

## Supporting Information

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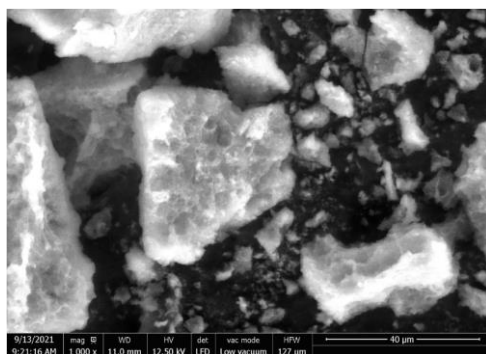
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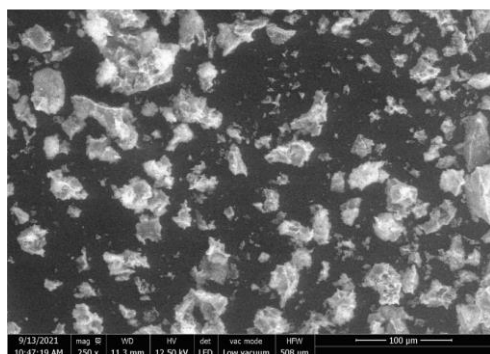
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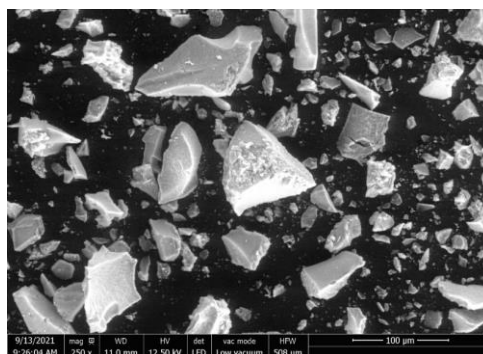
### non-substituted biomimetic apatite (hap-6d, ref)



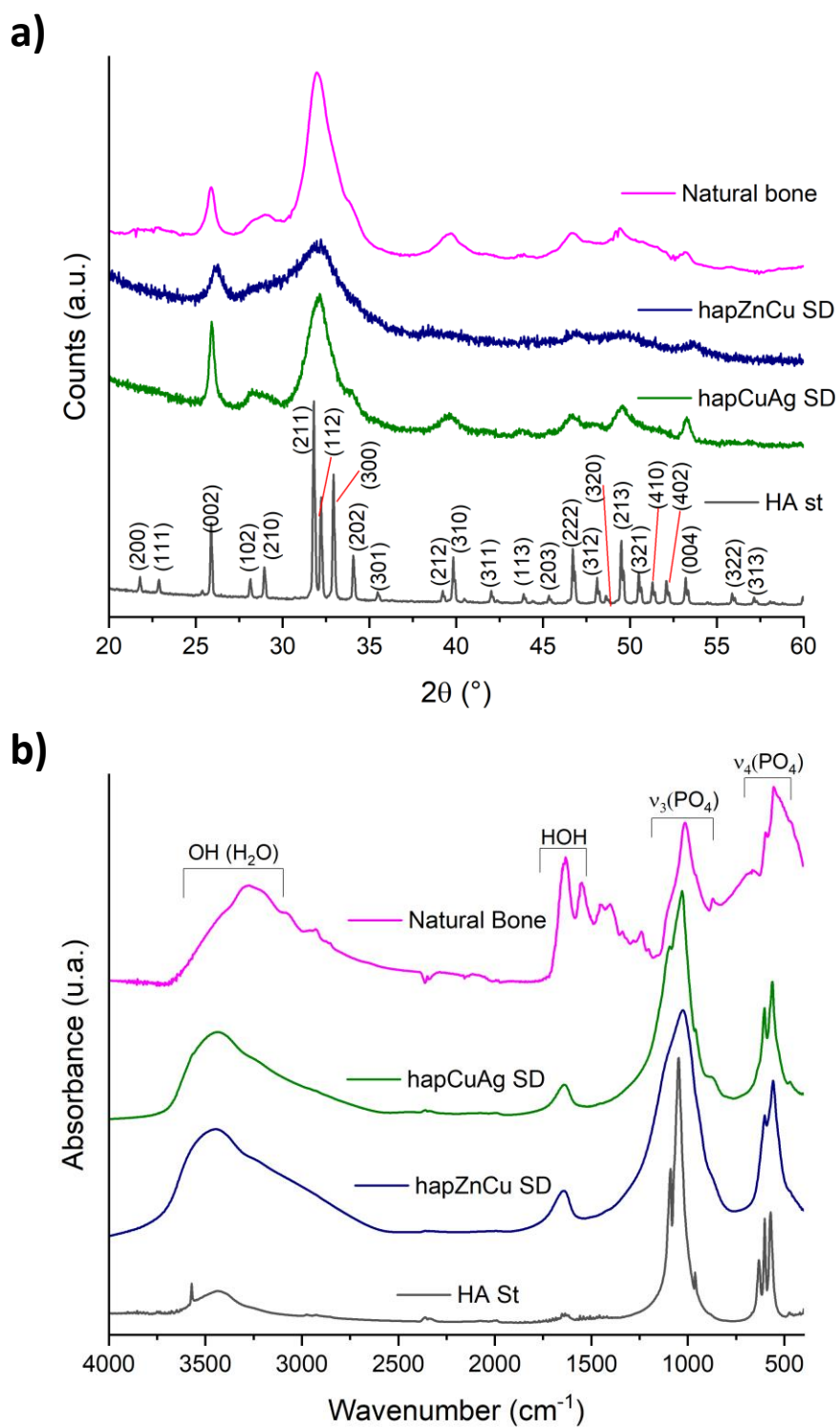
### hap-1d 10%Cu



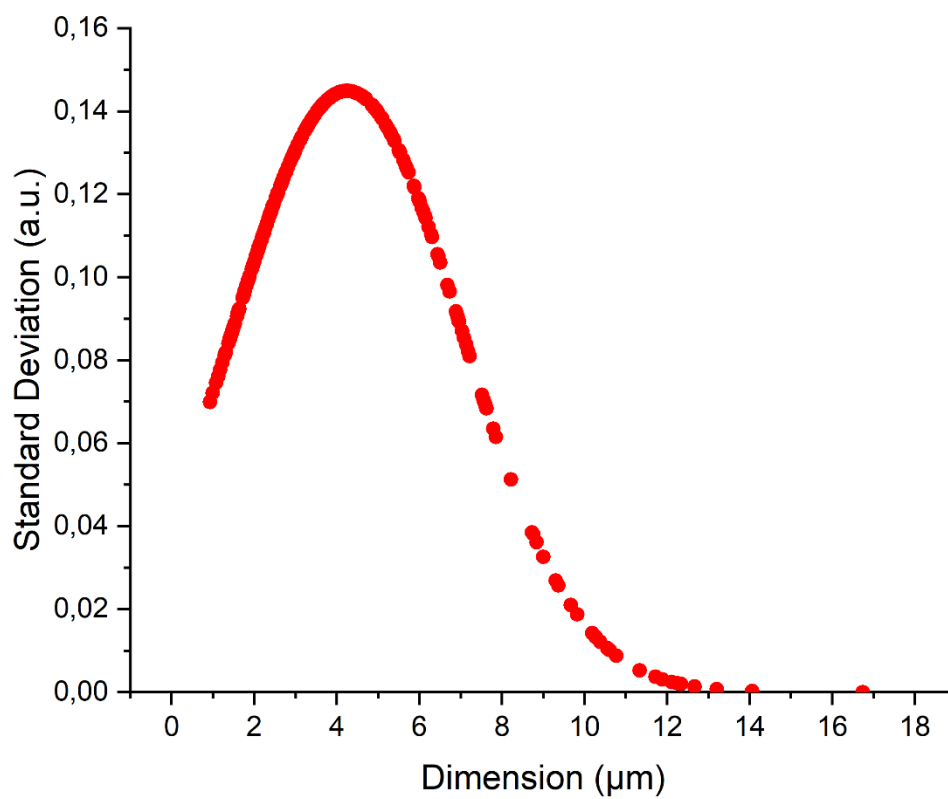
### hap-1d 15%Zn



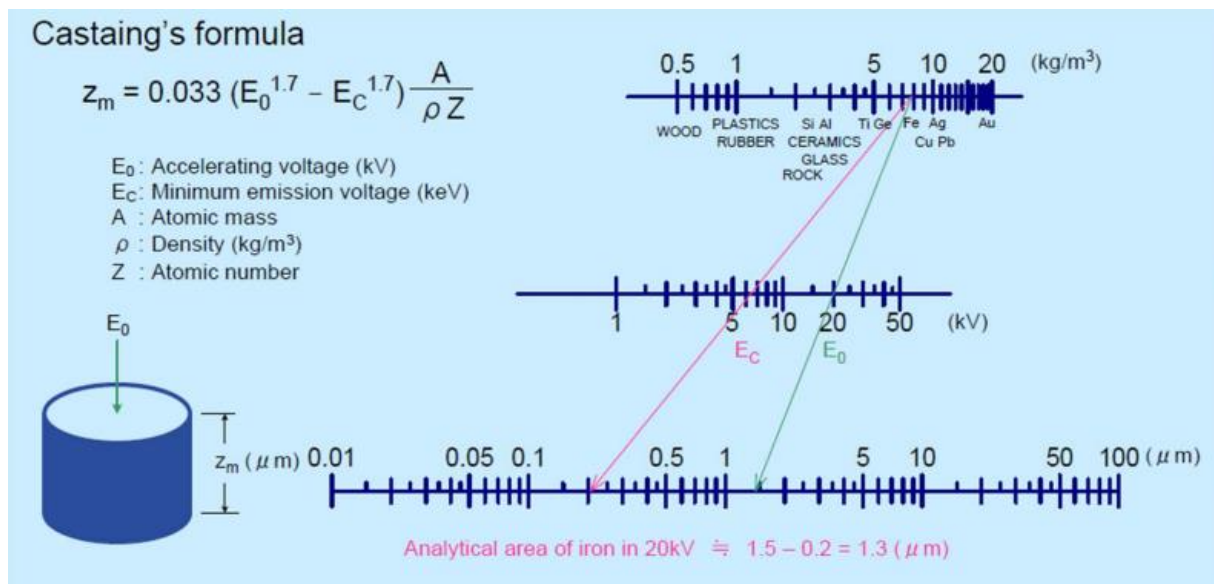
**Figure S1:** SEM observations of selected precipitated biomimetic apatite samples for reference (undoped) and single-ion doping.



**Figure S2:** (a) XRD and (b) FTIR analyses on core-shell particles.



**Figure S3:** Particle size distribution spanning in the range 1.5-15  $\mu\text{m}$  with a (Gaussian) statistical mode, with a mean diameter to  $6.0 \pm 3.3 \mu\text{m}$ .



**Figure S4:** Castaing's formula.