

Supplemental Information

Table S1

Mechanical properties of original and regenerated enamel by nanoindentation tests.

	Elastic modulus (GPa)	Hardness (GPa)
Untreated enamel*	122.24±8.61	5.69±0.69
Enamel regenerated for 4days*	104.62±15.55	3.31±0.54
Enamel regenerated for 8days*	116.93±13.92	4.41±0.76
Enamel regenerated four times*	100.86±12.44	4.81±0.81

* Data were obtained by the average of 8 indent measurements with the same parameter and expressed as average ± standard deviation.

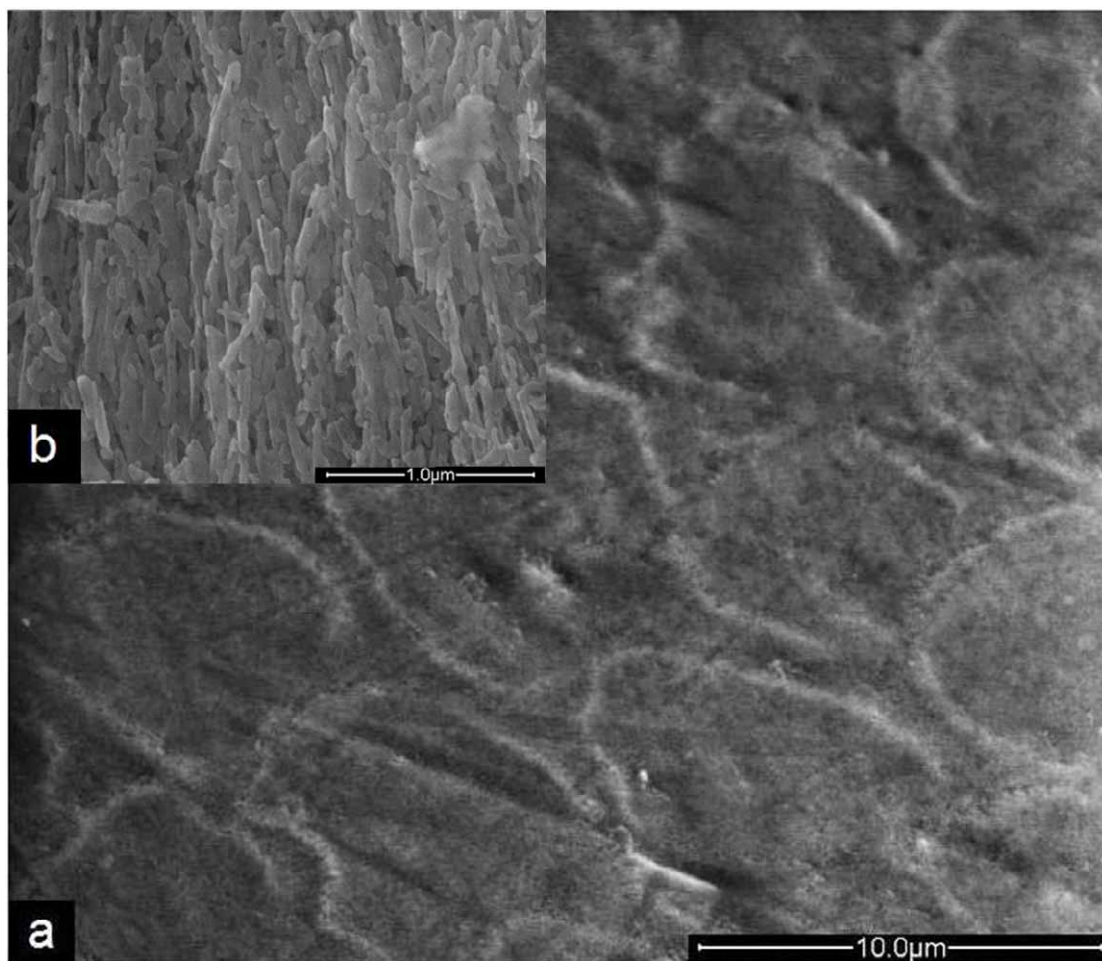


Fig. S1 SEM images of natural human enamel surface without any treatment after lightly etched with 85% phosphoric acid. Scale bars: (a) 10.0 μm; (b) 1.0 μm.

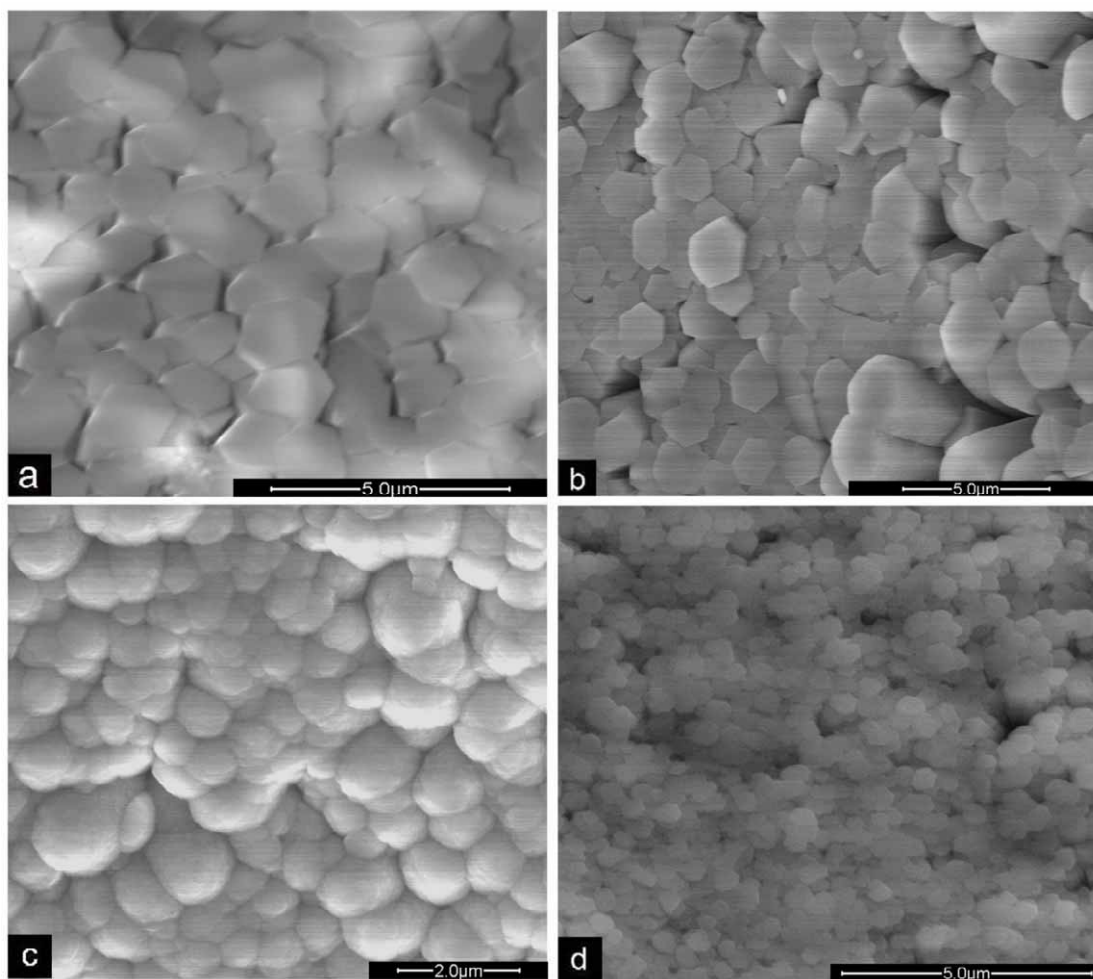


Fig. S2 SEM images of regenerated films grown using different chelating agents and at different temperatures and pressures: (a) EDTA, 121 °C, 2 atm; (b) EDTA, 90 °C, 1 atm; (c) EDTA, 60 °C, 1 atm; (d) HEDTA, 60 °C, 1 atm.

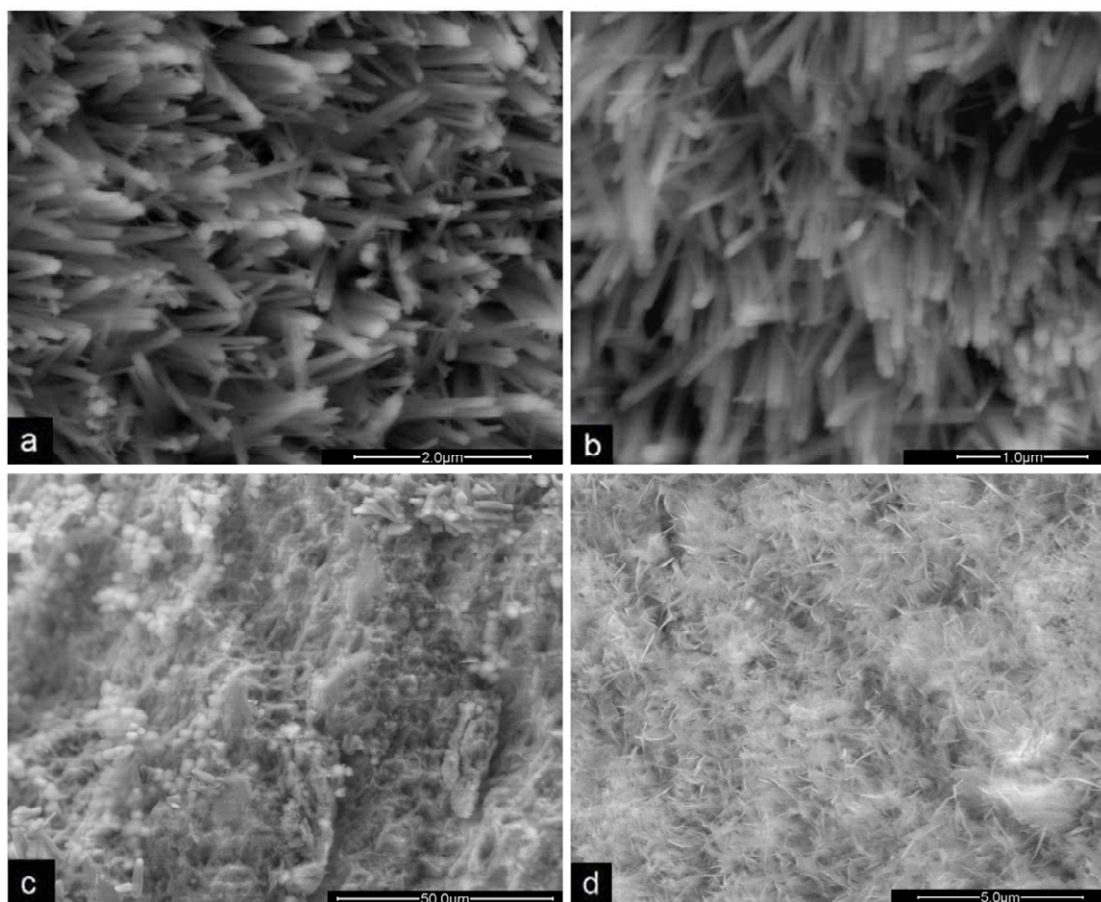
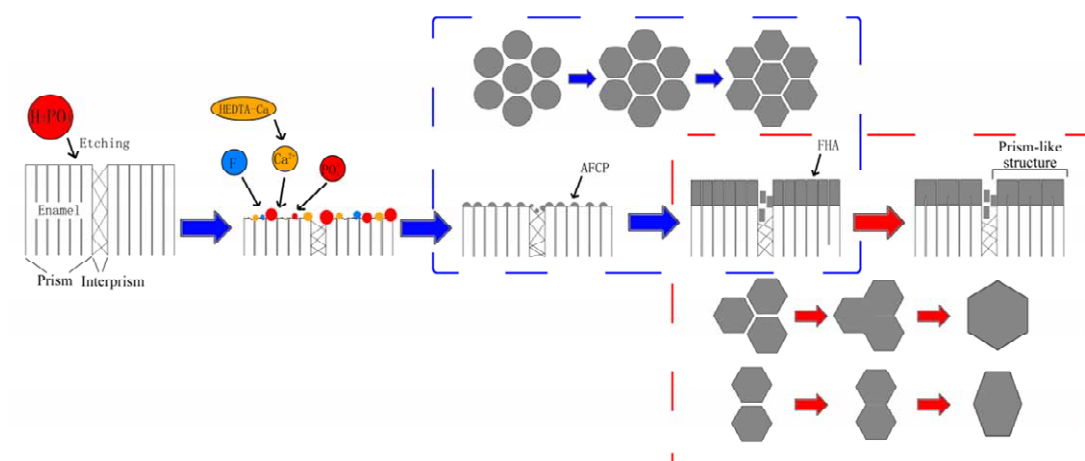


Fig. S3 SEM images of crystal film grown on human enamel using HEDTA in the absence of F at different temperatures: (a) 121 °C; (b) 90 °C; (c) 60 °C; (d) 37 °C.



Scheme S1 A schematic diagram proposing a possible mechanism how regenerated enamel prism-like layer formed.