

Supplementary material

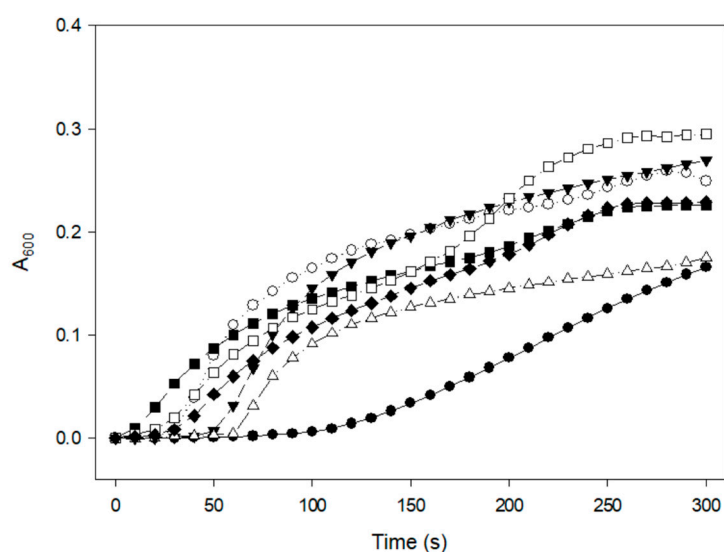


Figure S1. Rate of CaCO_3 precipitation. Solid circle: negative control without enzyme; addition of 250 (open triangle), 300 (solid triangle), and 350 (open circle) $\mu\text{g/mL}$ of column-purified SspCA; addition of 250 (solid diamond), 300 (open square), and 350 (solid square) $\mu\text{g/mL}$ of heat-purified SspCA.

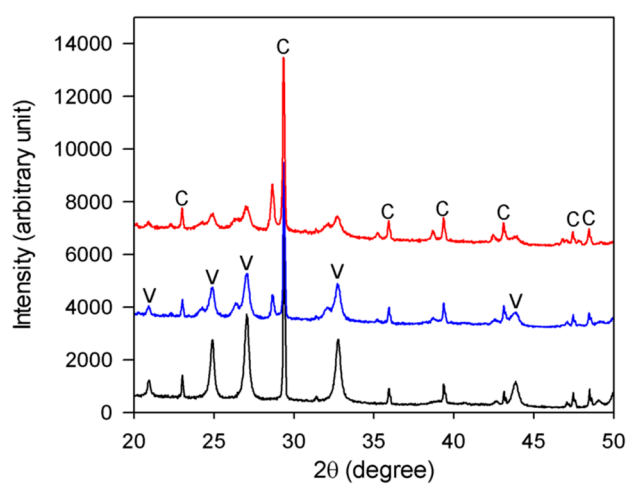


Figure S2. XRD patterns of precipitated CaCO_3 . C: calcite; V: vaterite. Black: negative control without the addition of enzyme; blue: precipitation catalyzed by Ni-NTA column-purified SspCA; red: precipitation catalyzed by heat-purified SspCA.

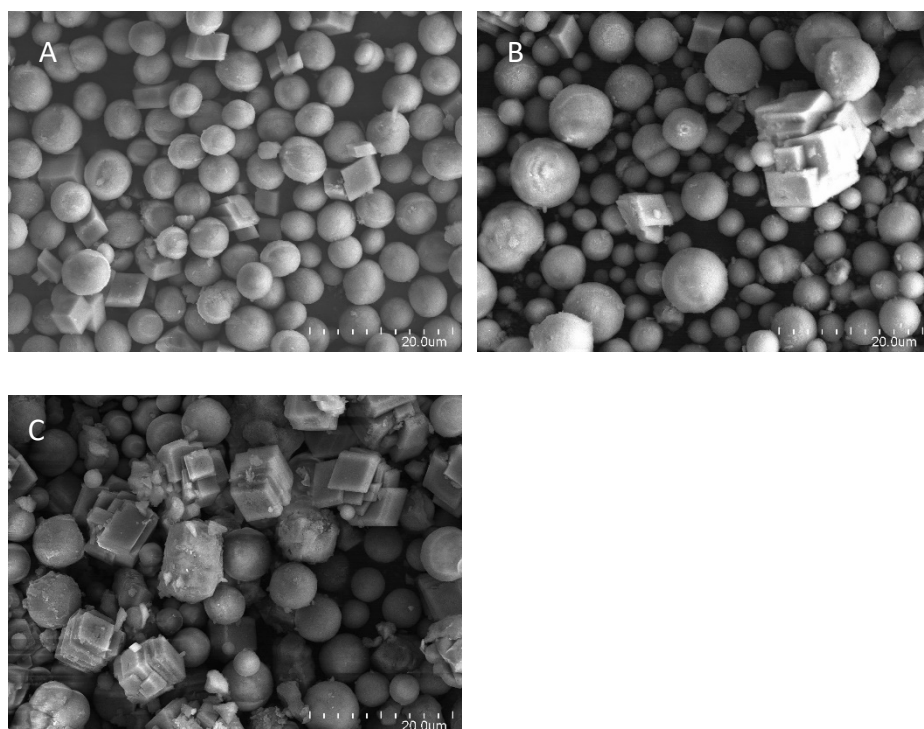


Figure S3. SEM images of precipitated CaCO_3 . (A) Negative control without the addition of enzyme; (B) precipitation catalyzed by Ni-NTA column-purified SspCA; (C) precipitation catalyzed by heat-purified SspCA.

Table S1. Properties of SspCA purified by heating. The data were obtained from a culture volume of 50 mL.

Temperature (°C)	70				80				90			
Time (min)	5	10	15	20	5	10	15	20	5	10	15	20
Purity (%) ¹	41	51	50	48	60	64	60	61	40	45	43	39
Total activity (WAU)	2346	18833	20822	18576	19098	20106	14953	11720	6844	6429	3718	2028
	0±	±	±	±	±	± 341	±	±	±	±	±	± 330
	5974	3315	3315	5538	2082		3192	1768	1420	417	725	
Total protein (mg)	10	7	8	9	3	3	3	3	2	2	2	1
	± 0.2	± 0.1	± 0.04	± 0.7	± 0.3	± 0.4	± 0.2	± 0.4	± 0.3	± 0.4	± 0.3	± 0.1
Specific activity (WAU/mg prot.)	2441	2758	2470	2145	5870	5949	4495	3920	3334	3878	2419	1435
	±	± 485	± 393	± 639	± 640	± 101	± 959	± 591	±	±	±	± 220
	621								692	246	471	

¹ The purity was determined from SDS-PAGE using densitometry.