

Supplementary material: Calcite seed-assisted microbial induced carbonate precipitation (MICP) and its potential in biocementation

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Methods

Scanning electron microscopy

The shape and the size of the fabricated calcite seeds was investigated with a scanning electron microscope (FEI APREO) (SEM). The dried calcite seeds were attached to a SEM stub with carbon tape and sputter coated (Cressington 208HR) with 10 nm platinum/palladium (80/20). SEM images were taken with an accelerating voltage of 2 kV.

Supplementary Data

Table S1: Dilution of original bacteria cultures. The original culture with growth medium was centrifuged, washed and re-suspended in 0.01 M PBS. The re-suspended bacteria cultures without growth medium were dilute to the final dilutions, which were used for the experiments.

Sample name	Culture with growth medium		Culture without growth medium		
	Amount culture	PBS	Amount culture	PBS	OD _{600nm}
D1-C1	4 mL	4 mL	1000 μ L	0 μ L	1.40
D2-C1	4 mL	4 mL	750 μ L	250 μ L	1.30
D3-C1	4 mL	4 mL	500 μ L	500 μ L	1.11
D4-C1	4 mL	4 mL	200 μ L	800 μ L	0.64
D1-C2	1 mL	1.5 mL	1000 μ L	0 μ L	0.96
D2-C2	3 mL	3.5 mL	1000 μ L	0 μ L	0.88
D1-C3	3 mL	3.5 mL	1000 μ L	0 μ L	0.89

Table S2: Starting pH value of the crystallization solution for samples with and without calcite seeds present before adding the bacteria culture to the crystallization solution.

Bacteria sample	pH unseeded	pH seeded
D1-C1	5.3	6.1
D2-C1	5.3	6.1
D3-C1	5.3	6.3
D4-C1	5.4	6.1

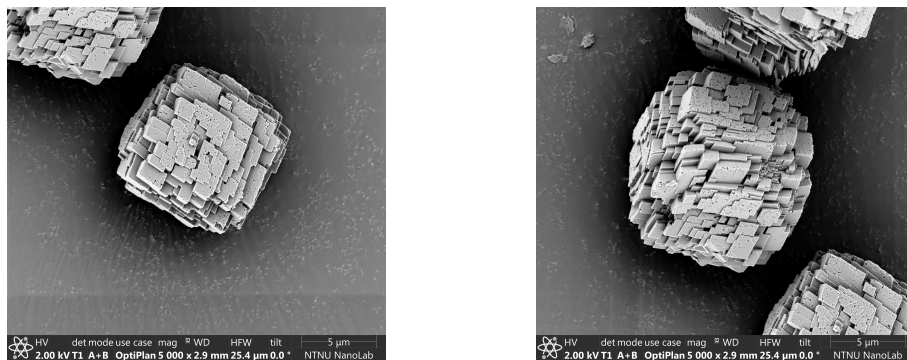


Figure S1: SEM images of calcite seeds.

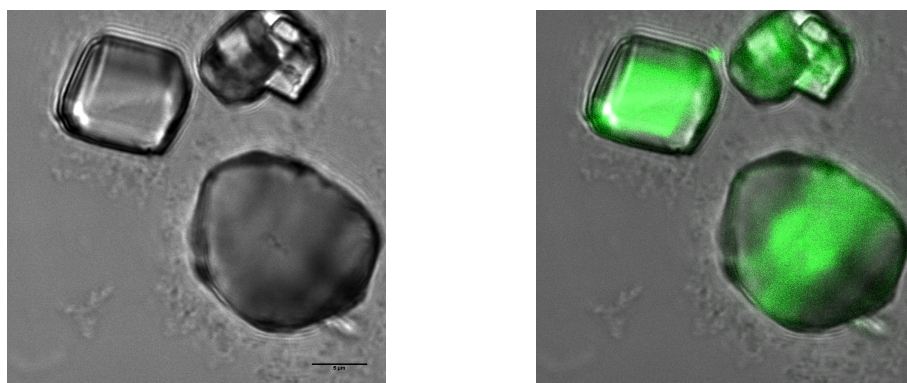


Figure S2: Confocal laser scanning microscope images of fluorescent calcite seeds grown on glass cover-slides. (left) Brightfield images of calcite seeds and (right) combination of brightfield image and fluorescent signal of incorporated fluorescent dye.