

Supplementary information

Facile bioinspired preparation of fluorinase@fluoridated hydroxyapatite nanoflowers for the biosynthesis of 5'-fluorodeoxy adenosine

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Optimization of expression conditions of flA gene in *E. coli* BL21

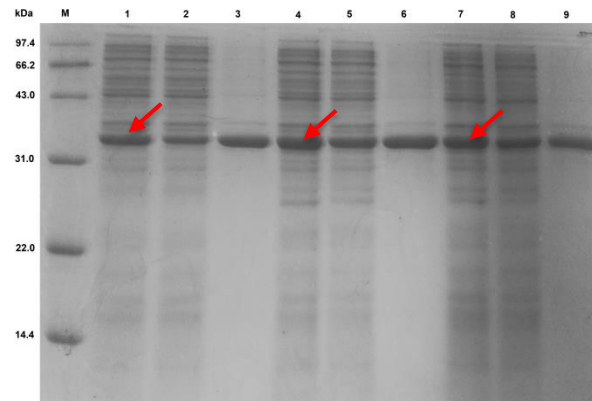


Fig. S1. Expression assays of fluorinase by different concentration of IPTG. M: protein molecular mass marker; Lane 1,4,7: whole cell proteins; Lane 2,5,8: soluble region, Lane 3,6,9: insoluble region recombinant flA; Lane 1-3: 0.1mM IPTG, Lane 4-6: 0.5mM IPTG, Lane 7-9: 2.0mM IPTG.

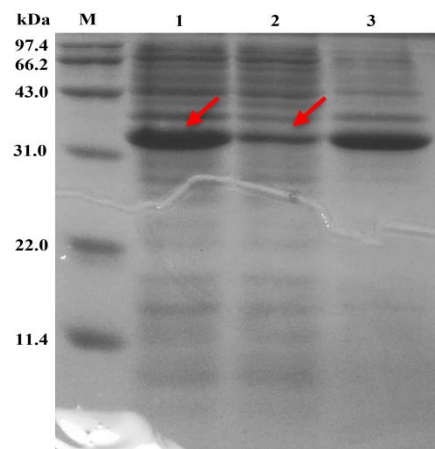


Fig. S2. Expression assays of fluorinase at 16°C induction Lane 1: whole cell proteins; Lane 2: soluble region, Lane 3: insoluble region recombinant flA

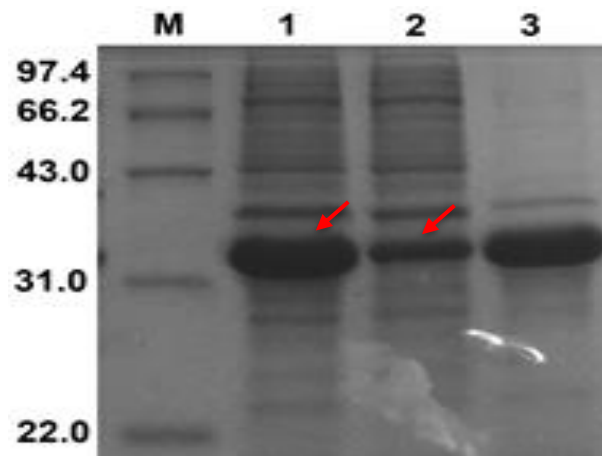


Fig. S3. Expression assays of fluorinase at 23°C induction Lane 1: whole cell proteins;
Lane 2: soluble region, Lane 3: insoluble region recombinant flA

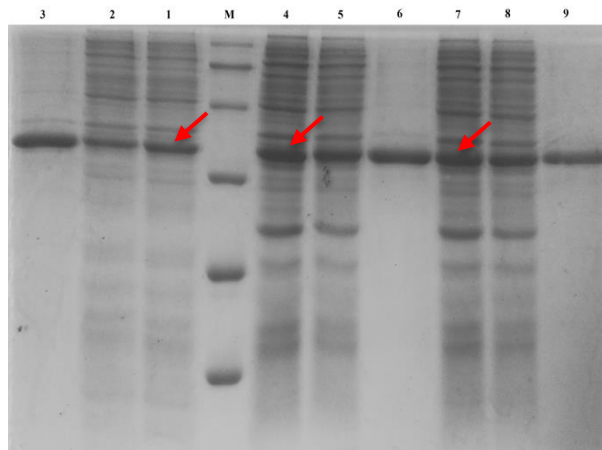


Fig. S4. Expression assays of fluorinase at different induction time. M: protein
molecular mass marker; Lane 1,4,7: whole cell proteins; Lane 2,5,8: soluble region,
Lane 3,6,9: insoluble region recombinant flA; Lane 1-3: 6h, Lane 4-6: 12h, Lane 7-9:
24h.

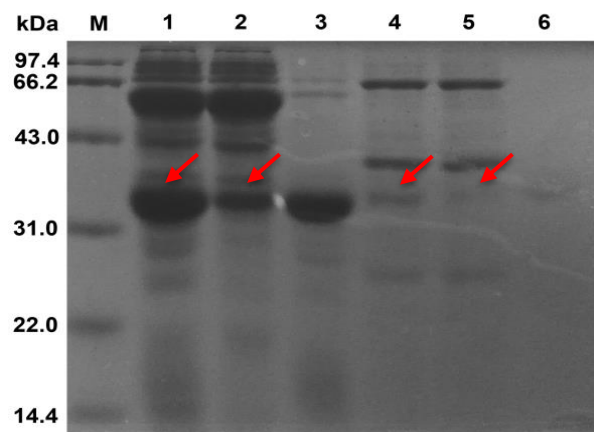


Fig. S5. Expression assays of fluorinase with pGro7 or pKJE7. M: protein molecular
mass marker; Lane 1,4: whole cell proteins; Lane 2,5: soluble region, Lane 3,6:

insoluble region recombinant flA; Lane 1-3: pGro7, Lane 4-6: pKJE7.

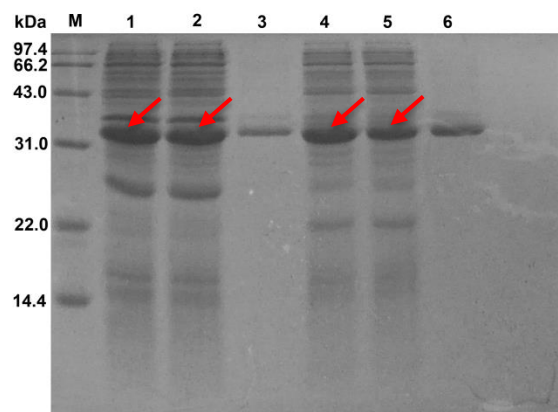


Fig. S6. Expression assays of fluorinase in different c . M: protein molecular mass marker; Lane 1,4: whole cell proteins; Lane 2,5: soluble region, Lane 3,6: insoluble region recombinant flA; Lane 1-3: Expression hosts is Rosetta (DE3), Lane 4-6: Expression hosts is Origami(DE3).

Characterization of enzyme@ F-hNFs

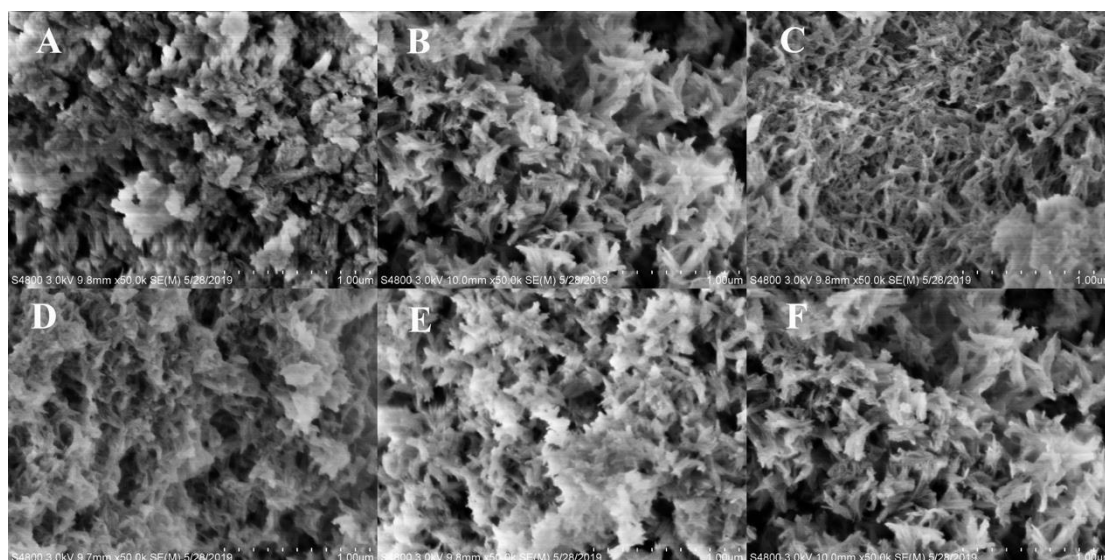


Fig. S7. Effect of pH in PBS on crystal form (A) 6.5 (B) 7.5 (C) 8.5 and effect of crystallization time on crystal form (D) 0h (E)12h (F)24h

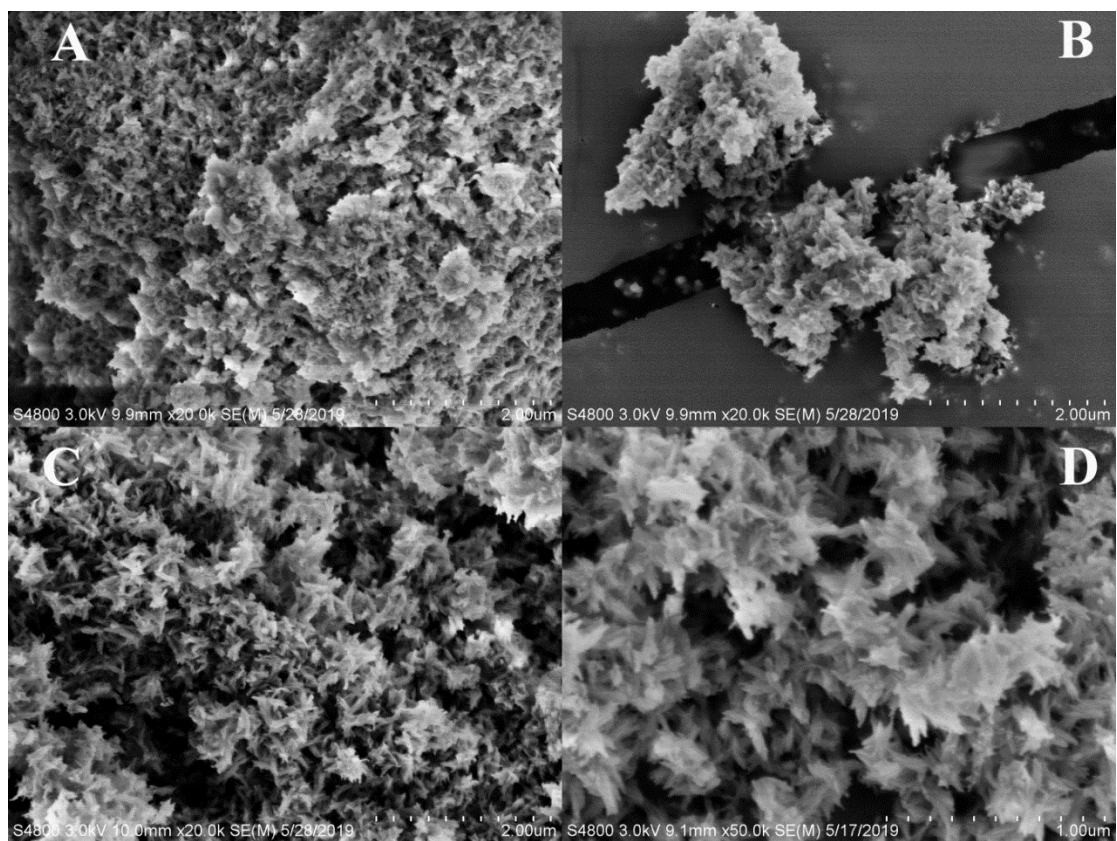


Fig. S8. Concentration of FDAS in PBS: (A) $5\ \mu\text{g}\cdot\text{mL}^{-1}$ (B) $20\mu\text{g}\cdot\text{mL}^{-1}$ (C) $70\mu\text{g}\cdot\text{mL}^{-1}$ (D) $100\mu\text{g}\cdot\text{mL}^{-1}$

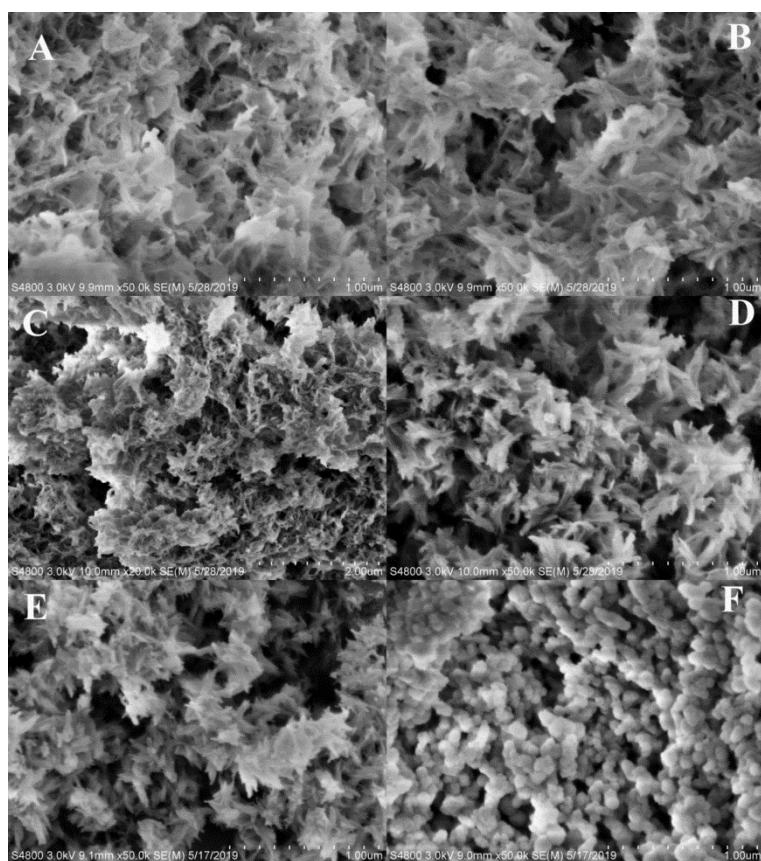


Fig. S9. Concentration of different F^- (A) 0.5ppm (B) 1ppm (C) 5ppm (D) 20ppm (E) 50ppm (F) 3000ppm)

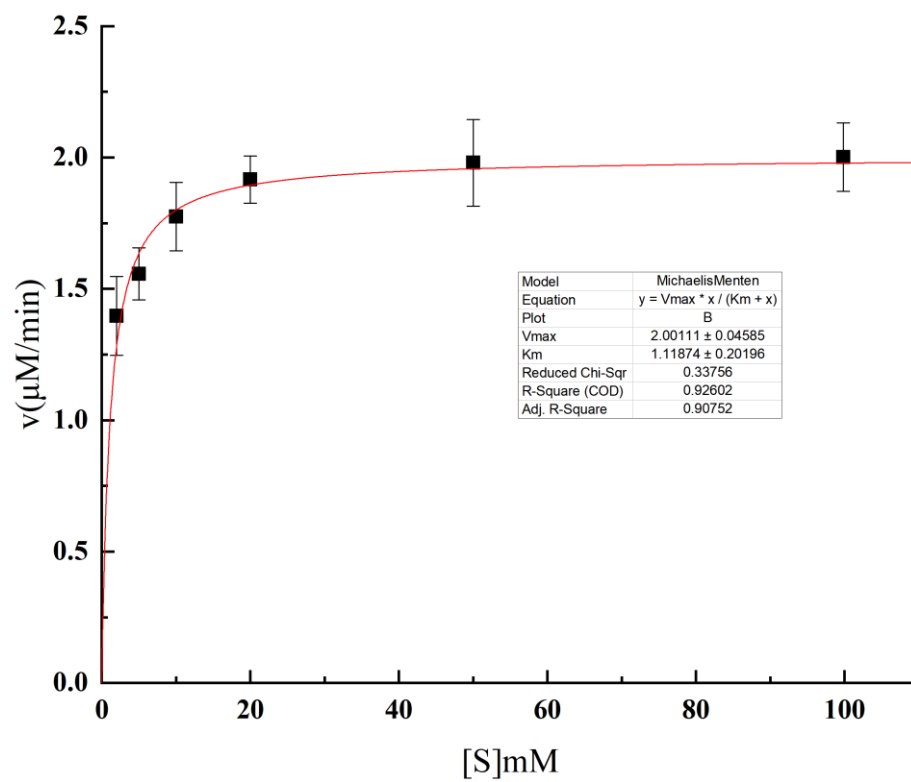


Fig. S10.Effect of substrate KF concentration on the reaction rate