAACCCAAGCTTTTGCAGGA
M256AC258VC260	TGCATTGGCAAGAACTAG
H-R	
GgbAS1	CCTGCAAAAGCTTGGGCTTATCATAGATTG
M256AC258AC260	GTTTACATGCCAATGTCTT
H-F	
GgbAS1	AATCTATGATAAGCCAAGCTTTTGCAGGA
M256AC258AC260	TGCATTGGCAAGAACTAG
H-R	

OEWM256AF	CCCTGGTAAAGCTTTGTGTTACTGCAGATT AG
OEWM256AR	CTGCAGTAACACAAAAGCTTTACCAGGGTG GATTGG
OEWM256GF	CCCTGGTAAAGGTTTGTGTTACTGCAGATT AG
OEWM256GR	CTGCAGTAACACAAACCTTTACCAGGGTG GATTGG
OEWM256IF	CCCTGGTAAAATTTTGTGTTACTGCAGATT AG
OEWM256IR	CTGCAGTAACACAAAATTTACCAGGGTG ATTGG
OEWM256LF	CCCTGGTAAACTTTTGTGTTACTGCAGATT AG
OEWM259- RLR	CTGCAGTAACACAAAAGTTTACCAGGGTG GATTGG
OEWM256PF	CCCTGGTAAACCTTTGTGTTACTGCAGATT AG
OEWM256PR	CTGCAGTAACACAAAGGTTTACCAGGGTG GATTGG
OEWM256VF	CCCTGGTAAAGTTTGTGTTACTGCAGATT AG
OEWM256VR	CTGCAGTAACACAAAACCTTTACCAGGGTG GATTGG
OEWM256FF	CCCTGGTAAATTTTGTGTTACTGCAGATT AG

OEW M256FR	CTGCAGTAACACAAAAATTTACCAGGGTG GATTGG
OEW M256WF	CCCTGGTAAATGGTTGTGTTACTGCAGATT AG
OEW M256WR	CTGCAGTAACACAACCATTACCAGGGTGG ATTGG
OEW M256YF	CCCTGGTAAATATTTGTGTTACTGCAGATT G
OEW M256YR	CTGCAGTAACACAAATATTTACCAGGGTGG ATTGG
OEW M256DF	CCCTGGTAAAGATTTGTGTTACTGCAGATT AG
OEW M256DR	CTGCAGTAACACAAATCTTTACCAGGGTGG ATTGG
OEW M256EF	CCCTGGTAAAGAATTGTGTTACTGCAGATT AG
OEW M256ER	CTGCAGTAACACAATTCTTTACCAGGGTGG ATTGG
OEW M256RF	CCCTGGTAAACGTTTGTGTTACTGCAGATT AG
OEW M256RR	CTGCAGTAACACAAACGTTTACCAGGGTG GATTGG
OEW M256HF	CCCTGGTAAACATTTGTGTTACTGCAGATT AG
OEW M256HR	CTGCAGTAACACAAATGTTTACCAGGGTGG ATTGG

OEW M256KF	CCCTGGTAAAAAATTGTGTTACTGCAGATT AG
OEW M256KR	CTGCAGTAACACAATTTTTTACCAGGGTGG ATTGG
OEW M256SF	CCCTGGTAAATCTTTGTGTTACTGCAGATT G
OEW M256SR	CTGCAGTAACACAAAGATTACCAGGGTG GATTGG
OEW M256TF	CCCTGGTAAAACTTTGTGTTACTGCAGATT AG
OEW M256TR	CTGCAGTAACACAAAGTTTACCAGGGTG GATTGG
OEW M256CF	CCCTGGTAAATGTTTGTGTTACTGCAGATT G
OEW M256CR	CTGCAGTAACACAAACATTACCAGGGTG GATTGG
OEW M256NF	CCCTGGTAAAAATTTGTGTTACTGCAGATT AG
OEW M256NR	CTGCAGTAACACAAATTTTTACCAGGGTGG ATTGG
OEW M256QF	CCCTGGTAAACAATTGTGTTACTGCAGATT AG
OEW M256QR	CTGCAGTAACACAATTGTTTACCAGGGTGG ATTGG
OEWC258AF	GTAAAATGTTGGCTTACTGCAGATTAGTTT ACATGC

OEWC258AR	CTAATCTGCAGTAAGCCAACATTTTACCAG GGTG
OEWC258GF	GTAAAATGTTGGGTTACTGCAGATTAGTTT ACATGC
OEWC258GR	CACCCTGGTAAAATGTTGGGTTACTGCAGA TTAG
OEWC258IF	GTAAAATGTTGATTTACTGCAGATTAGTTTA CATGC
OEWC258IR	CTAATCTGCAGTAAATCAACATTTTACCAG GGTG
OEWC258LF	GTAAAATGTTGCTTTACTGCAGATTAGTTTA CATGC
OEWC258LR	CACCCTGGTAAAATGTTGCTTTACTGCAGA TTAG
OEWC258PF	GTAAAATGTTGCCTTACTGCAGATTAGTTTA CATGC
OEWC258PR	CACCCTGGTAAAATGTTGCCTTACTGCAGA TTAG
OEWC258VF	GTAAAATGTTGGTTTACTGCAGATTAGTTTA CATGC
OEWC258VR	CTAATCTGCAGTAAACCAACATTTTACCAG GGTG
OEWC258FF	GTAAAATGTTGTTTTACTGCAGATTAGTTTA CATGC
OEWC258FR	CACCCTGGTAAAATGTTGTTTTACTGCAGA TTAG

OEWC258WF	GTAAAATGTTGTGGTACTGCAGATTAGTTT ACATGC
OEWC258WR	CACCCTGGTAAAATGTTGTGGTACTGCAGA TTAG
OEWC258YF	GTAAAATGTTGTATTACTGCAGATTAGTTTA CATGC
OEWC258YR	CACCCTGGTAAAATGTTGTATTACTGCAGA TTAG
OEWC258DF	GTAAAATGTTGGATTACTGCAGATTAGTTTA CATGC
OEWC258DR	CACCCTGGTAAAATGTTGGATTACTGCAGA TTAG
OEWC258EF	GTAAAATGTTGGAATACTGCAGATTAGTTT ACATGC
OEWC258ER	CACCCTGGTAAAATGTTGGAATACTGCAGA TTAG
OEWC258RF	GTAAAATGTTGCGTTACTGCAGATTAGTTT ACATGC
OEWC258RR	CACCCTGGTAAAATGTTGCGTTACTGCAGA TTAG
OEWC258HF	GTAAAATGTTGCATTACTGCAGATTAGTTTA CATGC
OEWC258HR	CACCCTGGTAAAATGTTGCATTACTGCAGA TTAG
OEWC258KF	GTAAAATGTTGAAATACTGCAGATTAGTTT ACATGC

OEWC258KR	CACCCTGGTAAAAATGTTGAAATACTGCAGATTAG
OEWC258SF	GTAAAAATGTTGTCTTACTGCAGATTAGTTTACATGC
OEWC258SR	CACCCTGGTAAAAATGTTGTCTTACTGCAGATTAG
OEWC258TF	GTAAAAATGTTGACTTACTGCAGATTAGTTTACATGC
OEWC258TR	CACCCTGGTAAAAATGTTGACTTACTGCAGATTAG
OEWC258MF	GTAAAAATGTTGATGTACTGCAGATTAGTTTACATGC
OEWC258MR	CACCCTGGTAAAAATGTTGATGTACTGCAGATTAG
OEWC258NF	GTAAAAATGTTGAATTACTGCAGATTAGTTTACATGC
OEWC258NR	CACCCTGGTAAAAATGTTGAATTACTGCAGATTAG
OEWC258QF	GTAAAAATGTTGCAATACTGCAGATTAGTTTACATGC
OEWC258QR	CACCCTGGTAAAAATGTTGCAATACTGCAGATTAG
OEWC260AF	GTTGTGTTACGCTAGATTAGTTTACATGCC
OEWC260AR	GTAAACTAATCTAGCGTAACACAACATTTTAC

OEWC260GF	GTTGTGTTACGGTAGATTAGTTTACATGCC
OEWC260GR	GTAAACTAATCTACCGTAACACAACATTTT AC
OEWC260IF	:GTTGTGTTACATTAGATTAGTTTACATGCC
OEWC260IR	GTAAACTAATCTAATGTAACACAACATTTTA C
OEWC260LF	GTTGTGTTACCTTAGATTAGTTTACATGCC
OEWC260LR	GTAAACTAATCTAAGGTAACACAACATTTT AC
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OEWC260PR	GTAAACTAATCTAGGGTAACACAACATTTT AC
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OEWC260WF	GTTGTGTTACTGGAGATTAGTTTACATGCC
OEWC260WR	GTAAACTAATCTCCAGTAACACAACATTTT AC
OEWC260YF	GTTGTGTTACTATAGATTAGTTTACATGCC

OEWC260YR	GTAAACTAATCTATAGTAACACAACATTTTA C
OEWC260DF	GTTGTGTTACGATAGATTAGTTTACATGCC
OEWC260DR	GTAAACTAATCTATCGTAACACAACATTTTA C
OEWC260EF	GTTGTGTTACGAAAGATTAGTTTACATGCC
OEWC260ER	GTAAACTAATCTTTTCGTAACACAACATTTTA C
OEWC260RF	GTTGTGTTACCGTAGATTAGTTTACATGCC
OEWC260RR	GTAAACTAATCTACGGTAACACAACATTTT AC
OEWC260HF	GTTGTGTTACCATAGATTAGTTTACATGCC
OEWC260HR	GTAAACTAATCTATGGTAACACAACATTTTA C
OEWC260KF	GTTGTGTTACAAAAGATTAGTTTACATGCC
OEWC260KR	GTAAACTAATCTTTTGTAACACAACATTTTA C
OEWC260SF	GTTGTGTTACTCTAGATTAGTTTACATGCC
OEWC260SR	GTAAACTAATCTAGAGTAACACAACATTTT AC

OEWC260TF	GTTGTGTTACACTAGATTAGTTTACATGCC
OEWC260TR	GTAAACTAATCTAGTGTAACACAACATTTT AC
OEWC260MF	GTTGTGTTACATGAGATTAGTTTACATGCC
OEWC260MR	GTAAACTAATCTCATGTAACACAACATTTTA C
OEWC260NF	GTTGTGTTACAATAGATTAGTTTACATGCC
OEWC260NR	GTAAAATGTTGTGTTACAATAGATTAGTTTA C
OEWC260QF	GTTGTGTTACCAAAGATTAGTTTACATGCC
OEWC260QR	GTAAACTAATCTTTGGTAACACAACATTTT AC
OEWC260VF	GTTGTGTTACGTTAGATTAGTTTACATGCC
OEWC260VR	GTAAACTAATCTAACGTAACACAACATTTT AC
OEWM256LC260A -F	TAAACTTTTGTGTTACGCTAGATTAGTTTAC ATGCCAATGAGTTATTTG
OEWM256LC260A -R	TCTAGCGTAACACAAAAGTTTACCAGGGTG GATTGGTGAG
OEWM256VC260 A-F	TAAAGTTTTGTGTTACGCTAGATTAGTTTAC ATGCCAATGAGTTATTTG

3

OEWM256VC260 A-R	TCTAGCGTAACACAAAACCTTACCAGGGTG GATTGGTGAG
OEWM256IC260A -F	TAAAATTTTGTGTTACGCTAGATTAGTTTAC ATGCCAATGAGTTATTTG
OEWM256IC260A -R	TCTAGCGTAACACAAAATTTTACCAGGGTG GATTGGTGAG
OEWM256YC260 A-F	TAAATATTTGTGTTACGCTAGATTAGTTTAC ATGCCAATGAGTTATTTG
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OEWM256CC260 G-F	TAAATGTTTGTGTTACGGTAGATTAGTTTAC ATGCCAATGAGTTATTTG
OEWM256CC260 G-R	TCTACCGTAACACAAACATTTACCAGGGTG GATTGGTGAG
OEWM256LC260G -F	TAAACTTTTGTGTTACGGTAGATTAGTTTAC ATGCCAATGAGTTATTTG
OEWM256LC260G -R	TCTACCGTAACACAAAAGTTTACCAGGGTG GATTGGTGAG
OEWM256VC260 G-F	TAAAGTTTTGTGTTACGGTAGATTAGTTTAC ATGCCAATGAGTTATTTG
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OEWM256IC260G -F	TAAAATTTGTGTTACGGTAGATTAGTTTAC ATGCCAATGAGTTATTTG
OEWM256IC260G -R	TCTACCGTAACACAAAATTTTACCAGGGTG GATTGGTGAG
OEWM256YC260 G-F	TAAATATTTGTGTTACGGTAGATTAGTTTAC ATGCCAATGAGTTATTTG
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MdOSC1 M256AR	GTAACAAAAAGCTTTAGATGGATGGAAtgT AACAATGTTG
MdOSC1 M256GF	CCATCCATCTAAAGGTTTTTGTACTGCAG ATTAAGTTATTTGCC
MdOSC1 M256GR	GTAACAAAAACCTTTAGATGGATGGAATGG TAACAATGTTG
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MdOSC1 M256IR	GTAACAAAAAATTTTAGATGGATGGAATGG TAACAATGTTG
MdOSC1 M256LF	CCATCCATCTAAACTTTTTTGTACTGCAGA TTAACTTATTTGCC
MdOSC1 M256LR	GTAACAAAAAGTTTAGATGGATGGAATG GTAACAATGTTG
MdOSC1 M256PF	CCATCCATCTAAACCTTTTTTGTACTGCAGA TTAACTTATTTGCC
MdOSC1 M256PR	GTAACAAAAAGGTTTAGATGGATGGAATG GTAACAATGTTG

MdOSC1 M256VF	GTAACAAAAAGGTTTAGATGGATGGAATG GTAACAATGTTG
MdOSC1 M256VR	GTAACAAAAAACTTTAGATGGATGGAATGG TAACAATGTTG
MdOSC1 M256FF	CCATCCATCTAAATTTTTTGTACTGCAGA TTAACTTATTTGCC
MdOSC1 M256FR	GTAACAAAAAAATTTAGATGGATGGAATGG TAACAATGTTG
MdOSC1 M256WF	CCATCCATCTAAATGGTTTTGTACTGCAGA TTAACTTATTTGCC
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MdOSC1 M256YR	GTAACAAAAATTTTAGATGGATGGAATGG TAACAATGTTG
MdOSC1 M256DF	CCATCCATCTAAAGATTTTTGTACTGCAGA TTAACTTATTTGCC
MdOSC1 M256DR	GTAACAAAAATCTTTAGATGGATGGAATGG TAACAATGTTG
MdOSC1 M256EF	CCATCCATCTAAAGAATTTGTACTGCAG ATTA ACTTATTTGCC
MdOSC1 M256ER	GTAACAAAATTCTTTAGATGGATGGAATGG TAACAATGTTG
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MdOSC1 M256RR	GTAACAAAAACGTTTAGATGGATGGAATGG TAACAATGTTG
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MdOSC1 M256HR	GTAACAAAAATGTTTAGATGGATGGAATGG TAACAATGTTG
MdOSC1 M256KF	CCATCCATCTAAAAATTTTTGTTACTGCAG ATTA ACTTATTTGCC
MdOSC1 M256KR	GTAACAAAATTTTTTAGATGGATGGAATGG TAACAATGTTG
MdOSC1 M256SF	CCATCCATCTAAATCTTTTTGTTACTGCAGA TAACTTATTTGCC
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MdOSC1 M256CR	GTAACAAAAACATTTAGATGGATGGAATGG TAACAATGTTG
MdOSC1 M256NF	CCATCCATCTAAAAATTTTTGTTACTGCAGA TAACTTATTTGCC
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MdOSC1 C258AR	AATCTGCAGTAAGCAAACATTTTAGATGGA TGGAATGGTAAC
MdOSC1 C258GF	CTAAAATGTTTGTTACTGCAGATTA ACTTA TTTGCCAATG
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MdOSC1 C258IF	CTAAAATGTTTATTTACTGCAGATTA ACTTA TTTGCCAATG
MdOSC1 C258IR	AATCTGCAGTAAATAAACATTTTAGATGGAT GGAATGGTAAC
MdOSC1 C258LF	CTAAAATGTTTCTTTACTGCAGATTA ACTTA TTTGCCAATG
MdOSC1 C258LR	AATCTGCAGTAAAGAAACATTTTAGATGGA TGGAATGGTAAC
MdOSC1 C258PF	CTAAAATGTTTCCTTACTGCAGATTA ACTTA TTTGCCAATG
MdOSC1 C258PR	AATCTGCAGTAAGGAAACATTTTAGATGGA TGGAATGGTAAC
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MdOSC1 C258VR	AATCTGCAGTAAACAAACATTTTAGATGGA TGAATGGTAAC
MdOSC1 C258FF	CTAAAATGTTTTTTTACTGCAGATTAACCTA TTTGCCAATG
MdOSC1 C258FR	AATCTGCAGTAAAAAAACATTTTAGATGGA TGAATGGTAAC
MdOSC1 C258WF	CTAAAATGTTTTGGTACTGCAGATTAACCTA TTTGCCAATG
MdOSC1 C258WR	AATCTGCAGTACCAAAACATTTTAGATGGA TGAATGGTAAC
MdOSC1 C258YF	CTAAAATGTTTTATTACTGCAGATTAACCTA TTTGCCAATG
MdOSC1 C258YR	AATCTGCAGTAATAAAACATTTTAGATGGAT GGAATGGTAAC
MdOSC1 C258DF	CTAAAATGTTTGATTACTGCAGATTAACCTA TTTGCCAATG
MdOSC1 C258DR	AATCTGCAGTAATCAAACATTTTAGATGGA TGAATGGTAAC
MdOSC1 C258EF	CTAAAATGTTTGAATACTGCAGATTAACCTA TTTGCCAATG
MdOSC1 C258ER	AATCTGCAGTATTCAAACATTTTAGATGGAT GGAATGGTAAC
MdOSC1 C258RF	CTAAAATGTTTCGTTACTGCAGATTAACCTA TTTGCCAATG
MdOSC1 C258RR	AATCTGCAGTAACGAAACATTTTAGATGGA TGAATGGTAAC

MdOSC1 C258HF	CTAAAATGTTTCATTACTGCAGATTAACCTTA TTTGCCAATG
MdOSC1 C258HR	AATCTGCAGTAATGAAACATTTTAGATGGA TGGAATGGTAAC
MdOSC1 C258KF	CTAAAATGTTTAAATACTGCAGATTAACCTTA TTTGCCAATG
MdOSC1 C258KR	AATCTGCAGTATTTAAACATTTTAGATGGAT GGAATGGTAAC
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MdOSC1 C258TR	AATCTGCAGTAAGTAAACATTTTAGATGGA TGGAATGGTAAC
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MdOSC1 C258QR	AATCTGCAGTATTGAAACATTTTAGATGGAT GGAATGGTAAC
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MdOSC1 C260AR	AAGTTAATCTAGCGTAACAAAACATTTTAG ATGGATGG
MdOSC1 C260GF	ATGTTTTGTTACGGTAGATTAACCTATTTGC CAATGTCTT
MdOSC1 C260GR	AAGTTAATCTACCGTAACAAAACATTTTAG ATGGATGG
MdOSC1 C260IF	ATGTTTTGTTACATTAGATTAACCTATTTGC CAATGTCTT
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MdOSC1 C260LF	ATGTTTTGTTACCTTAGATTAACCTATTTGC CAATGTCTT
MdOSC1 C260LR	AAGTTAATCTAAGGTAACAAAACATTTTAG ATGGATGG
MdOSC1 C260PF	ATGTTTTGTTACCCTAGATTAACCTATTTGC CAATGTCTT
MdOSC1 C260PR	AAGTTAATCTAGGGTAACAAAACATTTTAG ATGGATGG
MdOSC1 C260VF	ATGTTTTGTTACGTTAGATTAACCTATTTGC CAATGTCTT
MdOSC1 C260VR	AAGTTAATCTAACGTAACAAAACATTTTAG ATGGATGG

MdOSC1 C260FF	ATGTTTTGTTACTTTAGATTAAGTTATTTGC CAATGTCTT
MdOSC1 C260FR	AAGTTAATCTAAAGTAACAAAACATTTTAG ATGGATGG
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MdOSC1 C260WR	AAGTTAATCTCCAGTAACAAAACATTTTAG ATGGATGG
MdOSC1 C260YF	ATGTTTTGTTACTATAGATTAAGTTATTTGCC AATGTCTT
MdOSC1 C260YR	AAGTTAATCTATAGTAACAAAACATTTTAG ATGGATGG
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MdOSC1 C260DR	AAGTTAATCTATCGTAACAAAACATTTTAG ATGGATGG
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MdOSC1 C260ER	AAGTTAATCTTTTCGTAACAAAACATTTTAG ATGGATGG
MdOSC1 C260RF	ATGTTTTGTTACCGTAGATTAAGTTATTTGC CAATGTCTT
MdOSC1 C260RR	AAGTTAATCTACGGTAACAAAACATTTTAG ATGGATGG
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MdOSC1 C260HR	AAGTTAATCTATGGTAACAAAACATTTTAG ATGGATGG
MdOSC1 C260KF	ATGTTTTGTTACAAAAGATTAAGTTATTTGC CAATGTCTT
MdOSC1 C260KR	AAGTTAATCTTTTGTAACAAAACATTTTAG ATGGATGG
MdOSC1 C260SF	ATGTTTTGTTACTCTAGATTAAGTTATTTGC CAATGTCTT
MdOSC1 C260SR	AAGTTAATCTAGAGTAACAAAACATTTTAG ATGGATGG
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MdOSC1 C260TR	AAGTTAATCTAGTGTAACAAAACATTTTAG ATGGATGG
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MdOSC1 C260MR	AAGTTAATCTCATGTAACAAAACATTTTAG ATGGATGG
MdOSC1 C260NF	ATGTTTTGTTACAATAGATTAAGTTATTTGC CAATGTCTT
MdOSC1 C260NR	AAGTTAATCTATTGTAACAAAACATTTTAG ATGGATGG
MdOSC1 C260QF	ATGTTTTGTTACCAAAGATTAAGTTATTTGC CAATGTCTT
MdOSC1 C260QR	AAGTTAATCTTTGGTAACAAAACATTTTAG ATGGATGG

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