Supplemental materials and methods

Growth curve

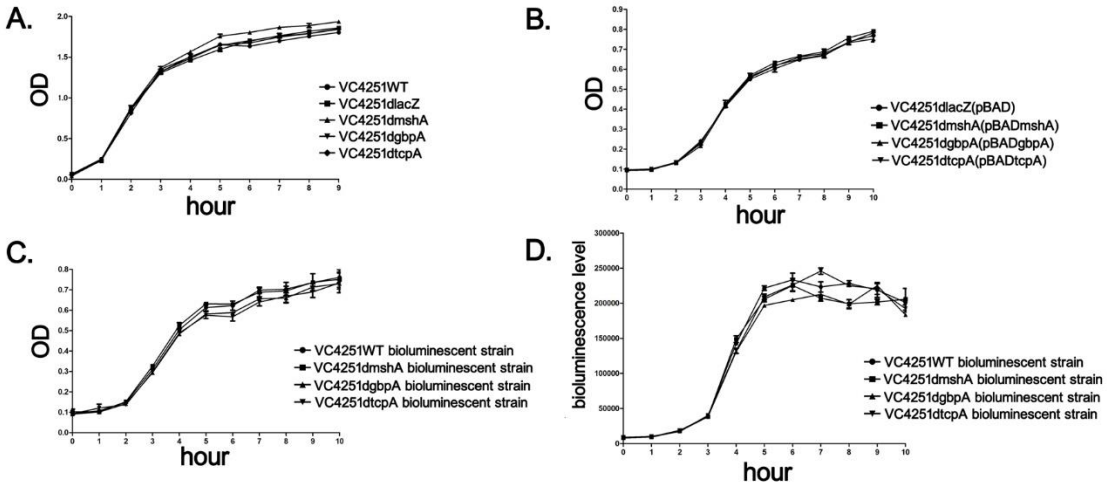
VC4251 wild type strain and all VC4251-derived gene mutants were cultured overnight on the LB agar plates at 37°C. Next day, colonies were scraped and resuspended in PBS with OD_{600} value of 1.0. Fifty microliters of bacterial culture was transferred into 5 ml fresh LB medium and then grown at 28°C, 220rpm. OD_{600} values were determined every hour until the culture reached the stationary phase by using a UV-visible spectrophotometer (VARIAN). Growth curves were plotted by Graphpad software. For complementation strains VC4251dmshA(pBADmshA), VC4251dgbpA(pBADgbpA), VC4251dtcpA(VC4251dtcpA) and VC4251dlacZ(pBAD), the LB agar plates and LB medium were supplemented with ampicillin and arabinose to the final concentration of 100 μg/ml and 0.5‰ respectively for the culture of these strains. OD_{600} values were determined every hour until the culture reached the stationary phase by using a TECAN infinite M200 PRO detective instrument.

Growth and bioluminescence value curve of wild type strain and mutants carrying the pXEN-pmdh-luxCDABE plasmid

Bioluminescent-labeled VC4251 wild type strain and VC4251-derived *mshA*, *gbpA*, *tcpA* mutant bioluminescent strains were cultured overnight on the LB agar plates containing 100 μg/ml ampicillin at 37°C. Next day, strains were scraped and resuspended in PBS containing 100 μg/ml ampicillin with OD_{600} value of 1.0. Fifty

microliters of bacterial culture was transferred into 5 ml fresh LB medium containing 100 μg/ml ampicillin, and then grown at 28°C, 220rpm. OD_{600} values and the bioluminescence values were determined every hour until the culture reached the stationary phase by using a TECAN infinite M200 PRO detective instrument which could detect both OD_{600} value and the bioluminescence value simultaneously. Growth curves and the bioluminescence value curve were plotted by Graphpad software.

Supplemental Figure



Supplemental Figure 1. Growth curves and bioluminescence value curves of wild type strain VC4251, its mutants, complementary strains and bioluminescent strains.

A. Growth curve of strains VC4251, VC4251dmshA, VC4251dgbpA, VC4251dtcpA and VC4251dlacZ in LB media (using a UV-visible spectrophotometer, VARIAN). B. Growth curve of complementary strains VC4251dlacZ(pBAD), VC4251dmshA(pBADmshA), VC4251dgbpA(pBADgbpA) and VC4251dtcpA(pBADtcpA) in LB media supplemented with 100 μg/ml ampicillin and 0.5‰ arabinose. C. Growth curve of strains VC4251, VC4251dmshA, VC4251dgbpA and VC4251dtcpA carrying pXEN-pmdh-luxCDABE plasmid in LB media containing 100 μg/ml ampicillin (using a TECAN Infinite M200 PRO multimode microplate reader). D. Bioluminescence of strains VC4251, VC4251dmshA, VC4251dgbpA and VC4251dtcpA carrying pXEN-pmdh-luxCDABE in LB media containing 100 μg/ml ampicillin (using a TECAN Infinite M200 PRO).