*Supplementary Data for:*

Development of novel *Escherichia coli* cell-based biosensors to monitor Mn(II) in environmental systems

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Keywords: *E. coli*-based biosensor, Mn(II) monitoring, MntR transcription factor, *mnt*-operon

**Table S1. The lists of primers used for plasmid construction**

|  |  |  |
| --- | --- | --- |
| **Name** | **Sequence (5’-3’)** |  |
| mntP promoter  mntP-ribo  mntS promoter  mntH promoter  MntR  MntR K73L  MntR R77L  MntR H135A | AT*AGATCT*GGCTGTTAATCCGCGTTC  AA*TCTAGA*AAAACACATCATCGCCCC  AT*AGATCT*GGCTGTTAATCCGCGTTC  AA*TCTAGA*AAATGAGGGCGCAACCTT  AC*AGATCT*TCGTGCGCACATTGTAAAC  CC*TCTAGA*TCCTTGAGGGATGATTGCAT  CC*AGATCT*TCAGAGAAATCACCACAATC  CC*TCTAGA*GCCTCTAAAACATAGCCTTT  AT*CATATG*AGTCGTCGCGCAGGTAC  TA*CTCGAG*TCATTTGGCACCGTGTT  CAACCGACGGTGGCTCTAATGCTTAAGCGGC  GCCGCTTAAGCATTAGAGCCACCGTCGGTTG  CTAAAATGCTTAAGCTGCTGGCAACCATGG  CCATGGTTGCCAGCAGCTTAAGCATTTTAG  GCGGAAGGCATGGAGGCGCATGTTAGTGAAGAG  CGCCTTCCGTACCTCCGCGTACAATCACTTCTC | forward  reverse  forward  reverse  forward  reverse  forward  reverse  forward  reverse  site-directed mutagenesis  site-directed mutagenesis  site-directed mutagenesis |

\* The underlined letters on primer sequences were indicated the restriction enzyme sites.

**Figure S1. The effects of MntR in *E. coli* cell-based biosensors.** The biosensor strains on LB agar plates were illuminated under UV light. (A) *E. coli* WT with pMntS-eGFP, (B) *E. coli-mntR* with pMntS-eGFP, (C) *E. coli-mntR* with pMntS-eGFP and pCDF-MntR WT

