

Electronic supporting information

Improved Biocatalytic Cascade Conversion of CO₂ to Methanol by Enzymes Co-immobilized in Tailored Siliceous Mesostructured Cellular Foams

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S1. Nitrogen sorption analysis

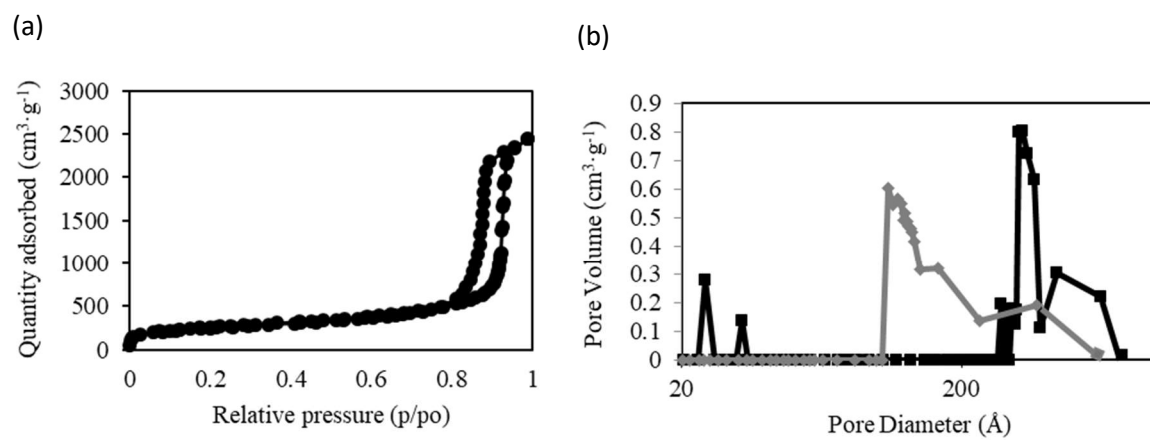


Figure S1. Nitrogen sorption measurements for MCF. (a) Nitrogen adsorption-desorption isotherms and (b) pore size distribution (black line) and window size distribution (grey line).

S2. TGA analysis

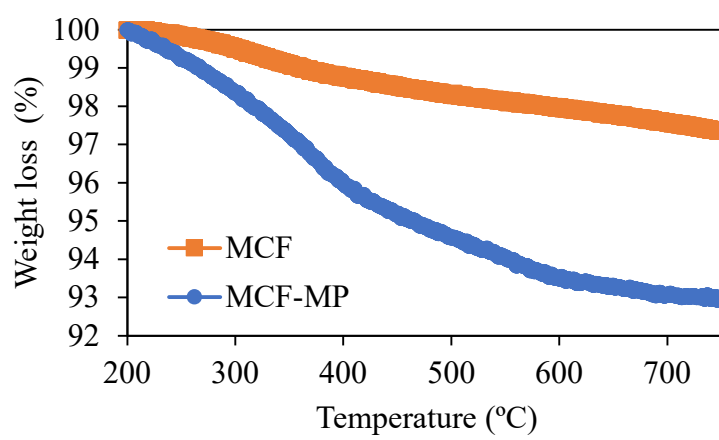


Figure S2. TGA measurements for the MCF and MCF-MP.

S3. Individual distribution of FateDH, FaldDH, ADH in MCF

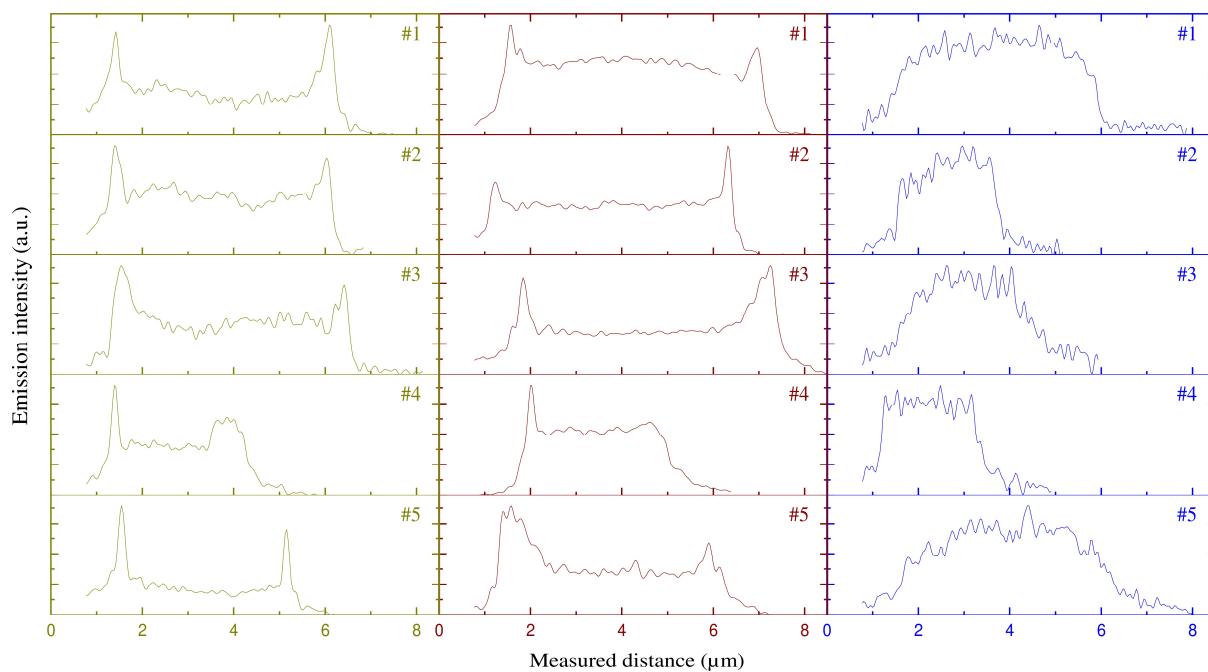


Figure S3. Intensity profiles of particles #1–#5 in Figure 2. Yellow: FateDH-Cy3, red: FaldDH-Cy5, blue: ADH-AF488.

S4. Co-distribution of FateDH, FaldDH, ADH in MCF

P_{LD}150 in reaction order

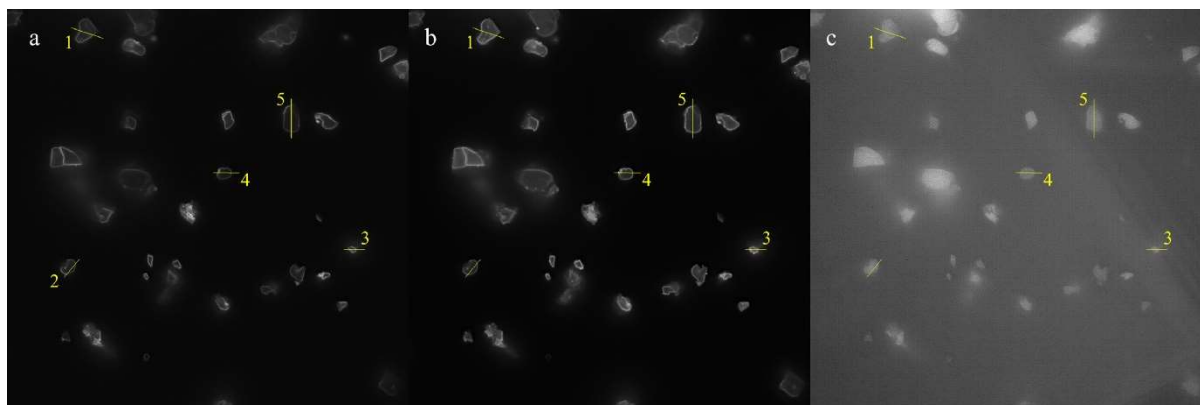


Figure S4. Enzyme distribution along the MCF particle after the immobilization in reaction order with P_{LD}150. (a) FateDH-Cy3, (b) FaldDH-Cy5, (c) ADH-AF488.

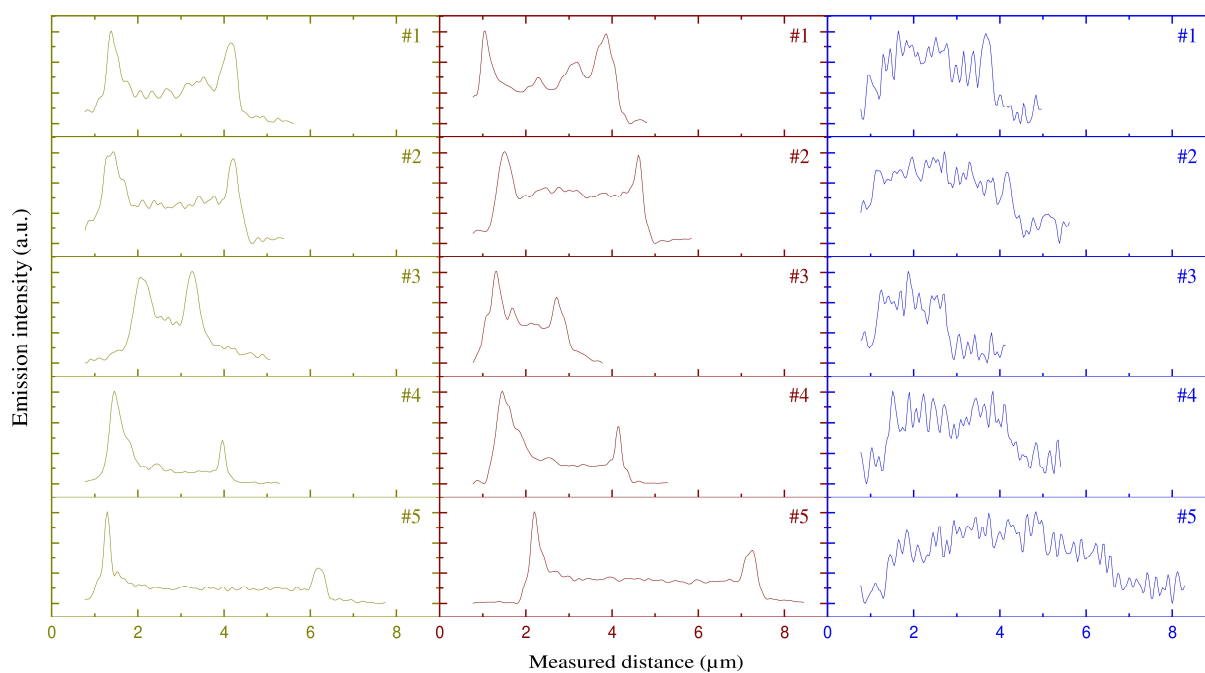


Figure S5. Intensity profiles of particles #1–#5 in Figure 4a according to individual imaging in Figure S4. Yellow: FateDH-Cy3, red: FaldDH-Cy5, blue: ADH-AF488.

P_{LD}150 in size order

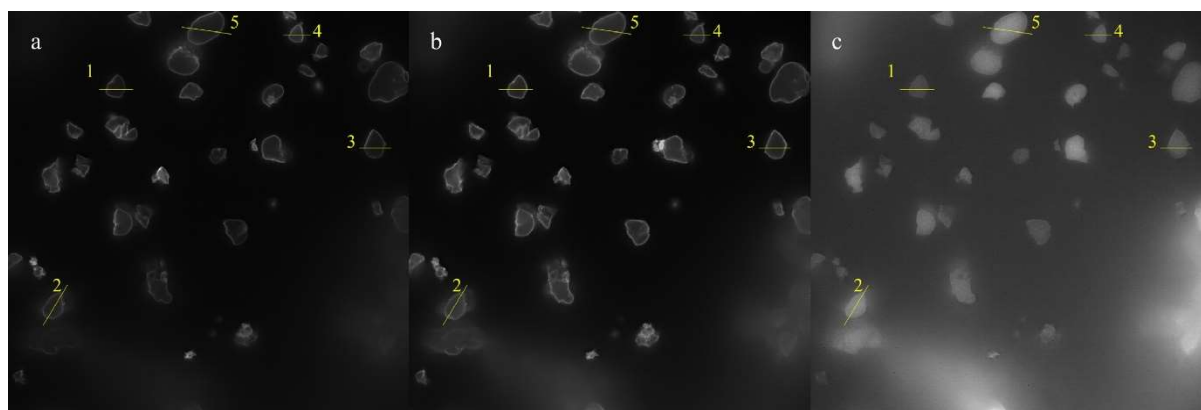


Figure S6. Enzyme distribution along the MCF particle after the immobilization in size order with P_{LD}150. (a) FateDH-Cy3, (b) FaldDH-Cy5, (c) ADH-AF488.

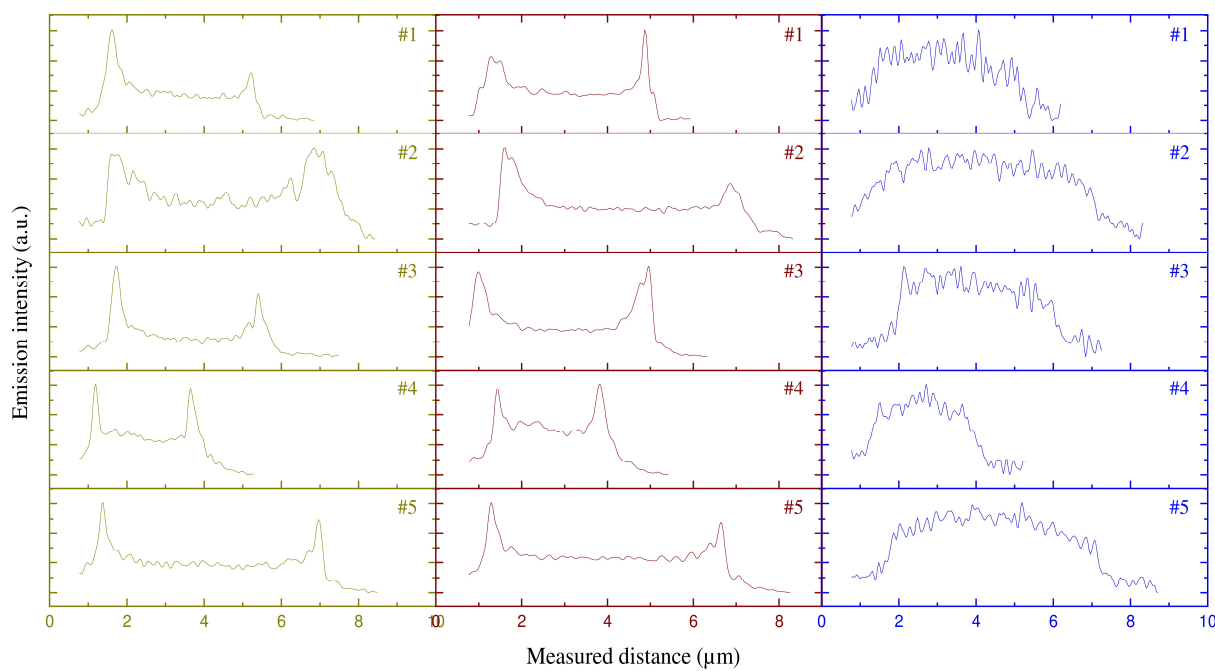


Figure S7. Intensity profiles of particles #1–#5 in Figure 4b according to individual imaging in Figure S6. Yellow: FateDH-Cy3, red: FaldDH-Cy5, blue: ADH-AF488.

P_{LD50} in size order

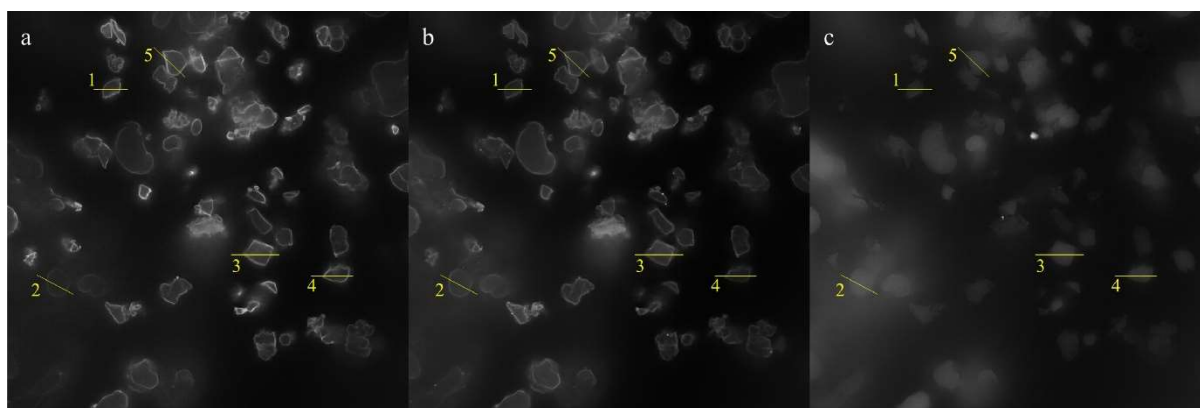


Figure S8. Enzyme distribution along the MCF particle after the immobilization in size order with P_{LD50}. (a) FateDH-Cy3, (b) FaldDH-Cy5, (c) ADH-AF488.

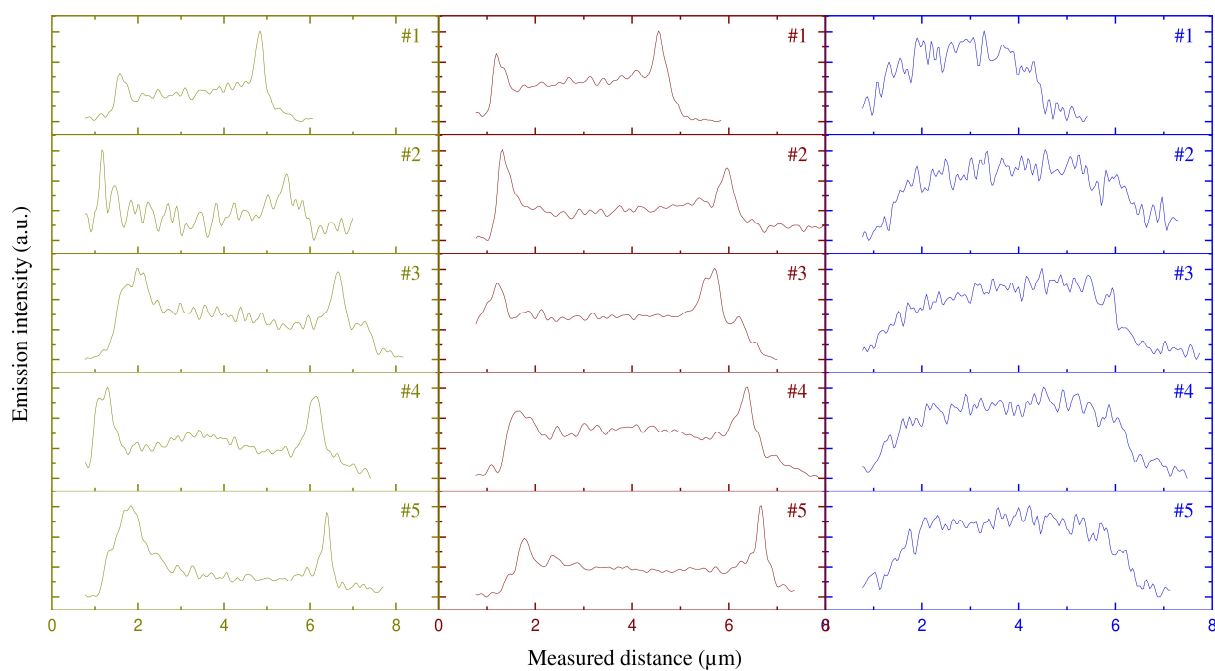


Figure S9. Intensity profiles of particles #1–#5 in Figure 4c according to individual imaging in Figure S8. Yellow: FateDH-Cy3, red: FaldDH-Cy5, blue: ADH-AF488.