**S2 Table. List of strains used in this study.**

|  |  |  |
| --- | --- | --- |
| **Strain** | **Relevant Genotype** | **Reference** |
| FB1 | a1 b1 | (Banuett and Herskowitz 1989) |
| FB2 | a2 b2 | (Banuett and Herskowitz 1989) |
| FB1 Δ*pmt4* | a1 b1 *Δpmt4* |  (4) |
| FB1 *Δgls1* | a1 b1 *Δgls1* |  (5) |
| FB1 *Δpdi1* | a1 b1 *Δpdi1* | This work |
| FB2 *Δpdi1* | a2 b2 Δpdi1 | This work |
| FB1 *ΔUMAG\_04180* | a1 b1 *ΔUMAG\_04180* | This work |
| FB2 *ΔUMAG\_04180* | a2 b2 *ΔUMAG\_04180* | This work |
| FB1 *ΔUMAG\_04422* | a1 b1 *ΔUMAG\_04422* | This work |
| FB2 *ΔUMAG\_04422* | a2 b2 *ΔUMAG\_04422* | This work |
| FB1 *ΔUMAG\_05223* | a1 b1 *ΔUMAG\_05223* | This work |
| FB2 *ΔUMAG\_05223* | a2 b2 *ΔUMAG\_05223* | This work |
| FB1 Biz1 | a1 b1 Pcrg:Biz1 |  (Flor-Parra et al., 2006) |
| FB1 Biz1 *Δpmt4* | a1 b1 Pcrg:Biz1 *Δpmt4* | This work |
| FB1 Biz1 *Δgls1* | a1 b1 Pcrg:Biz1 *Δgls1* | This work |
| FB1 Biz1 *Δpdi1* | a1 b1 Pcrg:Biz1 *Δpdi1* | This work |
| SG200 | a1 mfa2 bW2 bE1 |  (Bolker et al., 1995) |
| SG200 *Δpmt4* | a1 mfa2 bW2 bE1 *Δpmt4* |  (4) |
| SG200 *Δgls1* | a1 mfa2 bW2 bE1 *Δgls1* |  (5) |
| SG200 *Δafg1* | a1 mfa2 bW2 bE1 *Δafg1* | This work |
| SG200 *Δpdi1* | a1 mfa2 bW2 bE1 *Δpdi1* | This work |
| SG200 *ΔUMAG\_00309* | a1 mfa2 bW2 bE1 *ΔUMAG\_00309* | This work |
| SG200 *ΔUMAG\_01209* | a1 mfa2 bW2 bE1 *ΔUMAG\_01209* | This work |
| SG200 *ΔUMAG\_02751* | a1 mfa2 bW2 bE1 *ΔUMAG\_02751* | This work |
| SG200 *ΔUMAG\_03416* | a1 mfa2 bW2 bE1 *ΔUMAG\_03416* | This work |
| SG200 *ΔUMAG\_04180* | a1 mfa2 bW2 bE1 *ΔUMAG\_04180* | This work |
| SG200 *ΔUMAG\_04270* | a1 mfa2 bW2 bE1 *ΔUMAG\_04270* | This work |
| SG200 *ΔUMAG\_04382* | a1 mfa2 bW2 bE1 *ΔUMAG\_04382* | This work |
| SG200 *ΔUMAG\_04422* | a1 mfa2 bW2 bE1 *ΔUMAG\_04422* | This work |
| SG200 *ΔUMAG\_04733* | a1 mfa2 bW2 bE1 *ΔUMAG\_04733* | This work |
| SG200 *ΔUMAG\_05223* | a1 mfa2 bW2 bE1 *ΔUMAG\_05223* | This work |
| SG200 *ΔUMAG\_11496* | a1 mfa2 bW2 bE1 *ΔUMAG\_11496* | This work |
| SG200 3xGFP | a1 mfa2 bW2 bE1 Potef:3xGFP | This work |
| SG200 2xRFP *Δpdi1* | a1 mfa2 bW2 bE1 Potef:2xRFP *Δpdi1* | This work |
| SG200 *Δpdi1* pOtef:pdi1wt | a1 mfa2 bW2 bE1 *Δpdi1* Potef:pdi1 | This work |
| SG200 *Δpdi1* pOtef:pdi1 ΔO-gly | a1 mfa2 bW2 bE1 *Δpdi1* Potef:pdi1 ΔO-gly | This work |
| SG200 *Δpdi1* pOtef:pdi1 ΔN-gly | a1 mfa2 bW2 bE1 *Δpdi1* Potef:pdi1 ΔN-gly | This work |
| SG200 *Δpdi1* pOtef:pdi1 ΔN,O-gly | a1 mfa2 bW2 bE1 *Δpdi1* Potef:pdi1 ΔN,O-gly | This work |
| SG200 *Δpdi1* pPdi1:pdi1wt | a1 mfa2 bW2 bE1 *Δpdi1* Ppdi1:pdi1 | This work |
| SG200 *Δpdi1* pPdi1:pdi1 ΔO-gly | a1 mfa2 bW2 bE1 *Δpdi1* Ppdi1:pdi1 ΔO-gly | This work |
| SG200 *Δpdi1* pPdi1:pdi1 ΔN-gly | a1 mfa2 bW2 bE1 *Δpdi1* Ppdi1:pdi1 ΔN-gly | This work |
| SG200 *Δpdi1* pPdi1:pdi1 ΔN,O-gly | a1 mfa2 bW2 bE1 *Δpdi1* Ppdi1:pdi1 ΔN,O-gly | This work |
| SG200 pdi1:GFP | a1 mfa2 bW2 bE1 Potef:pdi1-GFP | This work |
| SG200 *Δpdi1* pdi1 ΔN-gly:GFP | a1 mfa2 bW2 bE1 *Δpdi1* Potef:pdi1 ΔN-gly-GFP | This work |
| SG200 mrfp:HDEL | a1 mfa2 bW2 bE1 Potef:cals:mrfp-HDEL |  (Theisen et al., 2008) |
| CL13 | a1 bE1 bW2 |  (Bolker et al., 1995) |
| CL13 *Δsuc2* | a1 bE1 bW2 *Δsuc2* | This work |
| CL13 *Δafg1* | a1 bE1 bW2 *Δafg1* | This work |
| CL13 *Δpdi1* | a1 bE1 bW2 *Δpdi1* | This work |
| CL13 *ΔUMAG\_00027* | a1 bE1 bW2 *ΔUMAG\_00027* | This work |
| CL13 *ΔUMAG\_00309* | a1 bE1 bW2 *ΔUMAG\_00309* | This work |
| CL13 *ΔUMAG\_00695* | a1 bE1 bW2 *ΔUMAG\_00695* | This work |
| CL13 *ΔUMAG\_01213* | a1 bE1 bW2 *ΔUMAG\_01213* | This work |
| CL13 *ΔUMAG\_01690* | a1 bE1 bW2 *ΔUMAG\_01690* | This work |
| CL13 *ΔUMAG\_01886* | a1 bE1 bW2 *ΔUMAG\_01886* | This work |
| CL13 *ΔUMAG\_02751* | a1 bE1 bW2 *ΔUMAG\_02751* | This work |
| CL13 *ΔUMAG\_03246* | a1 bE1 bW2 *ΔUMAG\_03246* | This work |
| CL13 *ΔUMAG\_03416* | a1 bE1 bW2 *ΔUMAG\_03416* | This work |
| CL13 *ΔUMAG\_04180* | a1 bE1 bW2 *ΔUMAG\_04180* | This work |
| CL13 *ΔUMAG\_04422* | a1 bE1 bW2 *ΔUMAG\_04422* | This work |
| CL13 *ΔUMAG\_04503* | a1 bE1 bW2 *ΔUMAG\_04503* | This work |
| CL13 *ΔUMAG\_04733* | a1 bE1 bW2 *ΔUMAG\_04733* | This work |
| CL13 *ΔUMAG\_05223* | a1 bE1 bW2 *ΔUMAG\_05223* | This work |
| CL13 *ΔUMAG\_05988* | a1 bE1 bW2 *ΔUMAG\_05988* | This work |
| CL13 *ΔUMAG\_06158* | a1 bE1 bW2 *ΔUMAG\_06158* | This work |
| CL13 *ΔUMAG\_10681* | a1 bE1 bW2 *ΔUMAG\_10681* | This work |
| CL13 *ΔUMAG\_10750* | a1 bE1 bW2 *ΔUMAG\_10750* | This work |
| CL13 *ΔUMAG\_10774* | a1 bE1 bW2 *ΔUMAG\_10774* | This work |
| CL13 *ΔUMAG\_11400* | a1 bE1 bW2 *ΔUMAG\_11400* | This work |
| CL13 *ΔUMAG\_11496* | a1 bE1 bW2 *ΔUMAG\_11496* | This work |
| CL13 *ΔUMAG\_11749* | a1 bE1 bW2 *ΔUMAG\_11749* | This work |