Table S1. The effects of exogenous AHL molecules on biofilm formation in *P. fluorescens* (mean ± SD).

|  |  |  |  |
| --- | --- | --- | --- |
| Additive | Concentration | Biofilm formationa | Stimulation rate (%)b |
| Control | 0 μL/mL | 0.793±0.021g | — |
| C4-HSL | 2 μg/mL | 1.804±0.013c | 127.49% |
| C6-HSL | 2 μg/mL | 1.212±0.025e | 52.83% |
| C8-HSL | 2 μg/mL | 1.182±0.009e | 49.05% |
| C10-HSL | 2 μg/mL | 0.814±0.021g | 2.64% |
| C12-HSL | 2 μg/mL | 0.915±0.010f | 15.38% |
| C14-HSL | 2 μg/mL | 1.481±0.031d | 86.76% |

aExpressed as OD595 after staining with crystal violet

bThe stimulation rate = [(OD experimental group – OD control group) / OD control group] ×100

c-gSignificantly different means (*P* < 0.05)

Table S2. The effect of AHLs on protease activity of *P. fluorescens* (mean ± SD)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Additive | Concentration | Proteinase activity (mm)a | | Stimulation rate (%)b |
| Control | 0 μL/mL | 20.03±0.05g | — | |
| C4-HSL | 2 μg/mL | 32.73±0.09c | 63.40% | |
| C6-HSL | 2 μg/mL | 27.31±0.07e | 36.35% | |
| C8-HSL | 2 μg/mL | 26.17±0.11e | 30.65% | |
| C10-HSL | 2 μg/mL | 21.31±0.17g | 6.39% | |
| C12-HSL | 2 μg/mL | 23.45±0.05f | 17.07% | |
| C14-HSL | 2 μg/mL | 30.53±0.19d | 52.42% | |

aExpressed as diameter of the transparent enzymolysis circle generated by *P. fluorescens* in milk agar plates.

bThe stimulation rate = [(OD experimental group – OD control group) / OD control group] ×100

c-gSignificantly different means (*P* < 0.05)

Table S3. Structures and scores of *P. fluorescens* RhlR proteins models

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Proteins | Template | Description | GMQE | QMEAN | Model |
| RhlR-type | 4y13.1.A | Transcriptional regulator of ftsQAZ gene cluster | 0.75 | -2.31 |  |
| 3qp5.1.A | CviR transcriptional regulator | 0.45 | -4.15 |  |

Table S4. Docking results of RhlR type protein of *P. fluorescens* with AHLs

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Protein | Ligand | Total score | Crasha | Polarb | Cscorec |
| RhlR type | C4-HSL | 4.09 | -0.85 | 2.83 | 4 |
| C6-HSL | 7.87 | -0.69 | 3.09 | 4 |
| C8-HSL | 7.11 | -1.11 | 1.69 | 4 |
| C10-HSL | 8.67 | -2.06 | 3.08 | 4 |
| C12-HSL | 8.16 | -1.55 | 2.06 | 4 |
| C14-HSL | 6.94 | -2.89 | 3.00 | 4 |

aCrash represents the degree of inappropriate penetration by the ligand into the protein

bPolar represents the contribution of hydrogen bonding and salt bridge interactions to the total score

c Cscore is the function for ranking the binding affinity of ligands to the active site of a receptor

Fig. S1. The effect of exogenous AHL molecules on the growth of *P. fluorescens* at 28°C. Data are presented as means ± SD.

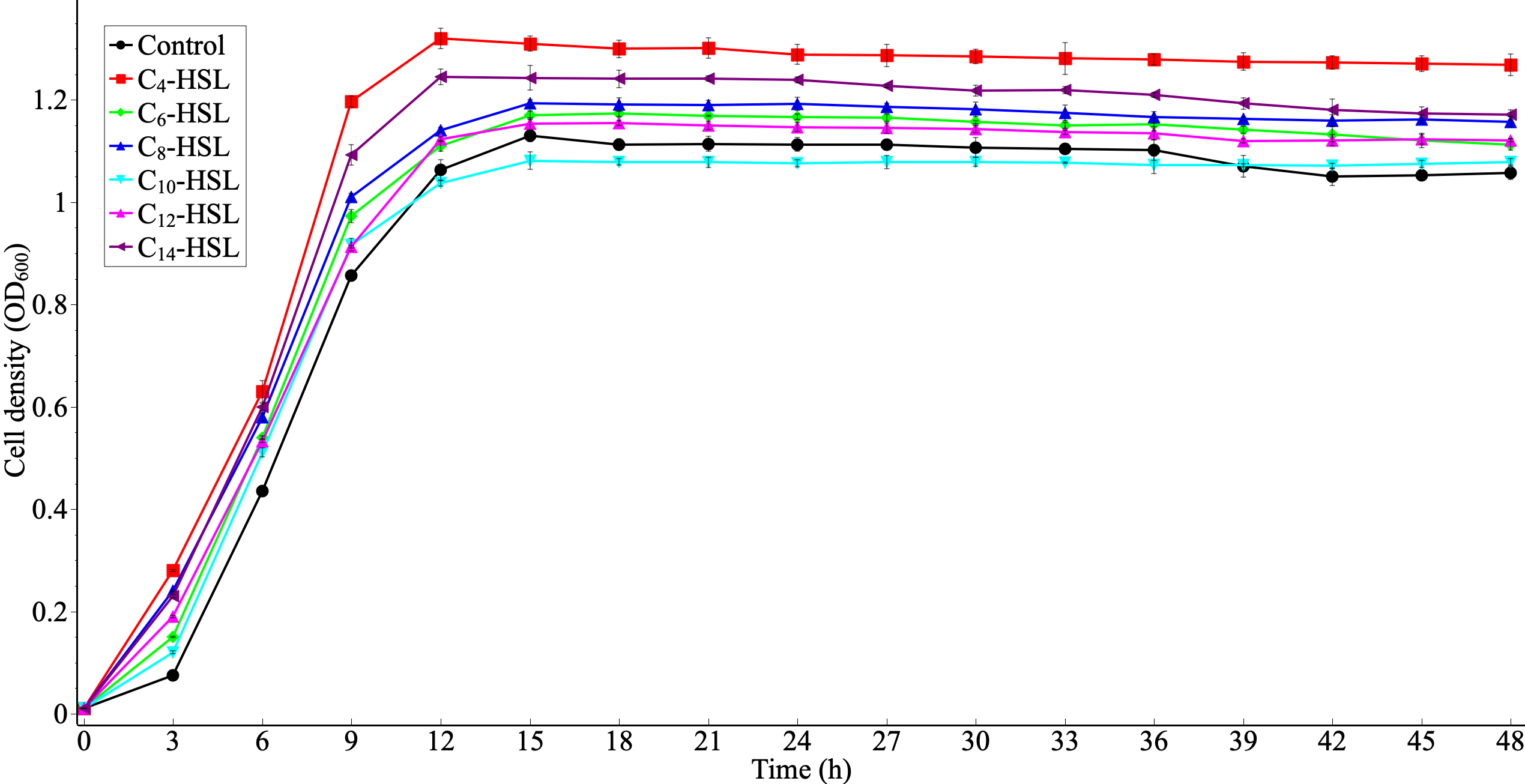


Fig. S2. GC-MS ion m/z 143 chromatograms of a mixture of standard AHL molecules (A) and the extracted supernatants of a pure *P. fluorescens* culture (B). The peaks detected at the retention time of 4.406 and 10.678 min were found to be C4-HSL and C10-HSL.

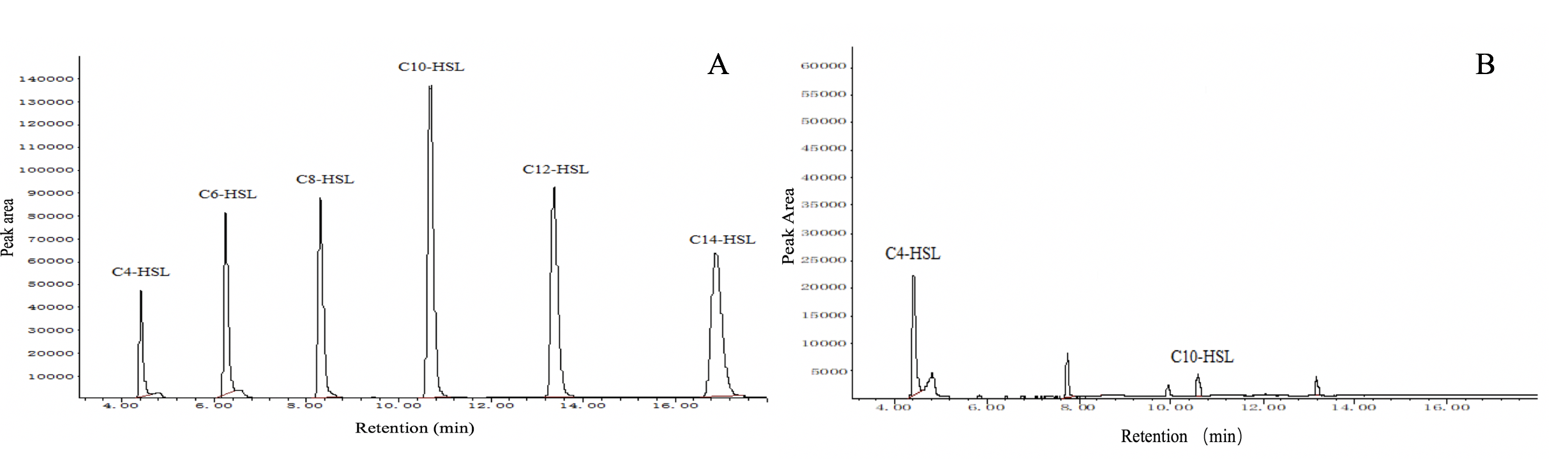


Fig. S3. Part of the sequence alignment results for RhlR proteins in *P. fluorescens* and its matching proteins.



Fig. S4. Assessment of the quality of RhlR protein model of *P. fluorescens.*

