**TABLE S1**. Strains used in this studya

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Strain** | **Genotype or relevant characteristics** | **Parent/Background** | **Donor** | **Source or Reference** |
| JSG047 | DH5α carrying pWSK29 | DH5α |  | (Wang and Kushner 1991) |
| JSG133 | DH5α carrying pWSK129 | DH5α |  | (Wang and Kushner 1991) |
| JSG206 | 14028 *∆phoP* (*phoP*::Tn*10*d::Cam) (CS015) | 14028 |  | (Miller, Kukral, and Mekalanos 1989) |
| JSG208 | 14028 PhoPC (*pho24*) | 14028 |  | (Miller and Mekalanos 1990) |
| JSG210 | *S.* Typhimurium ATCC 14028 | 14028 |  | ATCC |
| JSG1679 | *E. coli* K-12 (BW25141) carrying pKD3::Cam | K-12  |  | (Datsenko and Wanner 2000) |
| JSG1680 | *E. coli* K-12 (BW25141) carrying pKD4::Kan | K-12 |  | (Datsenko and Wanner 2000) |
| JSG1682 | *E. coli* K-12 (BW25113) carrying pKD46  | K-12  |  | (Datsenko and Wanner 2000) |
| JSG1773 | DH5α (BT340) carrying pCP20  | DH5α |  | (Datsenko and Wanner 2000) |
| JSG2963 | 14028 carrying pMMB67EH::*vieA* | 14028 |  | Gift from Rita Tamayo |
| JSG2964 | 14028 carrying pMMB67EH | 14028 |  | Gift from Rita Tamayo |
| JSG3119 | 14028∆*ycfR*::Cam | JSG210 | JSG1679 | (Gonzalez-Escobedo and Gunn 2013) |
| JSG3179 | 14028∆*adrA*  | 14028 |  | (Porwollik et al. 2014) |
| JSG3220 | 14028∆*hilA*  | 14028 |  | (Porwollik et al. 2014) |
| JSG3377 | 14028*∆prgH*::Kan  | 14028 | JSG1680 | (Porwollik et al. 2014) |
| JSG3391 | 14028*∆spiI*::Kan a | 14028 | JSG1680 | Gift from S. Libby |
| JSG3461 | 14028∆*ycfR* | JSG210 |  | (Gonzalez-Escobedo and Gunn 2013) |
| JSG3529 | 14028 carrying pWSK129 | JSG210 | JSG133 | (Gonzalez-Escobedo and Gunn 2013) |
| JSG3530 | 14028∆*ycfR*::Cam carrying pWSK129 | JSG210 | JSG133 | (Gonzalez-Escobedo and Gunn 2013) |
| JSG3531 | 14028 carrying pWSK129::*ycfR* | JSG210 | JSG3533 | (Gonzalez-Escobedo and Gunn 2013) |
| JSG3532 | 14028∆*ycfR*::Cam carrying pWSK129::*ycfR* | JSG210 | JSG3533 | (Gonzalez-Escobedo and Gunn 2013) |
| JSG3533 | DH5α carrying pWSK129::*ycfR* (pGGE2) | DH5α |  | (Gonzalez-Escobedo and Gunn 2013) |
| JSG3540 | 14028∆*csgA*::Kan | 14028 | JSG1680 | (Porwollik et al. 2014) |
| JSG3672 | 14028∆*yihO* | JSG210 |  | (Marshall and Gunn 2015) |
| JSG3712 | 14028∆*wcaM*::Kan | 14028 | JSG1680 | (Porwollik et al. 2014) |
| JSG3736 | 14028∆*csgA* | JSG3540 |  | (Adcox et al. 2016) |
| JSG3742 | 14028∆*wcaM* | JSG3712 |  | (Adcox et al. 2016) |
| JSG3808 | 14028*∆yihO*::Cam | JSG210 | JSG1679 | (Marshall and Gunn 2015) |
| JSG3834 | 14028 carrying pKD46 | JSG210 | JSG1682 | (Prouty and Gunn 2003) |
| JSG3836 | 14028∆*bcsE*::Cam | JSG210 | JSG1679 | (Adcox et al. 2016) |
| JSG3838 | 14028∆*bcsE* | JSG3836 |  | (Adcox et al. 2016) |
| JSG3841 | 14028∆*wcaM*∆*csgA*∆*yihO*∆*bcsE* | JSG210 |  | (Adcox et al. 2016) |
| JSG3943 | 14028*∆araA*::Cam | JSG210 | JSG1679 | This study |
| JSG3944 | 14028*∆araE*::Cam | JSG210 | JSG1679 | This study |
| JSG3954 | 14028*∆araA* | JSG3943 |  | This study |
| JSG3955 | 14028*∆araE* | JSG3944 |  | This study |
| JSG3958 | 14028*∆araA∆spiI*::Kan | JSG3954 | JSG3391 | This study |
| JSG3959 | 14028*∆araE∆spiI*::Kan | JSG3955 | JSG3391 | This study |
| JSG3960 | 14028*∆araA∆prgH*::Kan | JSG3954 | JSG3377 | This study |
| JSG3961 | 14028*∆araE∆prgH*::Kan | JSG3955 | JSG3377 | This study |
| JSG3965  | 14028*∆prgH*::Kan | JSG210 | JSG3377 | This study |
| JSG3966 | 14028*∆spiI*::Kan | JSG210 | JSG3391 | This study |
| JSG3969 | 14028*∆prgH*  | JSG3965 |  | This study |
| JSG3970 | 14028*∆spiI*  | JSG3966 |  | This study |
| JSG3973 | 14028*∆araA*∆*csgA*::Kan | JSG3954 | JSG3540 | This study |
| JSG3974 | 14028*∆araE*∆*csgA*::Kan | JSG3955 | JSG3540 | This study |
| JSG3975 | 14028*∆araA*∆*bcsE*::Cam | JSG3954 | JSG3836 | This study |
| JSG3976 | 14028*∆araE*∆*bcsE*::Cam | JSG3955 | JSG3836 | This study |
| JSG4093 | 14028 carrying pFPV25.1 (GFPC) | JSG210 | JSG1093 | (González et al. 2019) |
| JSG4244 | 14028*∆araE* carrying pFPV25.1 (GFPC) | JSG3955 | JSG1093 | This study |
| JSG4368 | 14028*∆araA*∆*araE* | JSG3954 | JSG3944 | This study |
| JSG4380 | 14028*∆araE* carrying pWSK129 | JSG3955 | JSG133 | This study |
| JSG4381 | 14028*∆araE* carrying pWSK129::*ycfR* | JSG3955 | JSG3533 | This study |
| JSG4414 | 14028*∆araJ*::Cam | 14028 | JSG1679 | (Porwollik et al. 2014) |
| JSG4416 | 14028*∆araJ*::Cam  | JSG210 | JSG4414 | This study |
| JSG4418 | 14028*∆araE∆araJ*::Cam | JSG3955 | JSG4416 | This study |
| JSG4431 | 14028*∆mglC*::Cam | 14028 | JSG1679 | (Porwollik et al. 2014) |
| JSG4432 | 14028*∆mglC*::Cam  | JSG210 | JSG4431 | This study |
| JSG4434 | 14028*∆araE∆mglC*::Cam | JSG3955 | JSG4431 | This study |
| JSG4436 | 14028∆*wcaM*∆*csgA*∆*yihO*∆*bcsE∆araA*::Cam | JSG3841 | JSG3943 | This study |
| JSG4437 | 14028∆*wcaM*∆*csgA*∆*yihO*∆*bcsE∆araE*::Cam | JSG3841 | JSG3944 | This study |
| JSG4567 | 14028*∆araA∆yihO*::Cam | JSG3954 | JSG3808 | This study |
| JSG4568 | 14028*∆araE∆yihO*::Cam | JSG3955 | JSG3808 | This study |
| JSG4569 | 14028*∆wcaM∆araA*::Cam | JSG3742 | JSG3943 | This study |
| JSG4570 | 14028*∆wcaM∆araE*::Cam | JSG3742 | JSG3944 | This study |
| JSG4595 | 14028*∆araA* carrying pMMB67EH::vieA | JSG3954 | JSG2963 | This study |
| JSG4596 | 14028*∆araE* carrying pMMB67EH | JSG3954 | JSG2964 | This study |
| JSG4599 | 14028*∆araE* carrying pMMB67EH::vieA | JSG3955 | JSG2963 | This study |
| JSG4600 | 14028*∆araE* carrying pMMB67EH | JSG3955 | JSG2964 | This study |
| JSG4603 | 14028*∆adrA∆araE*::Cam | JSG3179 | JSG3955 | This study |
| JSG4699 | DH5α carrying pWSK29::cyaA | DH5α | JSG047 | This study |
| JSG4700 | 14028*∆araE* carrying pWSK29::cyaA | JSG3955 | JSG4699 | This study |
| a various spontaneous mutations when sequenced |

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