**Table S1. Strains used in this study.**

|  |  |  |  |
| --- | --- | --- | --- |
| (**A**) *E. coli* strains |  |  |  |
| Strain | Genotype | 　 | 　 | Reference |
| MC4100 | F- *araD139* *(argF-lac)U169 rpsL150 relA1 flbB5301 deoC1 ptsF25 rbsR* | (Silhavy et al., 1984) |
| CU141 | MC4100/F' *lacI*q *lacZ*+, *Y*+, *A*+ |  | (Akiyama et al., 1994) |
| HM1742 | CU141, *ara*+ |  |  | (Mori and Ito, 2006) |
| RM2831 | HM1742, *ffh-his10* |  | This study |
| RM2834 | HM1742, *secY-his10* |  | This study |
| RM2935 | HM1742, *yidC-his10 kan* |  | This study |
| RM3032 | HM1742, *ppiD-his10 kan* |  | This study |
| RM3122 | HM1742, Δ*ppiD*::*kan* |  | This study |
| RM3124 | HM1742, Δ*secG*::*kan* |  | This study |
| HM3271 | HM1742, *secD1 zaj-3053*::Tn*10* |  | (Tsukazaki et al., 2011) |
| HM4108 | HM1742, *secY*+ *rpsE* *zhd-33*::Tn*10* |  | (Mori et al., 2018) |
| HM4109 | HM1742, *secY24* *rpsE* *zhd-33*::Tn*10* | (Mori et al., 2018) |
| HM4798 | HM1742, Δ*secB*::FRT | This study |
| WAM121 | MC4100, *ara*+ *ffh1*::*kan* *attB*::R6K*ori* P*ara-ffh*+ *cat* | (de Gier et al., 1996) |
| DY330 | W3110, Δ*lacU169* *gal490* λ*cI857* Δ(*cro-bioA*) | (Yu et al., 2000) |
| RM2813 | DY330, *ffh-his10 kan* |  | This study |
| RM2816 | DY330, *secY-his10 kan* |  | This study |
| RM2934 | DY330, *yidC-his10 kan* |  | This study |
| RM2999 | DY330, *ppiD-his10 kan* | 　 | This study |
| KI269 | MC4100 *cya283*/ F' *lacI*q *lacZ*+, *Y*+, *A*+ |  | (Akiyama and Ito, 1985) |
| MM52 | MC4100 *secA51*(Ts) |  | (Oliver and Beckwith, 1981) |
| AD76 | KI269 *secA51* |  | This study |

|  |  |  |  |
| --- | --- | --- | --- |
| (**B**) *V. alginolyticus* strains |  |  |  |
| Strain | Genotype | 　 | 　 | Reference |
| VIO5 | 138-2 RifR Pof+ Laf- |  | (Okunishi et al., 1996) |
| NR23 | VIO5 Δ*V.secDF1*::*kan* |  | (Ishii et al., 2015) |
| HM3740 | VIO5 Δ*V.secDF2*::*kan* |  | (Ishii et al., 2015) |
| RMV2 | VIO5 Δ*V.ppiD* |  |  | This study |
| RMV7 | VIO5 P*ara-V.ffh* | 　 | 　 | This study |

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