

## Supplementary material

**Table S1.** Composition of SL-9 trace element solution (Tschech and Pfennig, 1984), [52] for preparation of the modified DSM 135 medium.

Compound	Concentration [g/L]
Nitrilotriacetic acid	12.8
MnCl <sub>2</sub> x 2 H <sub>2</sub> O	0.1
FeCl <sub>2</sub> x 4 H <sub>2</sub> O	2
CoCl <sub>2</sub> x 6 H <sub>2</sub> O	0.2
ZnCl <sub>2</sub>	0.07
CuCl <sub>2</sub> x 6 H <sub>2</sub> O	0.002
H <sub>3</sub> BO <sub>3</sub>	0.006
Na <sub>2</sub> MoO <sub>4</sub> x 2 H <sub>2</sub> O	0.036
NiCl <sub>2</sub> x 6 H <sub>2</sub> O	0.024

**Table S2.** Composition of vitamin solution (Wolin *et al.*, 1963, modified), [53] for preparation of the modified DSM 135 medium.

Compound	Concentration [g/L]
D-biotin	0.025
Folic acid	0.025
Pyridoxine-HCl	0.05
Thiamine-HCl x 2 H <sub>2</sub> O	0.05
Riboflavin	0.05
Nicotinic acid	0.05
D-Ca-pantothenate	0.05
Cyanocobalamine	0.025
$\alpha$ -Aminobenzoic acid	0.05
$\alpha$ -Lipoic acid	0.025

**Table S3.** Composition of selenite-tungstate solution (Tschech and Pfennig, 1984), [53] for preparation of the modified DSM 135 medium.

Compound	Concentration [g/L]
NaOH	0.5
Na <sub>2</sub> SeO <sub>3</sub> x 5 H <sub>2</sub> O	0.03
Na <sub>2</sub> WO <sub>4</sub> x 2 H <sub>2</sub> O	0.04

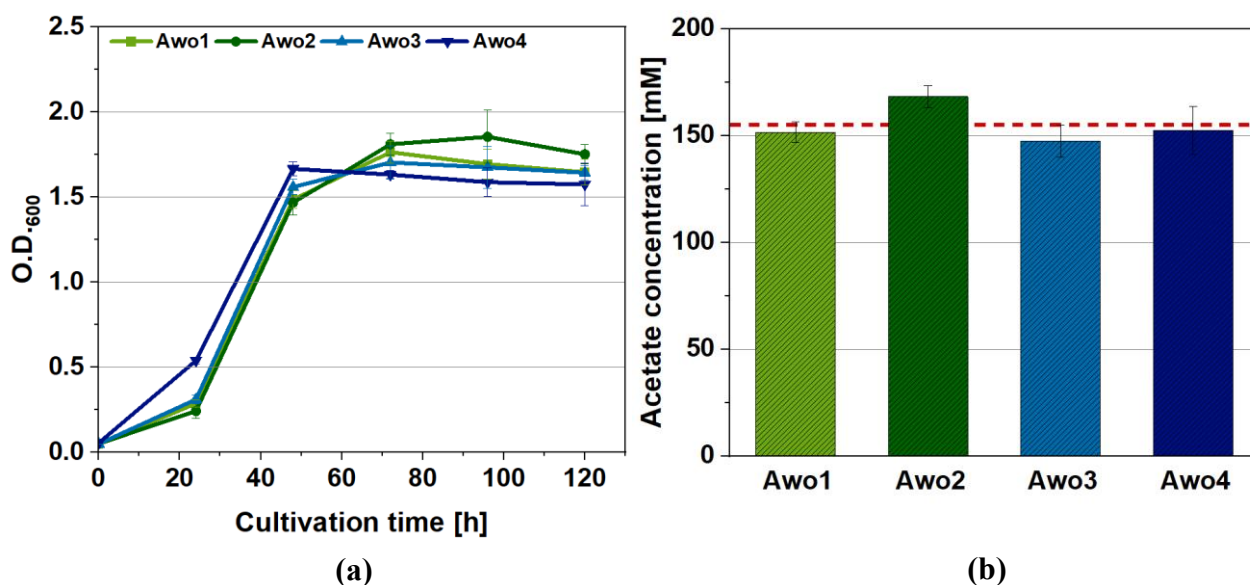
**Table S4.** Composition of the trace element solution (Wilms *et al.*, 2001), [54] for preparation of modified Wilms KPi medium.

Compound	Concentration [g/L]
ZnSO <sub>4</sub> × 7 H <sub>2</sub> O	0.18
CuSO <sub>4</sub> × 5 H <sub>2</sub> O	0.16
MnSO <sub>4</sub> × H <sub>2</sub> O	0.1
FeCl <sub>3</sub> × 6 H <sub>2</sub> O	13.92
EDTA	10.05
CoCl <sub>2</sub> × 6 H <sub>2</sub> O	0.18
CaCl <sub>2</sub> × 2 H <sub>2</sub> O	0.662
Thiamine-HCl	10

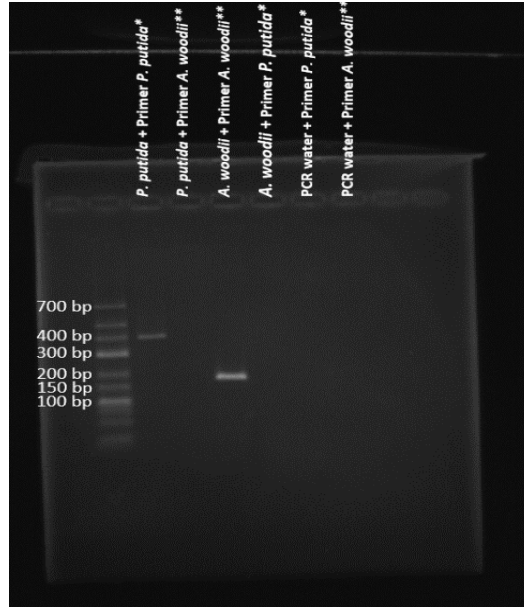
**Table S5.** Composition of S.O.C. medium used for cell regeneration of *P. putida* KT2440 after transformation with plasmids pVLT31 and pVLT31\_ *rhlAB*.

Compound	Concentration
Tryptone	2 % (w/v)
Yeast extract	0.5 % (w/v)
NaCl	10 mM
KCl	2.5 mM
MgCl <sub>2</sub>	10 mM
MgSO <sub>4</sub> × 7 H <sub>2</sub> O	10 mM
CaCl <sub>2</sub> × 2 H <sub>2</sub> O	0.662 mM
Glucose <sup>1</sup>	20 mM

<sup>1</sup>Was added after autoclaving.

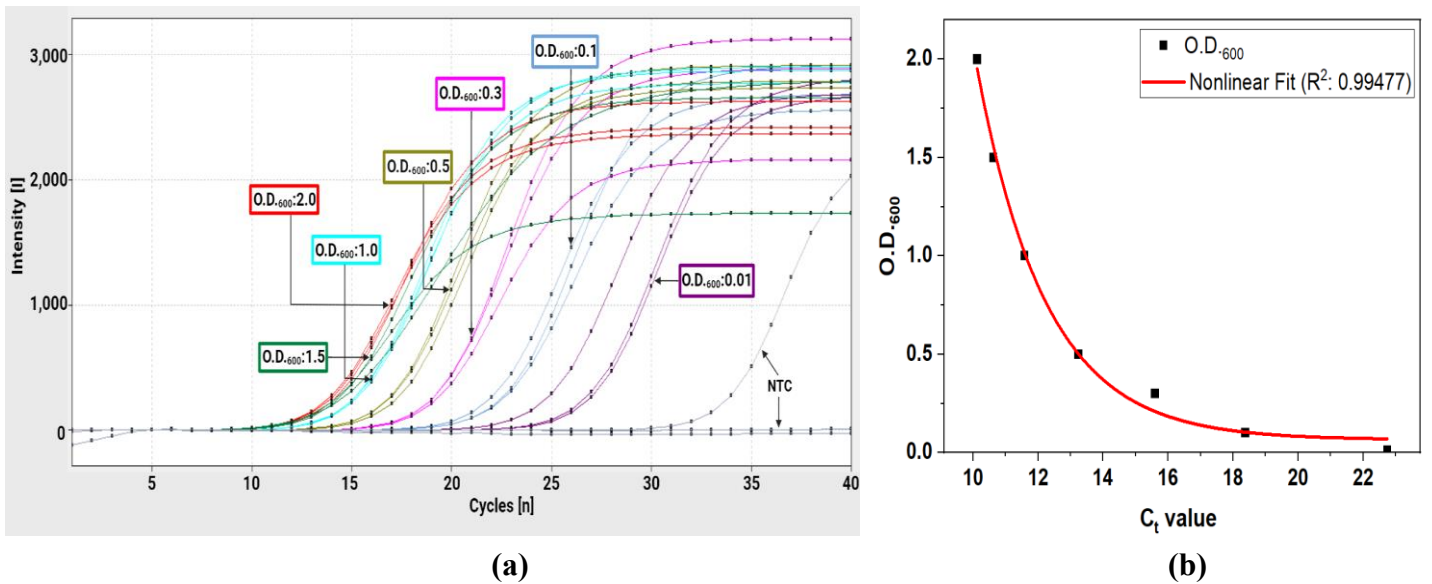


**Figure S1.** Growth (a) and final acetate concentrations (b) of four cultures of *A. woodii* [pMTL83251] (**Awo1-4**) after 120 hours of cultivation. The red horizontal line represents the average final acetate concentration (153.84 mM) of the four cultures.

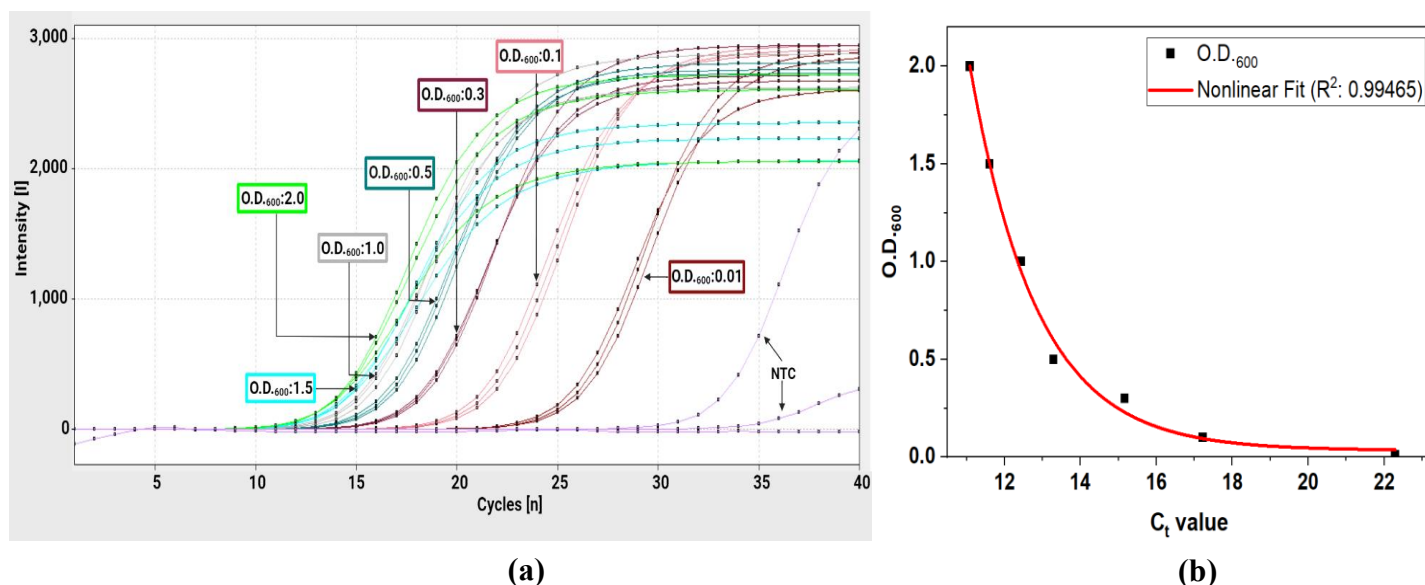


\*Refers to the primer pair SK\_ppu\_Fwd1+Rev1.  
\*\*Refers to the primer pair SK\_awo\_Fwd1+Rev1.

**Figure S2.** Visualization of the PCR products obtained using the primer pairs SK\_awo\_Fwd1+Rev1 (163 bp) and SK\_ppu\_Fwd1+Rev1 (412 bp) respectively in a 1 % (w/v) agarose gel. To investigate the primers specificity, genomic DNA of both *A. woodii* and *P. putida* were used as template material for each of the primer pairs separately. To detect potential contaminations of the used diluent with foreign genomic material, PCR for both primer pairs was additionally carried out with PCR water. \*NTC: Non-template control.



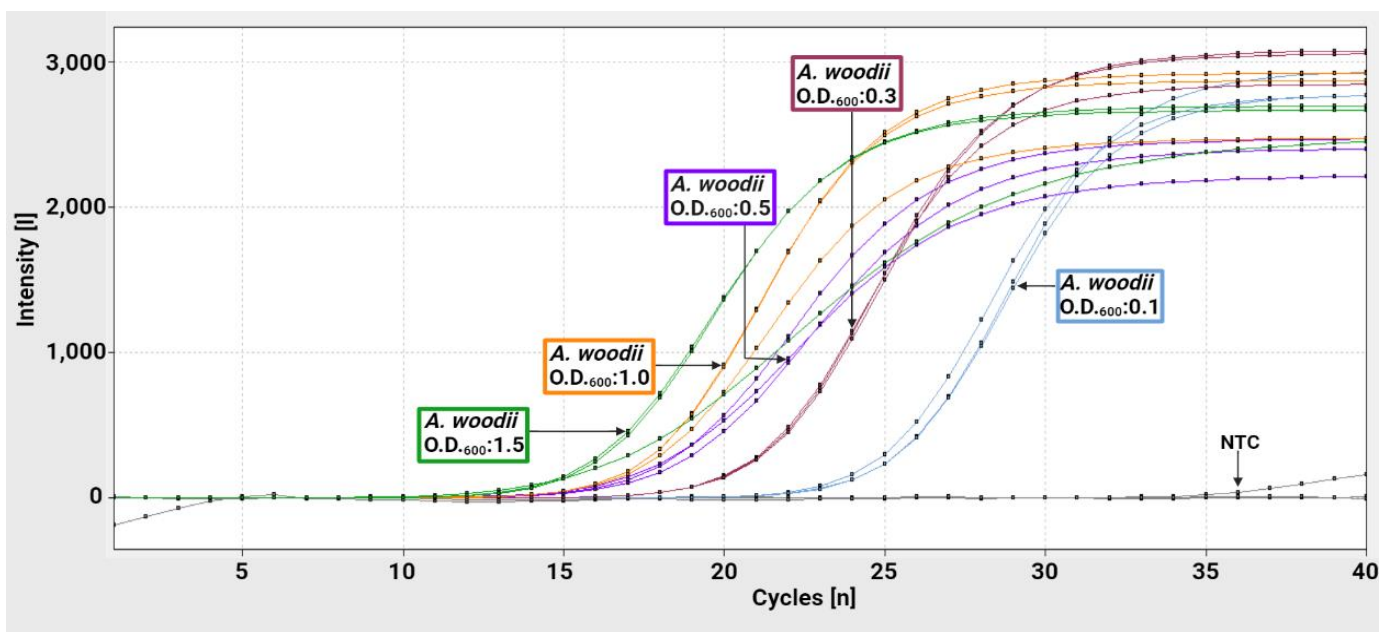
**Figure S3.** Results of qPCR with culture suspension of *P. putida* [pVLT31\_rhlAB] with different OD<sub>600</sub> values from 0.01 to 2.0 used as template material. The shown data were obtained using the primer pair SK\_ppu\_Fwd1+Rev1 for specific detection of the *lpxD* (PP\_08260) gene of *P. putida* KT2440. Curves of matching colour represent technical triplicates (a). The mean C<sub>t</sub> values obtained from qPCR were plotted against the corresponding OD<sub>600</sub> values to obtain a standard curve via nonlinear regression, using a function corresponding to Equation 1 (b).



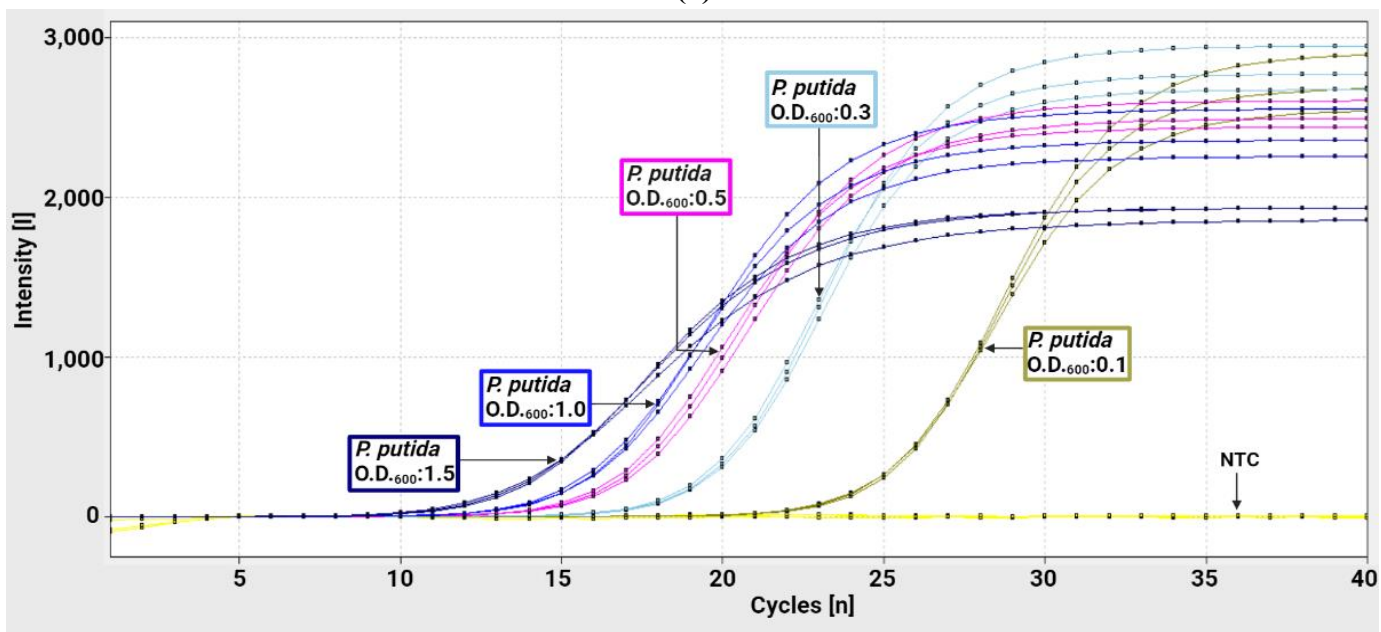
**Figure S4.** Results of qPCR with culture suspension of *A. woodii* [pMTL83251] with different  $OD_{600}$  values from 0.01 to 2.0 used as template material. The shown data were obtained using the primer pair SK\_awo\_Fwd1+Rev1 for specific detection of the *acsA* (Awo\_c10740) gene of *A. woodii*. Curves of matching colour represent technical triplicates (a). The mean  $C_t$  values obtained from qPCR were plotted against the corresponding  $OD_{600}$  values to obtain a standard curve via nonlinear regression, using a function corresponding to Equation 1 (b).

**Table S6.** Results of  $OD_{600}$  calculation from  $C_t$  values obtained from qPCR with predefined *A. woodii*/*P. putida* mixtures of different  $OD_{600}$  ratios used as template material. Also shown are the respective percental deviations of the calculated  $OD_{600}$  values from the actual ones. Values of standard deviation refer to technical triplicates.

Mix-ratio ( $OD_{600}$ <i>A. woodii</i> / $OD_{600}$ <i>P. putida</i> )	<i>A. woodii</i> $OD_{600}$	<i>P. putida</i> $OD_{600}$	<i>A. woodii</i> $OD_{600}$ calculated through $C_t$ values	<i>P. putida</i> $OD_{600}$ calculated through $C_t$ values	% deviation $OD_{600}$ ( <i>A. woodii</i> )	% deviation $OD_{600}$ ( <i>P. putida</i> )
15:1	1.5	0.1	$1.3 \pm 0.061$	$0.1 \pm 0.005$	-13.34	0
10:3	1.0	0.3	$1.1 \pm 0.119$	$0.2 \pm 0.017$	+10	-33
1:1	0.5	0.5	$0.5 \pm 0.013$	$0.4 \pm 0.019$	0	-20
3:10	0.3	1.0	$0.2 \pm 0.009$	$0.9 \pm 0.107$	-33	-10
1:15	0.1	1.5	$0.1 \pm 0.003$	$1.2 \pm 0.111$	0	-20



(a)



(b)

**Figure S5.** Results of qPCR with mixed cell suspensions of *A. woodii* [pMTL83251] and *P. putida* [pVLT31\_rhlAB] of different predefined OD<sub>600</sub> ratios used as template material (see Table S6). The values were obtained using the primer pairs SK\_awo\_Fwd1+Rev1 (a) and SK\_ppu\_Fwd1+Rev1 (b), respectively. Curves of matching colour represent technical triplicates.