## Supplementary Table 6 - *S. cerevisiae* strains used in this study

Strains that were short-read or long-read sequenced in this study are marked with a \**.* SHRs are differently annotated than in Kuijpers *et al.* 6. SHRs are annotated in bold subscript between de genetic fragments that they join together.

|  |  |  |
| --- | --- | --- |
| Strain | Relevant Genotype | Source |
| CEN.PK113-7D | *MATa URA3 HIS3 LEU2 TRP1 MAL2-8c SUC2* | Entian and Kötter 7 |
| IMC111 | *MATa ura3-52 can1Δ::cas9-natNT2 TRP1 LEU2 HIS3* pUDC191 (mRuby2) | Postma*, et al.* 8 |
| IMC112 | *MATa ura3-52 can1Δ::cas9-natNT2 TRP1 LEU2 HIS3* pUDC192 (mTurquoise2) | Postma*, et al.* 8 |
| IMX589 | *MATa ura3-52 his3-1 leu2-3,112 MAL2-8c SUC2 glk1Δ:: (pAgTEF1-SpHIS5-tAgTEF1) hxk1Δ::KlLEU2 tdh1Δ tdh2Δ gpm2Δ gpm3Δ eno1Δ pyk2Δ pdc5Δ pdc6Δ adh2Δ adh5Δ adh4Δ sga1Δ::(* ***G*** *tFBA1-FBA1-pFBA1* ***H*** *pTPI1-TPI1-tTPI1* ***P*** *tPGK1-PGK1-pPGK1* ***Q*** *tADH1-ADH1-pADH1* ***N*** *pPYK1-PYK1-tPYK1* ***O*** *tTDH3-TDH3-pTDH3* ***A*** *pENO2-ENO2-tENO2* ***B*** *pHXK2-HXK2-tHXK2* ***C*** *pPGI-PGI1-tPGI1 D pPFK1-PFK1-tPFK1* ***J*** *tPFK2-PFK2-pPFK2* ***K*** *pAgTEF1-AmdSYM-tAgTEF1* ***L*** *tGPM1-GPM1-pPGM1* ***M*** *pPDC1-PDC1-tPDC1-SYN* ***F*** *) pyk1Δ pgi1Δ tpi1Δ tdh3Δ pfk2Δ::(pTEF1-Spcas9-tCYC1 natNT1) pgk1Δ gpm1Δ fba1Δ hxk2Δ pfk1Δ adh1Δ pdc1Δ eno2Δ* | Kuijpers*, et al.* 6 |
| IMX1338 | *MATa ura3-52 his3-1 leu2-3,112 MAL2-8c SUC2 glk1Δ::(pAgTEF1-SpHIS5-tAgTEF1)Δ::(pGAL1-I SceI-tCYC1) hxk1Δ::KlLEU2 tdh1Δ tdh2Δ gpm2Δ gpm3Δ eno1Δ pyk2Δ pdc5Δ pdc6Δ adh2Δ adh5Δ adh4Δ sga1Δ::(* ***G*** *tFBA1-FBA1-pFBA1* ***H*** *pTPI1-TPI1-tTPI1 P tPGK1-PGK1-pPGK1* ***Q*** *tADH1-ADH1-pADH1* ***N*** *pPYK1-PYK1-tPYK1* ***O*** *tTDH3-TDH3-pTDH3* ***A*** *pENO2-ENO2-tENO2* ***B*** *pHXK2-HXK2-tHXK2* ***C*** *pPGI-PGI1-tPGI1* ***D*** *pPFK1-PFK1-tPFK1* ***J*** *tPFK2-PFK2-pPFK2* ***K*** *pAgTEF1-AmdSYM-tAgTEF1* ***L*** *tGPM1-GPM1-pPGM1* ***M*** *pPDC1-PDC1-tPDC1-SYN* ***F****) pyk1Δ pgi1Δ tpi1Δ tdh3Δ pfk2Δ::(pTEF1-Spcas9-tCYC1 natNT1) pgk1Δ gpm1Δ fba1Δ hxk2Δ pfk1Δ adh1Δ pdc1Δ eno2Δ* | Postma*, et al.* 8 |
| IMX1433 | *MATa ura3-52 his3-1 leu2-3,112 MAL2-8c SUC2 glk1Δ:: (pAgTEF1-SpHIS5-tAgTEF1) hxk1Δ::KlLEU2 tdh1Δ tdh2Δ gpm2Δ gpm3Δ eno1Δ pyk2Δ pdc5Δ pdc6Δ adh2Δ adh5Δ adh4Δ sga1Δ::(* ***G*** *tFBA1-FBA1-pFBA1* ***H*** *pTPI1-TPI1-tTPI1* ***P*** *tPGK1-PGK1-pPGK1* ***Q*** *tADH1-ADH1-pADH1* ***N*** *pPYK1-PYK1-tPYK1* ***O*** *tTDH3-TDH3-pTDH3* ***A*** *pENO2-ENO2-tENO2* ***B*** *pHXK2-HXK2-tHXK2* ***C*** *pPGI-PGI1-tPGI1* ***D*** *pPFK1-PFK1-tPFK1* ***J*** *tPFK2-PFK2-pPFK2* ***K L*** *tGPM1-GPM1-pPGM1* ***M*** *pPDC1-PDC1-tPDC1-SYN* ***F****) pyk1Δ pgi1Δ tpi1Δ tdh3Δ pfk2Δ::(pTEF1-Spcas9-tCYC1 natNT1) pgk1Δ gpm1Δ fba1Δ hxk2Δ pfk1Δ adh1Δ pdc1Δ eno2Δ in vivo* recombined pMEL10 backbone with repair oligo 11588/11589 | This study |
| IMX1769 | *MATa ura3-52 his3-1 leu2-3,112 MAL2-8c SUC2 glk1Δ:: (pAgTEF1-SpHIS5-tAgTEF1) hxk1Δ::KlLEU2 tdh1Δ tdh2Δ gpm2Δ gpm3Δ eno1Δ pyk2Δ pdc5Δ pdc6Δ adh2Δ adh5Δ adh4Δ sga1Δ::(* ***G*** *tFBA1-FBA1-pFBA1* ***H*** *pTPI1-TPI1-tTPI1* ***P*** *tPGK1-PGK1-pPGK1* ***Q*** *tADH1-ADH1-pADH1* ***N*** *pPYK1-PYK1-tPYK1* ***O*** *tTDH3-TDH3-pTDH3* ***A*** *pENO2-ENO2-tENO2* ***B*** *pHXK2-HXK2-tHXK2* ***C*** *pPGI-PGI1-tPGI1* ***D*** *pPFK1-PFK1-tPFK1* ***J*** *tPFK2-PFK2-pPFK2* ***K L*** *tGPM1-GPM1-pPGM1* ***M*** *pPDC1-PDC1-tPDC1-SYN* ***F****) pyk1Δ pgi1Δ tpi1Δ tdh3Δ pfk2Δ::(pTEF1-Spcas9-tCYC1 natNT1) pgk1Δ gpm1Δ fba1Δ hxk2Δ pfk1Δ adh1Δ pdc1Δ eno2Δ* | This study |
| IMX2059 | *MATa ura3-52 his3-1 leu2-3,112 MAL2-8c SUC2 hxk1Δ::KlLEU2 tdh1Δ tdh2Δ gpm2Δ gpm3Δ eno1Δ pyk2Δ pdc5Δ pdc6Δ adh2Δ adh5Δ adh4Δ sga1Δ::(FBA1* ***GH*** *TPI1* ***HP*** *PGK1* ***PQ*** *ADH1* ***QN*** *PYK1* ***NO*** *TDH3* ***OA*** *ENO2* ***AB*** *HXK2* ***BC*** *PGI1* ***CD*** *PFK1* ***DJ*** *PFK2* ***JK*** *AmdSYM* ***K L*** *GPM1* ***LM*** *PDC1-SYN* ***MF****) pyk1Δ pgi1Δ tpi1Δ tdh3Δ pfk2Δ::(pTEF-cas9-tCYC1 natNT1) pgk1Δ gpm1Δ fba1Δ hxk2Δ pfk1Δ adh1Δ pdc1Δ eno2Δ glk1Δ::Sphis5Δ::(pGAL1-I SceI-tCYC1) x2::pURA3-URA3-tURA3* ***DT*** *pHIS3-HIS3-tHIS3* | Postma*, et al.* 8 |
| IMX2154 | *MATa ura3-52 his3-1 leu2-3,112 MAL2-8c SUC2 glk1Δ:: (pAgTEF1-SpHIS5-tAgTEF1) hxk1Δ::KlLEU2 tdh1Δ tdh2Δ gpm2Δ gpm3Δ eno1Δ pyk2Δ pdc5Δ pdc6Δ adh2Δ adh5Δ adh4Δ sga1Δ::(* ***G*** *tFBA1-FBA1-pFBA1* ***H*** *pTPI1-TPI1-tTPI1* ***P*** *tPGK1-PGK1-pPGK1* ***Q*** *tADH1-ADH1-pADH1* ***N*** *pPYK1-PYK1-tPYK1* ***O*** *tTDH3-TDH3-pTDH3* ***A*** *pENO2-ENO2-tENO2* ***B*** *pHXK2-HXK2-tHXK2* ***C*** *pPGI-PGI1-tPGI1* ***D*** *pPFK1-PFK1-tPFK1* ***J*** *tPFK2-PFK2-pPFK2* ***K L*** *tGPM1-GPM1-pPGM1* ***M*** *pPDC1-PDC1-tPDC1-SYN* ***F****) pyk1Δ pgi1Δ tpi1Δ tdh3Δ pfk2Δ::(pTEF1-Spcas9-tCYC1 natNT1) pgk1Δ gpm1Δ fba1Δ hxk2Δ pfk1Δ adh1Δ pdc1Δ eno2Δ gnd2Δ sol4Δ tkl2Δ nqm1Δ pUDR286 pUDR590* | This study |
| IMX2204 | *MATa ura3-52 his3-1 leu2-3,112 MAL2-8c SUC2 glk1Δ:: (pAgTEF1-SpHIS5-tAgTEF1) hxk1Δ::KlLEU2 tdh1Δ tdh2Δ gpm2Δ gpm3Δ eno1Δ pyk2Δ pdc5Δ pdc6Δ adh2Δ adh5Δ adh4Δ sga1Δ::(* ***G*** *tFBA1-FBA1-pFBA1* ***H*** *pTPI1-TPI1-tTPI1* ***P*** *tPGK1-PGK1-pPGK1* ***Q*** *tADH1-ADH1-pADH1* ***N*** *pPYK1-PYK1-tPYK1* ***O*** *tTDH3-TDH3-pTDH3* ***A*** *pENO2-ENO2-tENO2* ***B*** *pHXK2-HXK2-tHXK2* ***C*** *pPGI-PGI1-tPGI1* ***D*** *pPFK1-PFK1-tPFK1* ***J*** *tPFK2-PFK2-pPFK2* ***K L*** *tGPM1-GPM1-pPGM1* ***M*** *pPDC1-PDC1-tPDC1-SYN* ***F****) pyk1Δ pgi1Δ tpi1Δ tdh3Δ pfk2Δ::(pTEF1-Spcas9-tCYC1 natNT1) pgk1Δ gpm1Δ fba1Δ hxk2Δ pfk1Δ adh1Δ pdc1Δ eno2Δ gnd2Δ sol4Δ tkl2Δ nqm1Δ* | This study |
| IMX2224 | *MATa ura3-52 his3-1 leu2-3,112 MAL2-8c SUC2 hxk1Δ::KlLEU2*  *tdh1Δ tdh2Δ gpm2Δ gpm3Δ eno1Δ pyk2Δ pdc5Δ pdc6Δ adh2Δ*  *adh5Δ adh4Δ sga1Δ::(FBA1* ***GH*** *TPI1* ***HP*** *PGK1* ***PQ*** *ADH1* ***QN***  *PYK1* ***NO*** *TDH3* ***OA*** *ENO2* ***AB*** *HXK2* ***BC*** *PGI1* ***CD*** *PFK1* ***DJ*** *PFK2* ***JK***  *AmdSYM* ***KL*** *GPM1* ***LM*** *PDC1-SYN* ***MF****) pyk1Δ pgi1Δ tpi1Δ tdh3Δ*  *pfk2Δ::(pTEF-cas9-tCYC1 natNT1) pgk1Δ gpm1Δ fba1Δ hxk2Δ pfk1Δ adh1Δ pdc1Δ eno2Δ glk1Δ::Sphis5Δ::(pGAL1-I SceI-tCYC1)*  *x2::pURA3-URA3-tURA3* ***DT*** *pHIS3-HIS3-tHIS3*  *YPRCtau3Δ::pCCW12-mRuby2-tENO1* | Postma*, et al.* 8 |
| IMX2226 | *MATa ura3-52 his3-1 leu2-3,112 MAL2-8c SUC2 hxk1Δ::KlLEU2*  *tdh1Δ tdh2Δ gpm2Δ gpm3Δ eno1Δ pyk2Δ pdc5Δ pdc6Δ adh2Δ*  *adh5Δ adh4Δ sga1Δ::(FBA1* ***GH*** *TPI1* ***HP*** *PGK1* ***PQ*** *ADH1* ***QN***  *PYK1* ***NO*** *TDH3* ***OA*** *ENO2* ***AB*** *HXK2* ***BC*** *PGI1* ***CD*** *PFK1* ***DJ*** *PFK2* ***JK***  *AmdSYM* ***KL*** *GPM1 LM PDC1-SYN* ***MF****) pyk1Δ pgi1Δ tpi1Δ tdh3Δ*  *pfk2Δ::(pTEF-cas9-tCYC1 natNT1) pgk1Δ gpm1Δ fba1Δ hxk2Δ pfk1Δ adh1Δ pdc1Δ eno2Δ glk1Δ::Sphis5Δ::(pGAL1-I SceI-tCYC1)*  *x2::pURA3-URA3-tURA3-SHR DT-pHIS3-HIS3-tHIS3*  *YPRCtau3Δ::pTEF1-Venus-tTDH1* | Postma*, et al.* 8 |
| IMX2234 | *MATa ura3Δ his3Δ leu2-3,112 MAL2-8c SUC2 glk1Δ hxk1Δ::KlLEU2 tdh1Δ tdh2Δ gpm2Δ gpm3Δ eno1Δ pyk2Δ pdc5Δ pdc6Δ adh2Δ adh5Δ adh4Δ sga1Δ::(* ***G*** *tFBA1-FBA1-pFBA1* ***H*** *pTPI1-TPI1-tTPI1* ***P*** *tPGK1-PGK1-pPGK1* ***Q*** *tADH1-ADH1-pADH1* ***N*** *pPYK1-PYK1-tPYK1* ***O*** *tTDH3-TDH3-pTDH3* ***A*** *pENO2-ENO2-tENO2* ***B*** *pHXK2-HXK2-tHXK2* ***C*** *pPGI-PGI1-tPGI1* ***D*** *pPFK1-PFK1-tPFK1* ***J*** *tPFK2-PFK2-pPFK2* ***KL*** *tGPM1-GPM1-pPGM1* ***M*** *pPDC1-PDC1-tPDC1-SYN F) pyk1Δ pgi1Δ tpi1Δ tdh3Δ pfk2Δ::(pTEF1-Spcas9-tCYC1 natNT1) pgk1Δ gpm1Δ fba1Δ hxk2Δ pfk1Δ adh1Δ pdc1Δ eno2Δ gnd2Δ sol4Δ tkl2Δ nqm1Δ* | This study |
| IMX2270 | *MATa ura3Δ his3Δ leu2-3,112 MAL2-8c SUC2 glk1Δ hxk1Δ::KlLEU2 tdh1Δ tdh2Δ gpm2Δ gpm3Δ eno1Δ pyk2Δ pdc5Δ pdc6Δ adh2Δ adh5Δ adh4Δ sga1Δ::(* ***G*** *tFBA1-FBA1-pFBA1* ***H*** *pTPI1-TPI1-tTPI1* ***P*** *tPGK1-PGK1-pPGK1* ***Q*** *tADH1-ADH1-pADH1* ***N*** *pPYK1-PYK1-tPYK1* ***O*** *tTDH3-TDH3-pTDH3* ***A*** *pENO2-ENO2-tENO2* ***B*** *pHXK2-HXK2-tHXK2* ***C*** *pPGI-PGI1-tPGI1* ***D*** *pPFK1-PFK1-tPFK1* ***J*** *tPFK2-PFK2-pPFK2* ***K L*** *tGPM1-GPM1-pPGM1* ***M*** *pPDC1-PDC1-tPDC1-SYN* ***F****) pyk1Δ pgi1Δ tpi1Δ tdh3Δ pfk2Δ::(pTEF1-Spcas9-tCYC1 natNT1) pgk1Δ gpm1Δ fba1Δ hxk2Δ pfk1Δ adh1Δ pdc1Δ eno2Δ gnd2Δ sol4Δ tkl2Δ nqm1Δ aro10Δ* | This study |
| IMF2 | *MATa ura3-52 his3-1 leu2-3,112 MAL2-8c SUC2 glk1Δ::(pAgTEF1-SpHIS5-tAgTEF1)Δ::(pGAL1-I SceI-tCYC1) hxk1Δ::KlLEU2 tdh1Δ tdh2Δ gpm2Δ gpm3Δ eno1Δ pyk2Δ pdc5Δ pdc6Δ adh2Δ adh5Δ adh4Δ sga1Δ::(* ***G*** *tFBA1-FBA1-pFBA1* ***H*** *pTPI1-TPI1-tTPI1* ***P*** *tPGK1-PGK1-pPGK1* ***Q*** *tADH1-ADH1-pADH1* ***N*** *pPYK1-PYK1-tPYK1* ***O*** *tTDH3-TDH3-pTDH3* ***A*** *pENO2-ENO2-tENO2* ***B*** *pHXK2-HXK2-tHXK2* ***C*** *pPGI-PGI1-tPGI1* ***D*** *pPFK1-PFK1-tPFK1* ***J*** *tPFK2-PFK2-pPFK2* ***K*** *pAgTEF1-AmdSYM-tAgTEF1* ***L*** *tGPM1-GPM1-pPGM1* ***M*** *pPDC1-PDC1-tPDC1-SYN* ***F****) pyk1Δ pgi1Δ tpi1Δ tdh3Δ pfk2Δ::(pTEF1-Spcas9-tCYC1 natNT1) pgk1Δ gpm1Δ fba1Δ hxk2Δ pfk1Δ adh1Δ pdc1Δ eno2Δ NeoChr2* | Postma*, et al.* 8 |
| IMF6 | *MATa ura3-52 his3-1 leu2-3,112 MAL2-8c SUC2 glk1Δ::(pAgTEF1-SpHIS5-tAgTEF1)Δ::(pGAL1-I SceI-tCYC1) hxk1Δ::KlLEU2 tdh1Δ tdh2Δ gpm2Δ gpm3Δ eno1Δ pyk2Δ pdc5Δ pdc6Δ adh2Δ adh5Δ adh4Δ sga1Δ::(* ***G*** *tFBA1-FBA1-pFBA1* ***H*** *pTPI1-TPI1-tTPI1 P tPGK1-PGK1-pPGK1* ***Q*** *tADH1-ADH1-pADH1* ***N*** *pPYK1-PYK1-tPYK1* ***O*** *tTDH3-TDH3-pTDH3* ***A*** *pENO2-ENO2-tENO2* ***B*** *pHXK2-HXK2-tHXK2* ***C*** *pPGI-PGI1-tPGI1* ***D*** *pPFK1-PFK1-tPFK1* ***J*** *tPFK2-PFK2-pPFK2* ***K*** *pAgTEF1-AmdSYM-tAgTEF1* ***L*** *tGPM1-GPM1-pPGM1* ***M*** *pPDC1-PDC1-tPDC1-SYN* ***F****) pyk1Δ pgi1Δ tpi1Δ tdh3Δ pfk2Δ::(pTEF1-Spcas9-tCYC1 natNT1) pgk1Δ gpm1Δ fba1Δ hxk2Δ pfk1Δ adh1Δ pdc1Δ eno2Δ NeoChr1* | Postma*, et al.* 8 |
| IMF22\* | *MATa ura3-52 his3-1 leu2-3,112 MAL2-8c SUC2 glk1Δ::(pAgTEF1-SpHIS5-tAgTEF1)Δ::(pGAL1-I SceI-tCYC1) hxk1Δ::KlLEU2 tdh1Δ tdh2Δ gpm2Δ gpm3Δ eno1Δ pyk2Δ pdc5Δ pdc6Δ adh2Δ adh5Δ adh4Δ sga1Δ::(* ***G*** *tFBA1-FBA1-pFBA1* ***H*** *pTPI1-TPI1-tTPI1* ***P*** *tPGK1-PGK1-pPGK1* ***Q*** *tADH1-ADH1-pADH1* ***N*** *pPYK1-PYK1-tPYK1* ***O*** *tTDH3-TDH3-pTDH3* ***A*** *pENO2-ENO2-tENO2* ***B*** *pHXK2-HXK2-tHXK2* ***C*** *pPGI-PGI1-tPGI1* ***D*** *pPFK1-PFK1-tPFK1* ***J*** *tPFK2-PFK2-pPFK2* ***K*** *pAgTEF1-AmdSYM-tAgTEF1* ***L*** *tGPM1-GPM1-pPGM1* ***M*** *pPDC1-PDC1-tPDC1-SYN* ***F****) pyk1Δ pgi1Δ tpi1Δ tdh3Δ pfk2Δ::(pTEF1-Spcas9-tCYC1 natNT1) pgk1Δ gpm1Δ fba1Δ hxk2Δ pfk1Δ adh1Δ pdc1Δ eno2Δ NeoChr10* | This study |
| IMF23\* | *MATa ura3-52 his3-1 leu2-3,112 MAL2-8c SUC2 glk1Δ::(pAgTEF1-SpHIS5-tAgTEF1)Δ::(pGAL1-I SceI-tCYC1) hxk1Δ::KlLEU2 tdh1Δ tdh2Δ gpm2Δ gpm3Δ eno1Δ pyk2Δ pdc5Δ pdc6Δ adh2Δ adh5Δ adh4Δ sga1Δ::(* ***G*** *tFBA1-FBA1-pFBA1* ***H*** *pTPI1-TPI1-tTPI1* ***P*** *tPGK1-PGK1-pPGK1* ***Q*** *tADH1-ADH1-pADH1* ***N*** *pPYK1-PYK1-tPYK1* ***O*** *tTDH3-TDH3-pTDH3* ***A*** *pENO2-ENO2-tENO2* ***B*** *pHXK2-HXK2-tHXK2* ***C*** *pPGI-PGI1-tPGI1* ***D*** *pPFK1-PFK1-tPFK1* ***J*** *tPFK2-PFK2-pPFK2* ***K*** *pAgTEF1-AmdSYM-tAgTEF1* ***L*** *tGPM1-GPM1-pPGM1* ***M*** *pPDC1-PDC1-tPDC1-SYN* ***F****) pyk1Δ pgi1Δ tpi1Δ tdh3Δ pfk2Δ::(pTEF1-Spcas9-tCYC1 natNT1) pgk1Δ gpm1Δ fba1Δ hxk2Δ pfk1Δ adh1Δ pdc1Δ eno2Δ NeoChr12* | Postma*, et al.* 8 |
| IMF27\* | *MATa ura3Δ his3Δ leu2-3,112 MAL2-8c SUC2 glk1Δ hxk1Δ::KlLEU2 tdh1Δ tdh2Δ gpm2Δ gpm3Δ eno1Δ pyk2Δ pdc5Δ pdc6Δ adh2Δ adh5Δ adh4Δ sga1Δ::(* ***G*** *tFBA1-FBA1-pFBA1* ***H*** *pTPI1-TPI1-tTPI1* ***P*** *tPGK1-PGK1-pPGK1* ***Q*** *tADH1-ADH1-pADH1* ***N*** *pPYK1-PYK1-tPYK1* ***O*** *tTDH3-TDH3-pTDH3* ***A*** *pENO2-ENO2-tENO2* ***B*** *pHXK2-HXK2-tHXK2* ***C*** *pPGI-PGI1-tPGI1* ***D*** *pPFK1-PFK1-tPFK1* ***J*** *tPFK2-PFK2-pPFK2* ***K L*** *tGPM1-GPM1-pPGM1* ***M*** *pPDC1-PDC1-tPDC1-SYN* ***F****) pyk1Δ pgi1Δ tpi1Δ tdh3Δ pfk2Δ::(pTEF1-Spcas9-tCYC1 natNT1) pgk1Δ gpm1Δ fba1Δ hxk2Δ pfk1Δ adh1Δ pdc1Δ eno2Δ gnd2Δ sol4Δ tkl2Δ nqm1Δ aro10Δ NeoChr25* | This study |
| IMF29\* | *MATa ura3Δ his3Δ leu2-3,112 MAL2-8c SUC2 glk1Δ hxk1Δ::KlLEU2 tdh1Δ tdh2Δ gpm2Δ gpm3Δ eno1Δ pyk2Δ pdc5Δ pdc6Δ adh2Δ adh5Δ adh4Δ sga1Δ::(* ***G*** *tFBA1-FBA1-pFBA1* ***H*** *pTPI1-TPI1-tTPI1* ***P*** *tPGK1-PGK1-pPGK1* ***Q*** *tADH1-ADH1-pADH1* ***N*** *pPYK1-PYK1-tPYK1* ***O*** *tTDH3-TDH3-pTDH3* ***A*** *pENO2-ENO2-tENO2* ***B*** *pHXK2-HXK2-tHXK2* ***C*** *pPGI-PGI1-tPGI1* ***D*** *pPFK1-PFK1-tPFK1* ***J*** *tPFK2-PFK2-pPFK2* ***K L*** *tGPM1-GPM1-pPGM1* ***M*** *pPDC1-PDC1-tPDC1-SYN* ***F****) pyk1Δ pgi1Δ tpi1Δ tdh3Δ pfk2Δ::(pTEF1-Spcas9-tCYC1 natNT1) pgk1Δ gpm1Δ fba1Δ hxk2Δ pfk1Δ adh1Δ pdc1Δ eno2Δ gnd2Δ sol4Δ tkl2Δ nqm1Δ aro10Δ NeoChr26* | This study |
| IMF31 | *MATa ura3Δ his3Δ leu2-3,112 MAL2-8c SUC2 glk1Δ hxk1Δ::KlLEU2 tdh1Δ tdh2Δ gpm2Δ gpm3Δ eno1Δ pyk2Δ pdc5Δ pdc6Δ adh2Δ adh5Δ adh4Δ sga1Δ::pKlURA3-KlURA3-tKlURA3 pyk1Δ pgi1Δ tpi1Δ tdh3Δ pfk2Δ::(pTEF1-Spcas9-tCYC1 natNT1) pgk1Δ gpm1Δ fba1Δ hxk2Δ pfk1Δ adh1Δ pdc1Δ eno2Δ gnd2Δ sol4Δ tkl2Δ nqm1Δ aro10Δ NeoChr25* | This study |
| IMF32 | *MATa ura3Δ his3Δ leu2-3,112 MAL2-8c SUC2 glk1Δ hxk1Δ::KlLEU2 tdh1Δ tdh2Δ gpm2Δ gpm3Δ eno1Δ pyk2Δ pdc5Δ pdc6Δ adh2Δ adh5Δ adh4Δ sga1Δ pyk1Δ pgi1Δ tpi1Δ tdh3Δ pfk2Δ::(pTEF1-Spcas9-tCYC1 natNT1) pgk1Δ gpm1Δ fba1Δ hxk2Δ pfk1Δ adh1Δ pdc1Δ eno2Δ gnd2Δ sol4Δ tkl2Δ nqm1Δ aro10Δ NeoChr26* | This study |
| IMF33 | *MATa ura3Δ his3Δ leu2-3,112 MAL2-8c SUC2 glk1Δ hxk1Δ::KlLEU2 tdh1Δ tdh2Δ gpm2Δ gpm3Δ eno1Δ pyk2Δ pdc5Δ pdc6Δ adh2Δ adh5Δ adh4Δ sga1Δ::pKlURA3-KlURA3-tKlURA3 pyk1Δ pgi1Δ tpi1Δ tdh3Δ pfk2Δ::(pTEF1-Spcas9-tCYC1 natNT1) pgk1Δ gpm1Δ fba1Δ hxk2Δ pfk1Δ adh1Δ pdc1Δ eno2Δ gnd2Δ sol4Δ tkl2Δ nqm1Δ aro10Δ NeoChr25 zwf1Δ sol3Δ gnd1Δ rki1Δ* | This study |
| IMF34 | *MATa ura3Δ his3Δ leu2-3,112 MAL2-8c SUC2 glk1Δ hxk1Δ::KlLEU2 tdh1Δ tdh2Δ gpm2Δ gpm3Δ eno1Δ pyk2Δ pdc5Δ pdc6Δ adh2Δ adh5Δ adh4Δ sga1Δ::pKlURA3-KlURA3-tKlURA3 pyk1Δ pgi1Δ tpi1Δ tdh3Δ pfk2Δ::(pTEF1-Spcas9-tCYC1 natNT1) pgk1Δ gpm1Δ fba1Δ hxk2Δ pfk1Δ adh1Δ pdc1Δ eno2Δ gnd2Δ sol4Δ tkl2Δ nqm1Δ aro10Δ NeoChr25 zwf1Δ sol3Δ gnd1Δ rki1Δ tkl1Δ tal1Δ rpe1Δ* | This study |
| IMF35 | *MATa ura3Δ his3Δ leu2-3,112 MAL2-8c SUC2 glk1Δ hxk1Δ::KlLEU2 tdh1Δ tdh2Δ gpm2Δ gpm3Δ eno1Δ pyk2Δ pdc5Δ pdc6Δ adh2Δ adh5Δ adh4Δ sga1Δ pyk1Δ pgi1Δ tpi1Δ tdh3Δ pfk2Δ::(pTEF1-Spcas9-tCYC1 natNT1) pgk1Δ gpm1Δ fba1Δ hxk2Δ pfk1Δ adh1Δ pdc1Δ eno2Δ gnd2Δ sol4Δ tkl2Δ nqm1Δ aro10Δ NeoChr26::(rki1::RKI1)* | This study |
| IMF36 | *MATa ura3Δ his3Δ leu2-3,112 MAL2-8c SUC2 glk1Δ hxk1Δ::KlLEU2 tdh1Δ tdh2Δ gpm2Δ gpm3Δ eno1Δ pyk2Δ pdc5Δ pdc6Δ adh2Δ adh5Δ adh4Δ sga1Δ pyk1Δ pgi1Δ tpi1Δ tdh3Δ pfk2Δ::(pTEF1-Spcas9-tCYC1 natNT1) pgk1Δ gpm1Δ fba1Δ hxk2Δ pfk1Δ adh1Δ pdc1Δ eno2Δ gnd2Δ sol4Δ tkl2Δ nqm1Δ aro10Δ NeoChr26::(rki1::RKI1) zwf1Δ sol3Δ gnd1Δ rki1Δ* | This study |
| IMF40 | *MATa ura3Δ his3Δ leu2-3,112 MAL2-8c SUC2 glk1Δ hxk1Δ::KlLEU2 tdh1Δ tdh2Δ gpm2Δ gpm3Δ eno1Δ pyk2Δ pdc5Δ pdc6Δ adh2Δ adh5Δ adh4Δ sga1Δ pyk1Δ pgi1Δ tpi1Δ tdh3Δ pfk2Δ::(pTEF1-Spcas9-tCYC1 natNT1) pgk1Δ gpm1Δ fba1Δ hxk2Δ pfk1Δ adh1Δ pdc1Δ eno2Δ gnd2Δ sol4Δ tkl2Δ nqm1Δ aro10Δ NeoChr26::(rki1::RKI1) zwf1Δ sol3Δ gnd1Δ rki1Δ tkl1Δ tal1Δ rpe1Δ* | This study |
| IMF41\* | *MATa ura3Δ his3Δ leu2-3,112 MAL2-8c SUC2 glk1Δ hxk1Δ::KlLEU2 tdh1Δ tdh2Δ gpm2Δ gpm3Δ eno1Δ pyk2Δ pdc5Δ pdc6Δ adh2Δ adh5Δ adh4Δ sga1Δ pyk1Δ pgi1Δ tpi1Δ tdh3Δ pfk2Δ::(pTEF1-Spcas9-tCYC1 natNT1) pgk1Δ gpm1Δ fba1Δ hxk2Δ pfk1Δ adh1Δ pdc1Δ eno2Δ gnd2Δ sol4Δ tkl2Δ nqm1Δ aro10Δ zwf1Δ sol3Δ gnd1Δ rki1Δ tkl1Δ tal1Δ rpe1Δ NeoChr30* | This study |
| IMF42\* | *MATa ura3Δ his3Δ leu2-3,112 MAL2-8c SUC2 glk1Δ hxk1Δ::KlLEU2 tdh1Δ tdh2Δ gpm2Δ gpm3Δ eno1Δ pyk2Δ pdc5Δ pdc6Δ adh2Δ adh5Δ adh4Δ sga1Δ::pKlURA3-KlURA3-tKlURA3 pyk1Δ pgi1Δ tpi1Δ tdh3Δ pfk2Δ::(pTEF1-Spcas9-tCYC1 natNT1) pgk1Δ gpm1Δ fba1Δ hxk2Δ pfk1Δ adh1Δ pdc1Δ eno2Δ gnd2Δ sol4Δ tkl2Δ nqm1Δ aro10Δ zwf1Δ sol3Δ gnd1Δ rki1Δ tkl1Δ tal1Δ rpe1Δ NeoChr31* | This study |
| IMF44 | *MATa ura3Δ his3Δ leu2-3,112 MAL2-8c SUC2 glk1Δ hxk1Δ::KlLEU2 tdh1Δ tdh2Δ gpm2Δ gpm3Δ eno1Δ pyk2Δ pdc5Δ pdc6Δ adh2Δ adh5Δ adh4Δ sga1Δ::pKlURA3-KlURA3-tKlURA3 pyk1Δ pgi1Δ tpi1Δ tdh3Δ pfk2Δ::(pTEF1-Spcas9-tCYC1 natNT1) pgk1Δ gpm1Δ fba1Δ hxk2Δ pfk1Δ adh1Δ pdc1Δ eno2Δ gnd2Δ sol4Δ tkl2Δ nqm1Δ aro10Δ zwf1Δ sol3Δ gnd1Δ rki1Δ tkl1Δ tal1Δ rpe1Δ x2*Δ::*pTEF1-coAtCHS3-tMDH1 yprctau3*Δ::*pTEF1-coAtCHS3-tMDH1* *spr3Δ*::*pTEF1-coAtCHS3-tMDH1* *can1::pTEF1-coAtCHS3-tMDH NeoChr31* | This study |
| IMF47\* | *MATa ura3Δ his3Δ leu2-3,112 MAL2-8c SUC2 glk1Δ hxk1Δ::KlLEU2 tdh1Δ tdh2Δ gpm2Δ gpm3Δ eno1Δ pyk2Δ pdc5Δ pdc6Δ adh2Δ adh5Δ adh4Δ sga1Δ::pKlURA3-KlURA3-tKlURA3 pyk1Δ pgi1Δ tpi1Δ tdh3Δ pfk2Δ::(pTEF1-Spcas9-tCYC1 natNT1) pgk1Δ gpm1Δ fba1Δ hxk2Δ pfk1Δ adh1Δ pdc1Δ eno2Δ gnd2Δ sol4Δ tkl2Δ nqm1Δ aro10Δ zwf1Δ sol3Δ gnd1Δ rki1Δ tkl1Δ tal1Δ rpe1Δ x2Δ::pTEF1-coAtCHS3-tMDH1 yprctau3Δ::pTEF1-coAtCHS3-tMDH1 spr3Δ::pTEF1-coAtCHS3-tMDH1 can1::pTEF1-coAtCHS3-tMDH NeoChr33* | This study |
| IMF48\* | *MATa ura3Δ his3Δ leu2-3,112 MAL2-8c SUC2 glk1Δ hxk1Δ::KlLEU2 tdh1Δ tdh2Δ gpm2Δ gpm3Δ eno1Δ pyk2Δ pdc5Δ pdc6Δ adh2Δ adh5Δ adh4Δ sga1Δ::pKlURA3-KlURA3-tKlURA3 pyk1Δ pgi1Δ tpi1Δ tdh3Δ pfk2Δ::(pTEF1-Spcas9-tCYC1 natNT1) pgk1Δ gpm1Δ fba1Δ hxk2Δ pfk1Δ adh1Δ pdc1Δ eno2Δ gnd2Δ sol4Δ tkl2Δ nqm1Δ aro10Δ zwf1Δ sol3Δ gnd1Δ rki1Δ tkl1Δ tal1Δ rpe1Δ x2Δ::pTEF1-coAtCHS3-tMDH1 yprctau3Δ::pTEF1-coAtCHS3-tMDH1 spr3Δ::pTEF1-coAtCHS3-tMDH1 can1::pTEF1-coAtCHS3-tMDH NeoChr34* | This study |