Tuning of the enzyme ratio in a neutral redox convergent cascade: A key approach for an efficient one-pot/two-step biocatalytic whole-cell system.

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FIGURE 1: Self-sufficient cascade involving NADP⁺/NADPH-dependent ADH and BVMO overexpressed in *E. coli* (A). Target molecules, ε-caprolactone and 3,4-dihydrocoumarin (B)



FIGURE 2: Time course of cyclohexanol biotransformation by A-I strains.

◆ Cyclohexanol consumption in blue, ▲ ketone formation in grey and ● caprolactone formation in orange



FIGURE 3. Plasmid copy numbers, enzyme concentration and system activity in strains A-I and control (A) System activity, initial caprolactone formation rate of cells resuspended into phosphate buffer. (B) Mean values of PCN calculated on triplicate measures of both antibiotic resistance genes and targeted gene numbers. (C) BVMO_{Parvi} and ADH_{Singulis} concentrations estimated from SDS-PAGE.





Strain labels are noted on the corresponding plots. Apparent activity was measured the first hour of reaction.



FIGURE 5: Optimization of culture parameters. (A) Three-dimensional modelling representation of the variation of activity (response) as a function of parameters time and temperature after induction. (B) Activity of co-expression E strain prepared in optimised conditions *versus* enzyme ratio.