

Supplementary data

Genetical control of violacein biosynthesis to enable a pigment-based whole-cell lead biosensor

Table. S1 Bacterial strains and plasmids used in this study

Strains, plasmids and Primers	Genotypes or description	Reference
<i>E. coli</i> stains		
BL21(DE3)pLysS	F ⁻ <i>ompT hsdS_B (r_B⁻ m_B⁻) gal dcm</i> (DE3)	Novagen
TOP10	F ⁻ Φ 80 <i>lacZ</i> Δ M15 Δ <i>lacX74 recA1</i>	Invitrogen
Plasmids		
pET-21a	Amp ^R , T7 promoter, lac operator	Novagen
pT-Ppbr	T vector carrying <i>pbrR</i> and Ppbr divergent promoter region	¹
pET-vio	pET-21a derivative containing the violacien expression cassette (<i>vioABCDE</i>) inserted as a <i>NdeI/SacI</i> fragment	This study
pPpbr-vio	pET-vio derivative containing <i>pbrR</i> and Ppbr divergent promoter cloned as a <i>BglII/XbaI</i> fragment	This study
Primers		
F-pbr	GAAGATCTTTACCCAGATGTTTGA	This study
R-pbr	GCTCTAGAGAGTAACTCCTGAAAATC	This study

AGATCTTTACCCAGATGTTTGACTGTTCGTGGCACTTTACCCATGGCAATT
 GCCCAACCCTTGCAAATGCCGCACGCCTCTACAGATCGAGAGCCAGAA
 CACTTCTCGCGCAAATCAACCAAGTGCCGTTTTAACTGCAACAGCGCGG
 ACACACGCATTTCCACCTGTTGAATATGGGCCTCCAGCAGCGTGATGACC
pbrR
 TCCCCACAGTCCTGCATCGGGTTGTCTCGCAGACCCAGCAATGCGCGAA
 TCTCGCTCAACGTCATGTCGAGCGAACGGCAATGACGGATGAATTGCAA
 GCGCTCAATGTGCGCCTCACCGTACAACCGAAAGTTGCCACCGCTTCGC
 GCTGGCTTTGGCAGTAGCCCTTCTTCTCGTAGTAGCGGATGGTCA
 CCTCGCACCCAGAGCGCTTGGCGAGGTGCGCAATTCTGATTTCCAT**GCA**
pbr bidirectional promoter region
 TCAATCTCCAATTATCACTTGACTCTATAGTGACTATAGAGATTTAATGGA
 GGCTGAATAGAAGATTTTCAGGAGTACT**TCTAGA**AATAATTTTGTAA
Violacein expression cassette
 CTTAAG**AAGGAG**ATATACAT**ATG**—**vioA-vioB-vioC-vioD-vioE**—**TAA****GA**
GCTCCGTCGACAAGCTTGCGGCCGCACTCGAGCACCACCACCACCACC
 ACTGAGATCCGGCTGCTAACAAAGCCCGAAAGGAAGCTGAGTTGGCTGC
T7 terminator
 TGCCACCGCTGAGCAATA**ACTAGCATAACCCCTTGGGGCCTCTAAACGG**
GTCTTGAGGGGTTTTTTG

Fig. S2 The cloning/expression region of pPpbr-vio used in this study. DNA sequence and annotation data are all marked. The cassette containing the *pbrR* gene and the divergent *pbr* promoter was inserted in front of the violacein biosynthetic module.

References

1. Y. Guo, C. Y. Hui, L. Liu, H. Q. Zheng and H. M. Wu, *Frontiers in microbiology*, 2019, **10**, 1454.