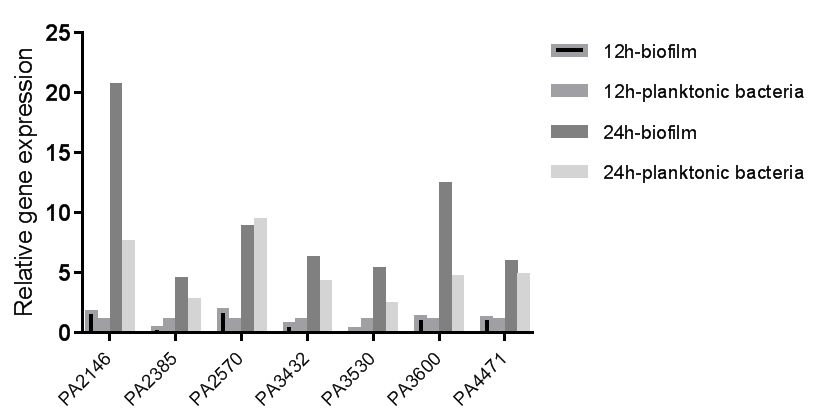
**Additional files**



**Additional Figure 1. The different expressed genes between the biofilm bacteria and planktonic bacterial of PAO1.** PAO1 were cultured as biofilm (static) and planktonic (shake, 180rpm) cells for 12 and 24 hours respectively, the bacterial was collected and the genes transcription was measured by qPCR.

**Additional Table 1. Primers** **for qPCR and PA2146 complementation**

|  |  |  |  |
| --- | --- | --- | --- |
| Primers | Oligonucleotide (5’→3’) | Reference | |
| Primers for qPCR |  | |  |
| 16S rRNA-F | GCGCAACCCTTGTCCTTAGTT | | Zhao et al[1] |
| 16S rRNA-R | TGTCACCGGCAGTCTCCTTAG | |
| pqsA-F | GACCGGCTGTATTCGATTC | | Yin et al[2] |
| pqsA-R | GCTGAACCAGGGAAAGAAC | |
| pqsB-F | ACGTCAAGGGACACCTCAAC | | Cummins et al[3] |
| pqsB-R | GATCAGCAGCAGTTCATCCA | |
| pqsC-F | CGAGTCCTGGTGGCAATTCT | | Knoten et al[4] |
| pqsC-R | TCAGCATGTCCACGCTATCC | |
| pqsD-F | GTGGATCGTCTGGGCAACAT | | Knoten et al[4] |
| pqsD-R | CTCCTCAGGTTTGCGGTACA | |
| pqsE-F | TGATGACCTGTGCCTGTTGG | | Knoten et al[4] |
| pqsE-R | GTCGTAGTGCTTGTGGGTGA | |
| pqsH-F | GCGCGGATCGAGTTCATC | | Viducic et al[5] |
| pqsH-R | CAGGGCGATTCCCACTGA | |
| phnA-F | ACGTGGACAGCAAGGCTGCG | | Knoten et al[4] |
| phnA-R | GGGCCGGACAGTCCTCGCTC | |
| lasR-F | ACGCTCAAGTGGAAAATTGG | | El-Mowafy et al[6] |
| lasR-R | GTAGATGGACGGTTCCCAGA | |
| rhlR-F | AGGAATGACGGAGGCTTTTT | | El-Mowafy et al[6] |
| rhlR-R | CCCGTAGTTCTGCATCTGGT | |
| rhlI-F | CTCTCTGAATCGCTGGAAGG | | El-Mowafy et al[6] |
| rhlI-R | GACGTCCTTGAGCAGGTAGG | |
| rhlA-F | GATCGAGCTGGACGACAAGTC | | Pattnaik et al[7] |
| rhlA-R | GCTGATGGTTGCTGGCTTTC | |
| PA3600-F | ATGAAAGTCCTCGCCTCGCT | | This study |
| PA3600-R | GGATTCGACTTGCAGATCACGT | |
| PA3530-F | CTGCCTCTGCCAAGGTGTTAC | | This study |
| PA3530-R | GCACTTGCCGCACTGGGTAC | |
| PA3432-F | GCTGATGAGCCTGCTCGACTACGG | | This study |
| PA3432-R | CGGCACATCCACTCCACCGACA | |
| PA4471-F | TTCGAGAAAGCCTACAACCTCCTG | | This study |
| PA4471-R | CTGCCGTTGGTGGTCAGTCG | |
| PA2385-F | GCGGGTTGCTGGCTTTCTCC | | This study |
| PA2385-R | TCGGCGTCGATCTGCCTGTC | |
| PA2146-F | ATGGCACAGCATCAAGGTGG | | This study |
| PA2146-R | CGCTGCGGATCGTTCTTGA | |
| PA2570-F | TATCTACAATCCGGGCGATG | | This study |
| PA2570-R | GACCAGCGCACCACAAAA | |
| Primers for PA2146 complementation | | | |
| pRK415-F | caacgcaattaatgtgagttagctcac | | This study |
| pRK415-R | ctcttcgctattacgccagctg | |
| PA2146-up | atatctagaTAATCTGAACCACTGGCGAAACACC XbaI | | This study |
| PA2146-down | atagaattCACTTCACTGCGCGGTTATCAGTTC EcoRI | |

**References**

[1] Zhao J, Jiang H, Cheng W, et al. The role of quorum sensing system in antimicrobial induced ampC expression in Pseudomonas aeruginosa biofilm. J Basic Microbiol 2015;55:671-678.

[2] Yin S, Jiang B, Huang G, et al. The Interaction of N-acetylcysteine and serum transferrin promotes bacterial biofilm formation. Cell Physiol Biochem 2018;45:1399-1409.

[3] Cummins J, Reen FJ, Baysse C, et al. Subinhibitory concentrations of the cationic antimicrobial peptide colistin induce the pseudomonas quinolone signal in Pseudomonas aeruginosa. Microbiology (Reading). 2009;155:2826-2837.

[4] Knoten CA, Wells G, Coleman JP, et al. A conserved suppressor mutation in a tryptophan auxotroph results in dysregulation of Pseudomonas quinolone signal synthesis. J Bacteriol 2014;196:2413-2422.

[5] Viducic D, Murakami K, Amoh T, et al. RpoN modulates carbapenem tolerance in Pseudomonas aeruginosa through Pseudomonas quinolone signal and PqsE. Antimicrob Agents Chemother 2016;60:5752-5764.

[6] El-Mowafy SA, Abd El Galil KH, El-Messery SM, et al. Aspirin is an efficient inhibitor of quorum sensing, virulence and toxins in Pseudomonas aeruginosa. Microb Pathog 2014;74:25-32.

[7] Pattnaik S, Ahmed T, Ranganathan SK, et al. Aspergillus ochraceopetaliformis SSP13 modulates quorum sensing regulated virulence and biofilm formation in Pseudomonas aeruginosa PAO1. Biofouling 2018;34:410-425.