

Encapsulation of lipase in mesoporous silica yolk-shell spheres with enhanced stability

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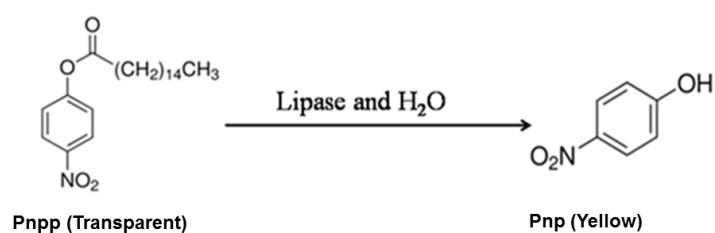


Figure S1. Hydrolysis reaction for activity test of lipase.

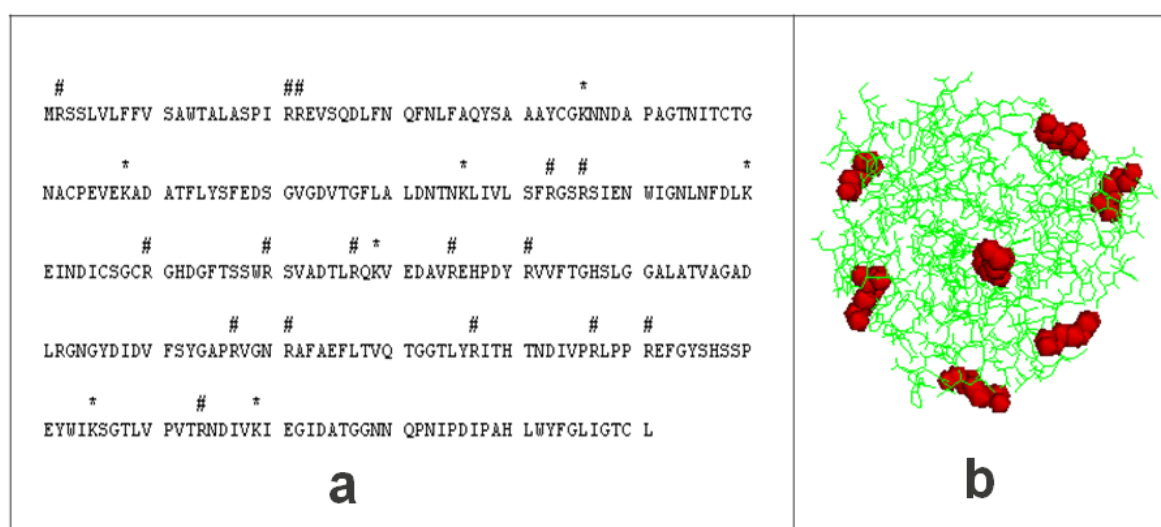


Figure S2 a: Amino acid sequence of lipase (UniProtKB Accession No. 059952). Lysine residue is labelled with “*” upon the representative letter, K. The Proteinase K cleavage site is labelled with “#” sign upon the representative letter, R. The cleavage site information was obtained from ExPASy-PeptideCutter. **b:** Positions of lysine residues on lipase surface. The red spheres indicate the position of lysine residue. The picture was constructed with Pymol V1.5.

Table S1. Specific activity of free and encapsulated lipases

Samples	Specific activity per unit weight of lipase [U.mg ⁻¹]	Specific activity after thermal treatment [U.mg ⁻¹]	Specific activity after Proteinase K treatment [U.mg ⁻¹]
Free lipase	4.7	0.024	undetectable
LEMSYS	0.75	0.66	0.56

The concentration of lipase encapsulated in mesoporous silica yolk-shell sphere was 11 mg/g silica sphere. The specific activities of free and encapsulated lipase under different conditions are summarized in Table S1 for comparison.