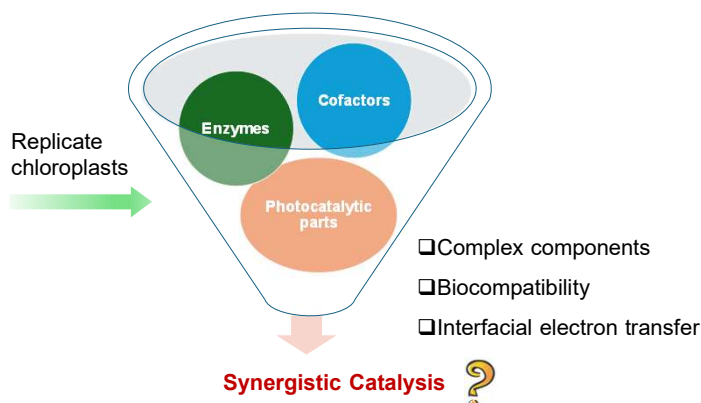
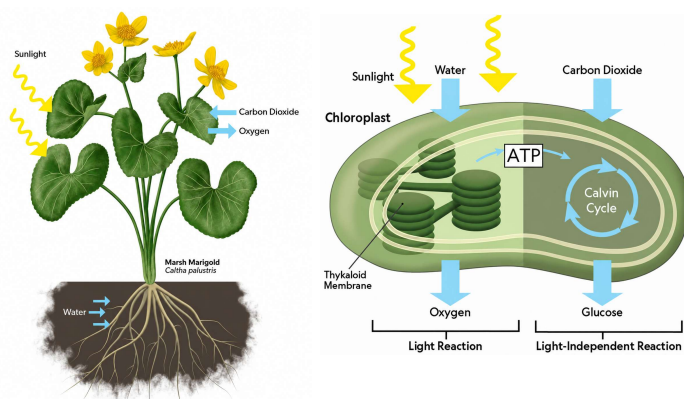


Biomimetic all-in-one photo-biocatalysis system

Dr Si Liu (si.liu4@unsw.edu.au)

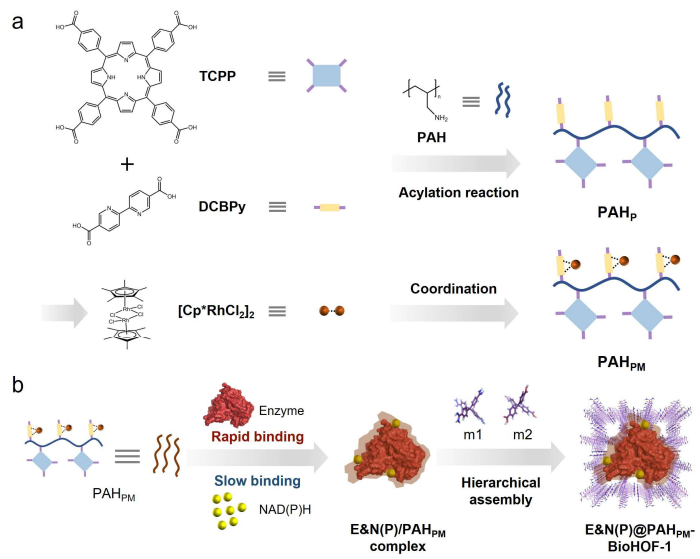
School of Chemical Engineering & Australian Centre for NanoMedicine, UNSW Sydney, Australia

INTRODUCTION



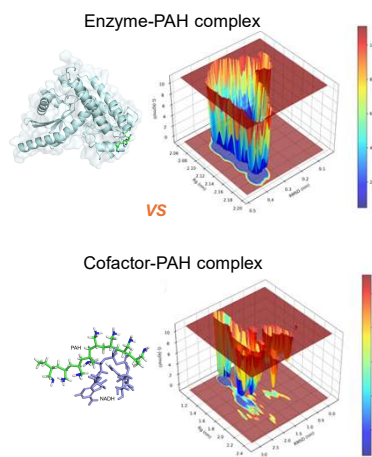
METHODS

Integrate a photocatalyst, an electron donor, a cofactor and an enzyme within BioHOF-1 with the assistance of a polyelectrolyte (PAH)

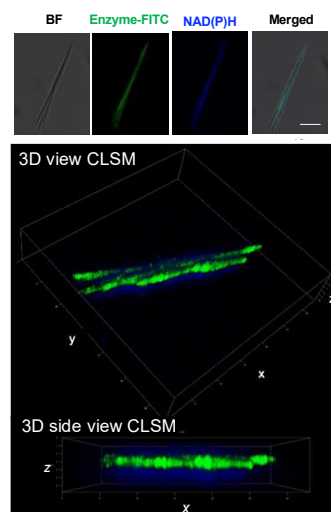


RESULTS & DISCUSSION

Different Binding Affinity

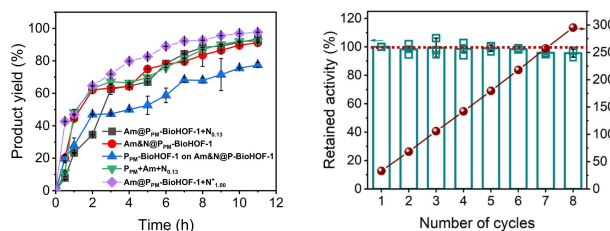


Hierarchical Distribution

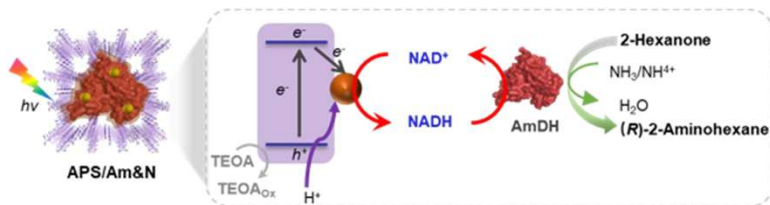


Light-Driven Chiral Amine Synthesis

92% yield | >99% ee | 11 h. NAD TON: 296 over 8 cycles



All-in-One Photo-Biocatalysis System



TAKE-HOME MESSAGE

Spatial proximity + compartmentalization enable efficient coupling.

Adsorbed TEOA supports 8 batch reactions with a single initial donor addition.

ACKNOWLEDGEMENTS

Organizers

Prof. Kang Liang (UNSW)

The Nano-Micro-Bio Systems research group

