**Hybrid phenolic-inducible promoters towards construction of self-inducible systems for microbial lignin valorization**

**Table S1: Oligonucleotides used in this study**

|  |  |
| --- | --- |
| **Primer name** | **Sequence (5’→ 3’)** |
| Pr\_f10a | gcgcggatccgaatcatttttctaaaacaatacatttactttatttgtcactgtcgttactatatcggctgaaattaatgaggtcatacccaaataaggaggatattatggtttccaagggcgaggag |
| Pr\_f11a | gcgcggatccgaatcatttttctaaaacaatacatttgacaattaatcatcggctcgtataatgatcggctgaaattaatgaggtcatacccaaataaggaggggaattcatggtttccaagggcgaggag |
| Pr\_f12a | gcgcggatccgaatcatttttctaaaacaatacatttgacaattaatcatccggctcgtataatgatcggctgaaattaatgaggtcatacccaaataaggaggggaattcatggtttccaagggcgaggag |
| Pr\_f13a | gcgcggatccgaatcatttttctaaaacaatacatttgacaattaatcatcgcggctcgtataatgatcggctgaaattaatgaggtcatacccaaataaggaggggaattcatggtttccaagggcgaggag |
| Pr\_f10b | cggctgaaattaatgaggtcatacccaa |
| Pr\_r1c | gcgcaagcttgcggccgcagagtttgtagaaacgcaaaaaggcc |
| Pr\_r1d | aagcttgcggccgcagagttt |
| Pr\_f9 | gtcgatcggttcatcattcaccaaa |
| Pr\_r2 | tgtgagttagctcactcattaggca |

**Table S2: Nucleotide sequence of promoters used in this study**

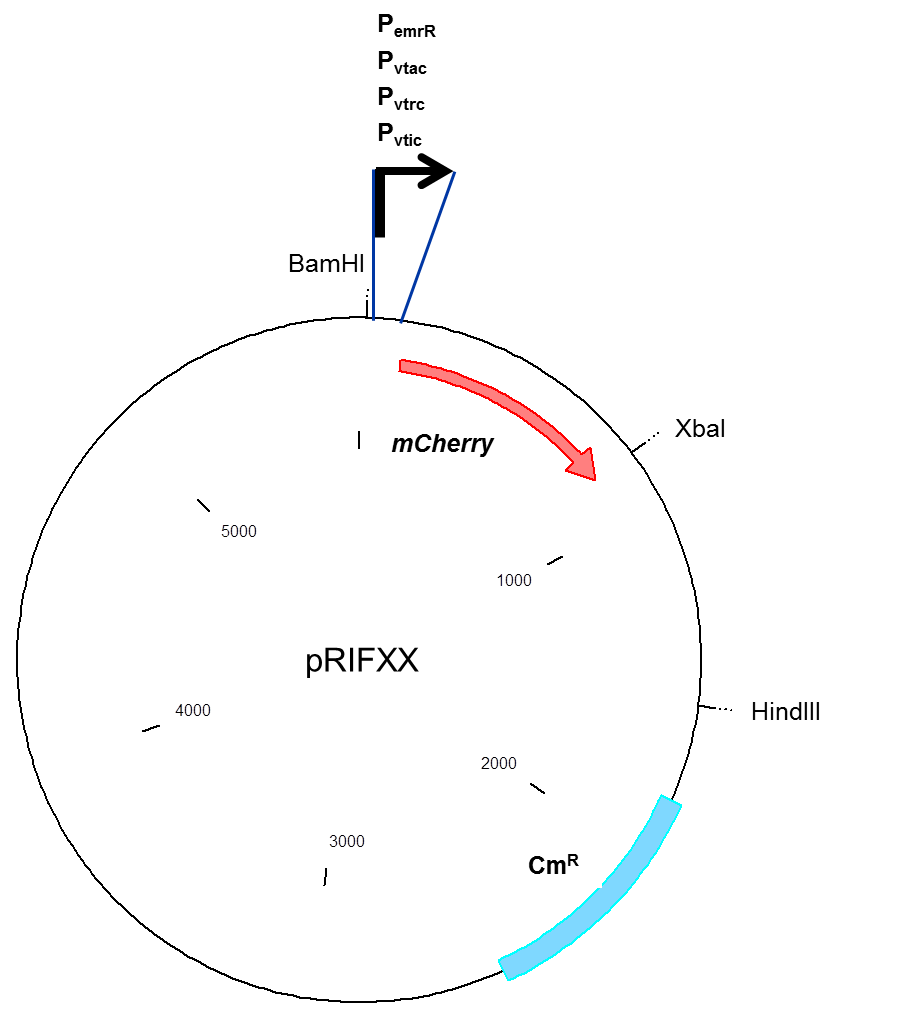
|  |  |
| --- | --- |
| **Promoter name** | **Sequence (5’→ 3’)** |
| **PemrR** | gaatcatttttctaaaacaatacatttactttatttgtcactgtcgttactatatcggctgaaattaatgaggtcatacccaaat |
| **Pvtac** | gaatcatttttctaaaacaatacatttgacaattaatcatcggctcgtataatgatcggctgaaattaatgaggtcatacccaaat |
| **Pvtrc** | gaatcatttttctaaaacaatacatttgacaattaatcatccggctcgtataatgatcggctgaaattaatgaggtcatacccaaat |
| **Pvtic** | gaatcatttttctaaaacaatacatttgacaattaatcatcgcggctcgtataatgatcggctgaaattaatgaggtcatacccaaat |

**Table S3: Vanillin induced sub-population of cells with high fluorescence and forward scattering.**

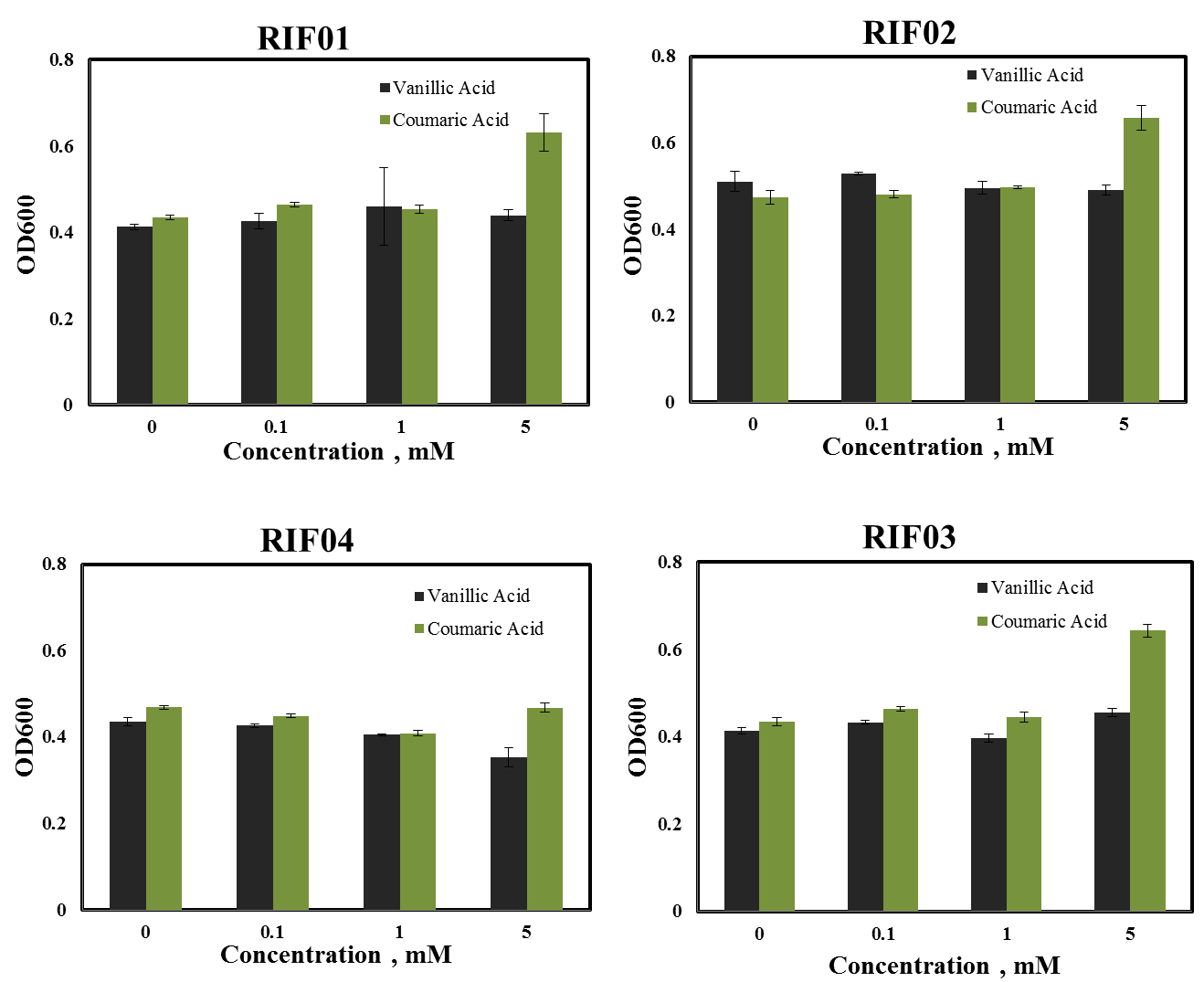
|  |  |  |  |
| --- | --- | --- | --- |
| **Strain** | **Concentration, mM** | **Cell population %**  **(FL3-A >103)** | **Cell population %**  **(FSC-A >104)** |
| RIF01 | 0 | 2.91 ± 0.51 | 54.38 ± 4.47 |
| 0.1 | 2.87 ± 0.44 | 54.46 ± 1.65 |
| 1.0 | 2.09 ± 0.28 | 40.10 ± 2.17 |
| 3.0 | 2.22 ± 0.22 | 28.57 ± 0.48 |
| 5.0 | 5.18 ± 0.73 | 24.26 ± 2.98 |
| RIF02 | 0 | 8.62 ± 0.05 | 59.51 ± 1.67 |
| 0.1 | 6.37 ± 0.31 | 54.19 ± 2.99 |
| 1.0 | 7.08 ± 0.28 | 44.72 ± 1.97 |
| 3.0 | 8.68 ± 0.67 | 30.35 ± 0.56 |
| 5.0 | 13.52 ± 1.02 | 26.17 ± 2.44 |
| RIF03 | 0 | 7.81 ± 0.46 | 61.97 ± 0.41 |
| 0.1 | 6.21 ± 0.93 | 55.98 ± 1.29 |
| 1.0 | 6.48 ± 0.74 | 39.91 ± 1.73 |
| 3.0 | 8.58 ± 0.77 | 27.39 ± 0.47 |
| 5.0 | 16.89 ± 0.60 | 21.34 ± 0.50 |
| RIF04 | 0 | 7.61 ± 0.48 | 69.11 ± 0.39 |
| 0.1 | 7.21 ± 0.52 | 66.87 ± 0.72 |
| 1.0 | 7.48 ± 0.59 | 57.25 ± 2.04 |
| 3.0 | 15.67 ± 1.06 | 39.13 ± 2.03 |
| 5.0 | 18.22 ± 1.11 | 25.24 ± 1.21 |

**Table S4: Coumaric acid induced sub-population of cells with high fluorescence and forward scattering.**

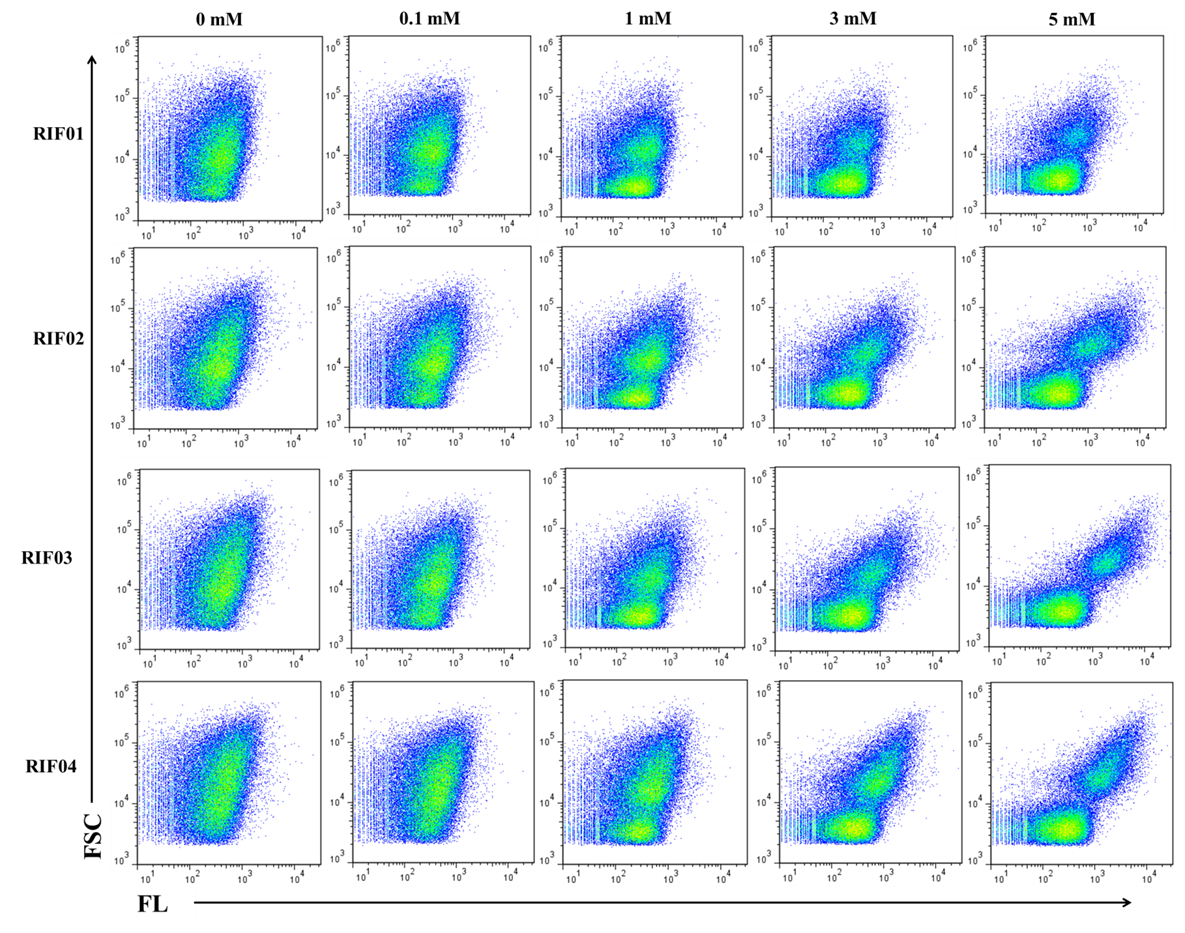
|  |  |  |  |
| --- | --- | --- | --- |
| **Strain** | **Concentration, mM** | **Cell population %**  **(FL3-A >103)** | **Cell population %**  **(FSC-A >104)** |
| RIF01 | 0 | 3.34 ± 0.15 | 53.49 ± 0.87 |
| 0.1 | 3.07 ± 0.01 | 44.25 ± 0.71 |
| 1.0 | 3.87 ± 0.26 | 36.46 ± 0.51 |
| 5.0 | 4.01 ± 0.44 | 35.23 ± 3.34 |
| RIF02 | 0 | 20.88 ± 1.12 | 55.27 ± 1.47 |
| 0.1 | 24.90 ± 0.58 | 46.40 ± 1.81 |
| 1.0 | 24.37 ± 0.99 | 37.67 ± 0.55 |
| 5.0 | 21.43 ± 1.05 | 34.60 ± 1.45 |
| RIF03 | 0 | 16.67 ± 1.88 | 57.80 ± 2.17 |
| 0.1 | 20.49 ± 0.2 | 48.20 ± 1.31 |
| 1.0 | 22.95 ± 0.71 | 39.70 ± 0.89 |
| 5.0 | 21.62 ± 1.28 | 37.90 ± 1.40 |
| RIF04 | 0 | 12.93 ± 0.92 | 65.47 ± 0.38 |
| 0.1 | 12.58 ± 0.86 | 61.27 ± 0.15 |
| 1.0 | 14.45 ± 0.97 | 55.90 ± 0.87 |
| 5.0 | 15.85 ± 2.35 | 47.37 ± 2.99 |

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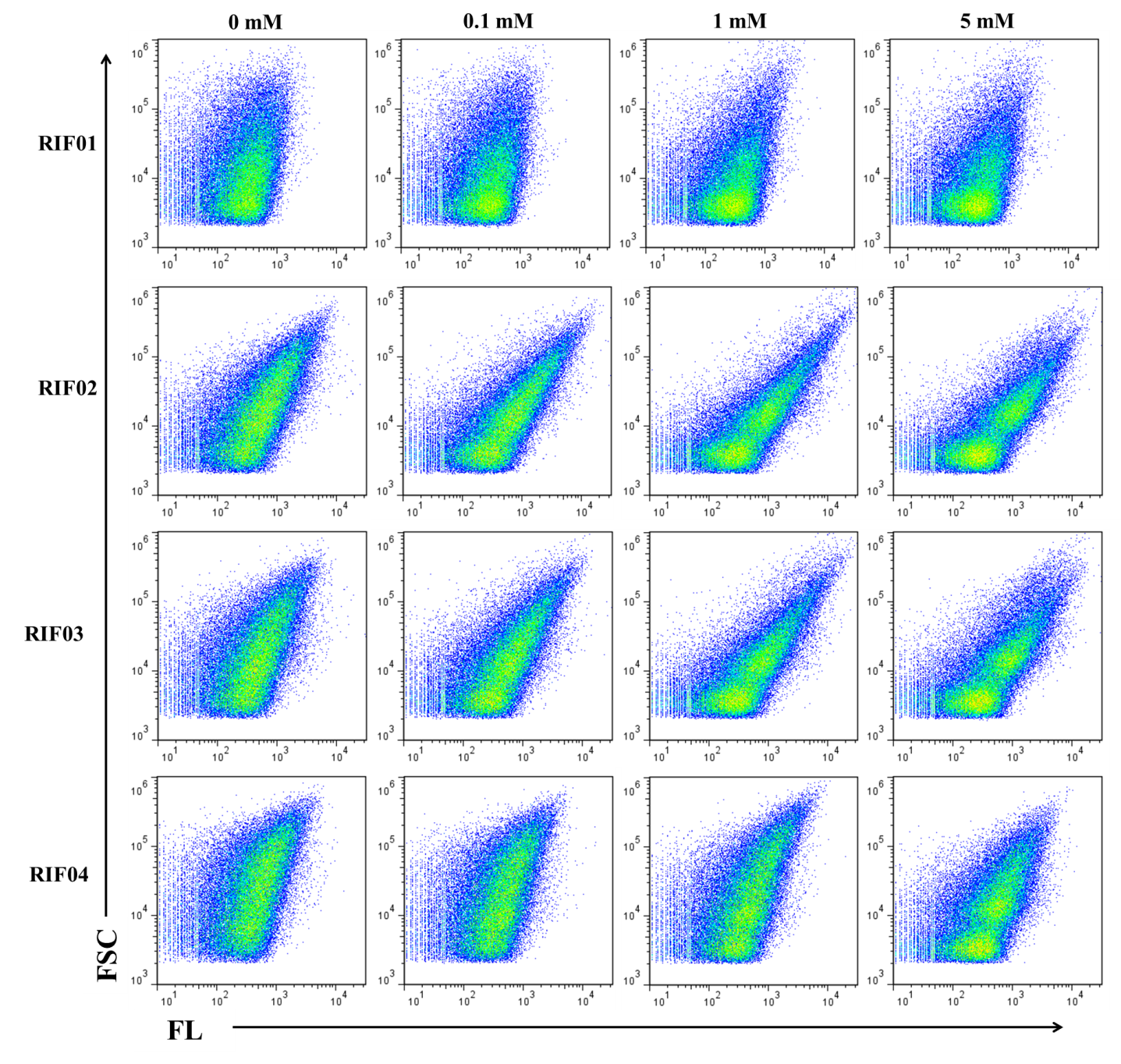
**Figure S1: Vector map of the construct utilized to interrogate the strength of the promoters in this study.** Based upon the promoter present in the construct, pRIFXX can be pRIF01, pRIF02, pRIF03, or pRIF04.

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**Figure S2: Optical density of the *E. coli* strains under varying concentrations of vanillic acid and coumaric acid.**

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**Figure S3: Flow cytometric analysis of vanillin induced cultures.**

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**Figure S4: Flow cytometric analysis of coumaric acid induced cultures.**