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| **Supplementary table 1.** Strains and plasmids used in this study  lemen | **Description** | **Source/reference** |
| ***E. coli strains*** |  |  |
| Nova Blue | *E. coli* K-12, recA endA, lacIq, lacy, tetr | Novagen |
| BL21(DE3) | *E. coli* B, F– ompT lon, with a λ prophage carrying the T7 RNA polymerase | Novagen |
| ***V. cholerae* strains** |  |  |
| V2 | Non-O1, non-O139, serogroup O37 | Ranjan K Nandy, National Institute of Cholera and Enteric Diseases (NICED), India |
| V2S | Non-O1, non-O139, serogroup O37, hapR::pCD, Cmr | Dongre et al., 2011 |
| V2S-vector control | V2S having pKK177-3RI, Cmr (17µg ml-1), Apr (100µg ml-1) | Dongre et al., 2011 |
| V2S-HapR | V2S having HapR - pKK177-3RI,Cmr, Apr | Dongre et al., 2011 |
| V2S-HapRR33A | V2S having HapRR33A - pKK177-3RI , Cmr, Apr | This study |
| V2S-HapRG34A | V2S having HapRG34A - pKK177-3RI, Cmr, Apr | This study |
| V2S-HapRI35A | V2S having HapRI35A - pKK177-3RI, Cmr, Apr | This study |
| V2S-HapRG36A | V2S having HapRG36A - pKK177-3RI, Cmr, Apr | This study |
| V2S-HapRR37A | V2S having HapRR37A -pKK177-3RI, Cmr, Apr | This study |
| V2S-HapRG38A | V2S having HapRG38A -pKK177-3RI, Cmr, Apr | This study |
| V2S-HapRG39A | V2S having HapRG39A -pKK177-3RI, Cmr, Apr | This study |
| S7 | Non-O1, non-O139, serogroup O37, *hapR* truncated with a stop codon at 118 position | Ranjan K Nandy, National Institute of Cholera and Enteric Diseases (NICED), India |
| S7-vector control | S7 having pKK177-3RI, Apr (100µg ml-1) | This study |
| S7-HapR | S7 having HapR-pKK177-3RI, Apr | This study |
| S7-HapRR33A | S7 having HapRR33A-pKK177-3RI, Apr | This study |
| S7-HapRG34A | S7 having HapRG34A-pKK177-3RI, Apr | This study |
| S7-HapRI35A | S7 having HapRI35A-pKK177-3RI, Apr | This study |
| S7-HapRG36A | S7 having HapRG36A-pKK177-3RI, Apr | This study |
| S7-HapRR37A | S7 having HapRR37A-pKK177-3RI, Apr | This study |
| S7-HapRG38A | S7 having HapRG38A-pKK177-3RI, Apr | This study |
| S7-HapRG39A | S7 having HapRG39A-pKK177-3RI, Apr | This study |
| S7-HapRR37K | S7 having HapRR37K-pKK177-3RI, Apr | This study |
| S7-HapRR37D | S7 having HapRR37D-pKK177-3RI, Apr | This study |
| S7-HapRR37H | S7 having HapRR37H-pKK177-3RI, Apr | This study |
| S7-HapRR37E | S7 having HapRR37E-pKK177-3RI, Apr | This study |
| GK178 | C6706 str2 Δ*lacZ3, aphA-lacZ,* Smr (100µg ml-1) | [Kovacikova and Skorupski, 2002](https://onlinelibrary.wiley.com/doi/full/10.1111/j.1365-2958.2007.05693.x#b25) |
| GK178-vector control | GK178 carrying pKK177-3RI, Smr, Apr | This study |
| GK178-HapR | GK178 carrying HapR-pKK177-3RI, Smr, Apr | This study |
| GK178-HapRR33A | GK178 carrying HapRR33A-pKK177-3RI, Smr, Apr | This study |
| GK178-HapRG34A | GK178 carrying HapRG34A-pKK177-3RI, Smr, Apr | This study |
| GK178-HapRI35A | GK178 carrying HapRI35A-pKK177-3RI, Smr, Apr | This study |
| GK178-HapRG36A | GK178 carrying HapRG36A-pKK177-3RI, Smr, Apr | This study |
| GK178- HapRR37A | GK178 carrying HapRR37A-pKK177-3RI, Smr, Apr | This study |
| GK178-HapRG38A | GK178 carrying HapRG38A-pKK177-3RI, Smr, Apr | This study |
| GK178-HapRG39A | GK178 carrying HapRG39A-pKK177-3RI, Smr, Apr | This study |
| ***Plasmids*** |  |  |
| pKK177-3RI | Apr (100µg ml-1) | Giesla Stroz, National Institute of Health, U.S.A |
| pET15b | Apr (100µg ml-1), N-terminal 6 His-tag expression vector | Novagen |
| HapR-pKK177-3RI | 612 bp functional *hapR* V2G cloned in SmaI/HindIII site of pKK177-3RI Apr | Dongre et al., 2011 |
| HapRR33A-pKK177-3RI | *hapR* cloned in pKK177-3RI having R33 substituted with A, Apr | This study |
| HapRG34A-pKK177-3RI | *hapR* cloned in pKK177-3RI having G34 substituted with A, Apr | This study |
| HapRI35A-pKK177-3RI | *hapR* cloned in pKK177-3RI having I35 substituted with A, Apr | This study |
| HapRG36A-pKK177-3RI | *hapR* cloned in pKK177-3RI having G36 substituted with A, Apr | This study |
| HapRR37A-pKK177-3RI | *hapR* cloned in pKK177-3RI having R37 substituted with A, Apr | This study |
| HapRG38A-pKK177-3RI | *hapR* cloned in pKK177-3RI having G38 substituted with A, Apr | This study |
| HapRG39A-pKK177-3RI | *hapR* cloned in pKK177-3RI having G39 substituted with A, Apr | This study |
| HapRR37K-pKK177-3RI | *hapR* cloned in pKK177-3RI having R37 substituted with K, Apr | This study |
| HapRR37D-pKK177-3RI | *hapR* cloned in pKK177-3RI having R37 substituted with D, Apr | This study |
| HapRR37H-pKK177-3RI | *hapR* cloned in pKK177-3RI having R37 substituted with H, Apr | This study |
| HapRR37E-pKK177-3RI | *hapR* cloned in pKK177-3RI having R37 substituted with E, Apr | This study |
| HapR-pET15b | 612 bp functional *hapR* V2G cloned in NdeI/BamHI site of pET15b, Apr | Dongre et al., 2011 |
| HapRR37A-pET15b | *hapR* cloned in pET15b having R37 substituted with A, Apr | This study |
| HapRR37K-pET15b | *hapR* cloned in pET15b having R37 substituted with K, Apr | This study |
| HapRR37D-pET15b | *hapR* cloned in pET15b having R37 substituted with D, Apr | This study |
| HapRR37H-pET15b | *hapR* cloned in pET15b having R37 substituted with H, Apr | This study |
| HapRR37E-pET15b | *hapR* cloned in pET15b having R37 substituted with E, Apr | This study |
| HapR-FLAG-pkk177-3RI | *hapR* tagged with 3X FLAG at C-terminal end, cloned into SmaI/HindIII sites of pKK177-3RI. FLAG was amplified from the p3XFLAG-CMV-10 Expression Vector (Sigma Aldrich). | Singh et al., 2013 |
| HapRR33A-FLAG-pkk177-3RI | *hapR-*R33A tagged with 3X FLAG at C-terminal end, cloned into pKK177 3RI, Apr | This study |
| HapRG34A-FLAG-pkk177-3RI | *hapR-*G34A tagged with 3X FLAG at C-terminal end, cloned into pKK177 3RI, Apr | This study |
| HapRI35A-FLAG-pkk177-3RI | *hapR-*I35A tagged with 3X FLAG at C-terminal end, cloned into pKK177 3RI, Apr | This study |
| HapRG36A-FLAG-pkk177-3RI | *hapR-*G36A tagged with 3X FLAG at C-terminal end, cloned into pKK177 3RI, Apr | This study |
| HapRR37A-FLAG-pkk177-3RI | *hapR-*R37A tagged with 3X FLAG at C-terminal end, cloned into pKK177 3RI, Apr | This study |
| HapRG38A-FLAG-pkk177-3RI | *hapR-*G38A tagged with 3X FLAG at C-terminal end, cloned into pKK177 3RI, Apr | This study |
| HapRG39A-FLAG-pkk177-3RI | *hapR-*G39A tagged with 3X FLAG at C-terminal end, cloned into pKK177 3RI, Apr | This study |
| HapRR37K-FLAG-pkk177-3RI | *hapR-*R37K tagged with 3X FLAG at C-terminal end, cloned into pKK177 3RI, Apr | This study |
| HapRR37D-FLAG-pkk177-3RI | *hapR-*R37D tagged with 3X FLAG at C-terminal end, cloned into pKK177 3RI, Apr | This study |
| HapRR37H-FLAG-pkk177-3RI | *hapR-*R37H tagged with 3X FLAG at C-terminal end, cloned into pKK177 3RI, Apr | This study |
| HapRR37E-FLAG-pkk177-3RI | *hapR-*R37E tagged with 3X FLAG at C-terminal end, cloned into pKK177 3RI, Apr | This study |