ADVANCED FUNCTIONAL MATERIALS

Supporting Information

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Multilayered Inorganic Microparticles for Tunable Dual Growth Factor Delivery

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Supporting Information for
Multilayered Inorganic Microparticles for Tunable Dual Growth Factor Delivery

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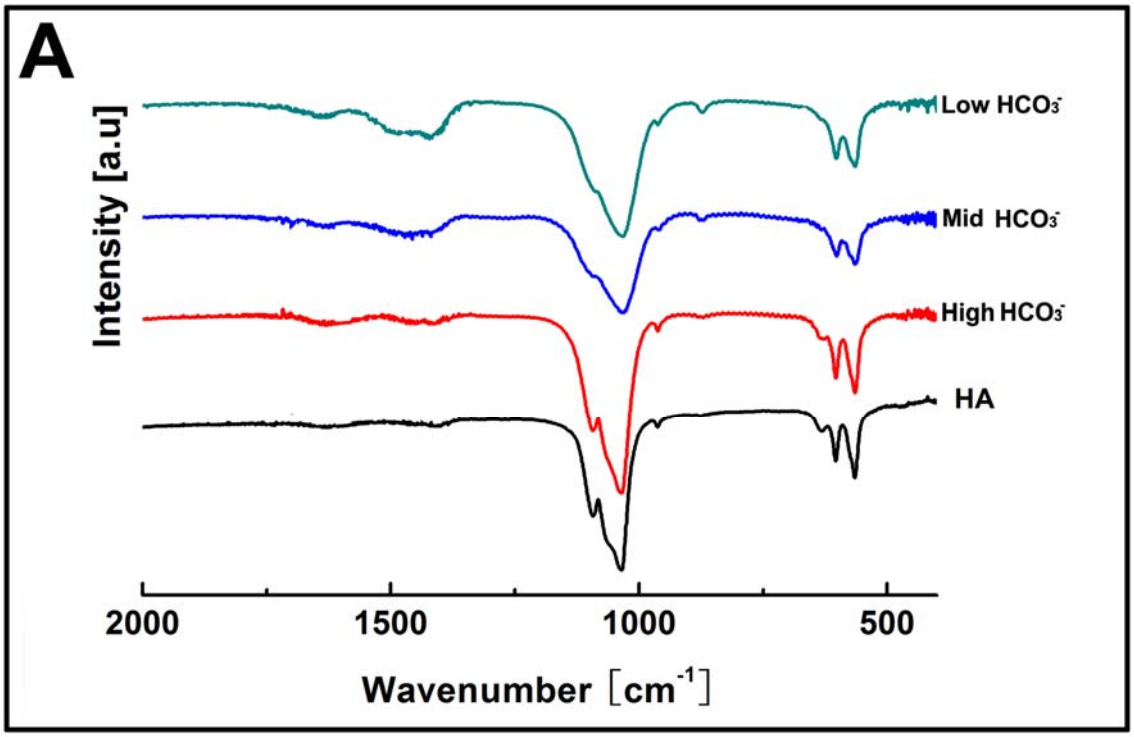
Table S-1 Chemical recipe for mSBF formulation with different ionic compositions[1]

Reagent (mM)	mSBF Type					
	4.2 mM	**4.2 mM W/ F^-**	**100 mM**	**100 mM W/ F^-**	**No Mg^{2+}**	**No Mg^{2+} W/ F^-**
NaCl	141.0	141.0	141.0	141.0	141.0	141.0
KCl	4.0	4.0	4.0	4.0	4.0	4.0
$MgSO_4$	**0.5**	**0.5**	**0.5**	**0.5**	**0.0**	**0.0**
$MgCl_2$	**1.0**	**1.0**	**1.0**	**1.0**	**0.0**	**0.0**
$NaHCO_3$	**4.2**	**4.2**	**100**	**100**	**4.2**	**4.2**
HEPES	20.0	20.0	20.0	20.0	20.0	20.0
$CaCl_2$	5.0	5.0	5.0	5.0	5.0	5.0
KH_2PO_4	2.0	2.0	2.0	2.0	2.0	2.0
NaF	**0.0**	**1.0**	**0.0**	**1.0**	**0.0**	**1.0**

1. The pH of all mSBFs were buffered to 6.80 using HCl/NaOH.


A
Intensity [a.u]
Low HCO3-
Mid HCO3-
High HCO3-
HA
2000
1500
1000
500
Wavenumber [cm-1]

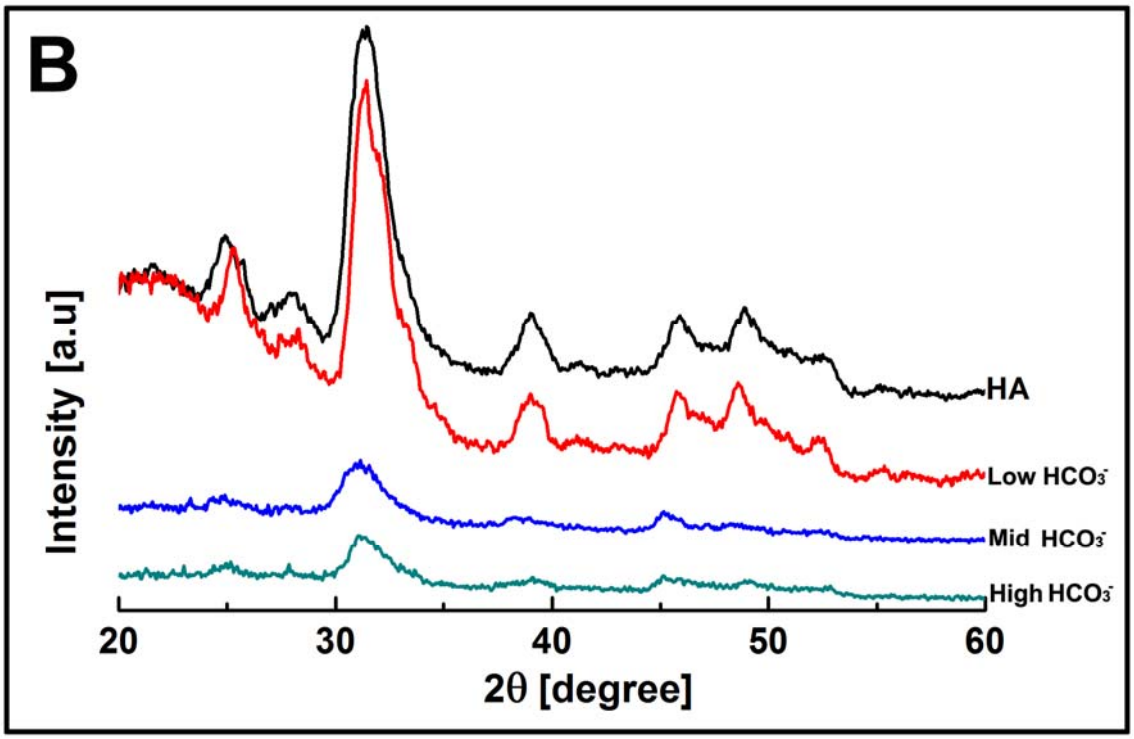

B
Intensity [a.u]
HA
Low HCO3-
Mid HCO3-
High HCO3-
20
30
40
50
60
2θ [degree]

Fig. S-1 Mineral coating characterization: A) X-ray diffraction patterns of MCMs with varying carbonate substitution B) FTIR spectra of MCMs with varying carbonate substitution

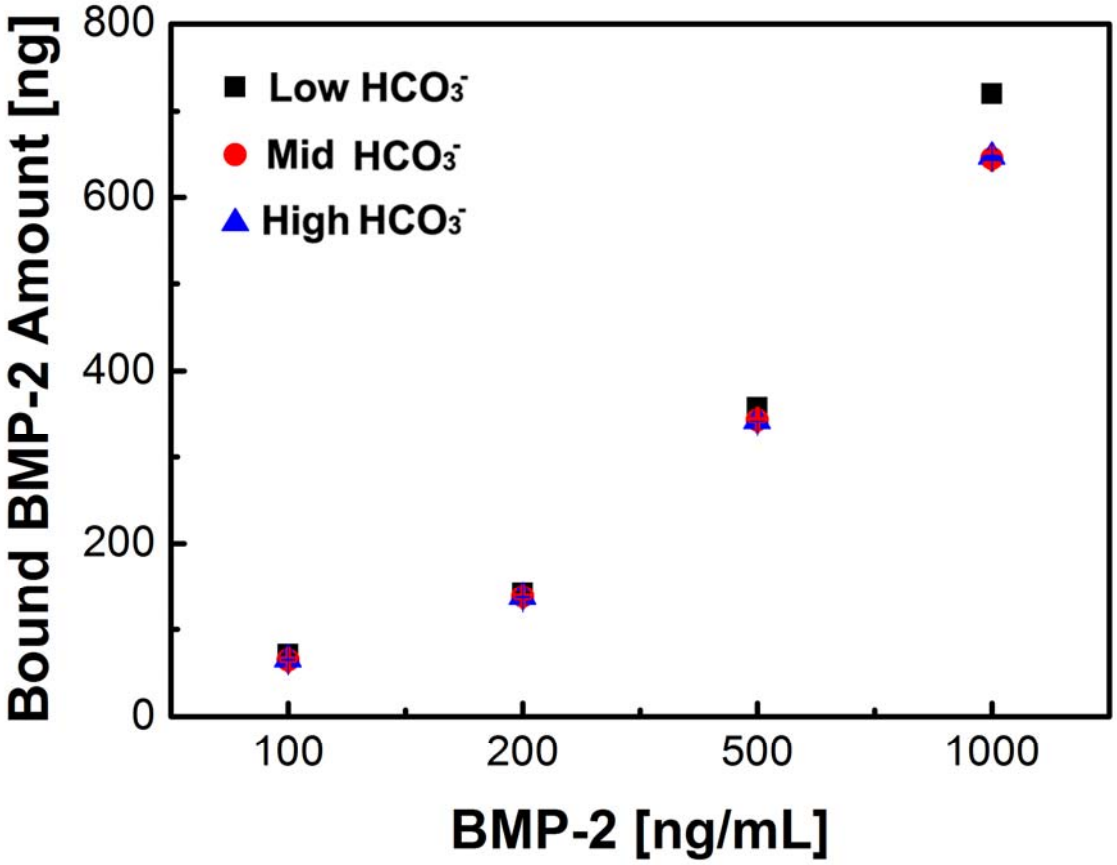


Fig. S-2 BMP-2 binding profiles with different BMP-2 concentrations in PBS during MCMs incubation: 5.0 mg of MCMs with different carbonate substitution was incubated in 1.0 mL BMP-2 solution with different concentrations

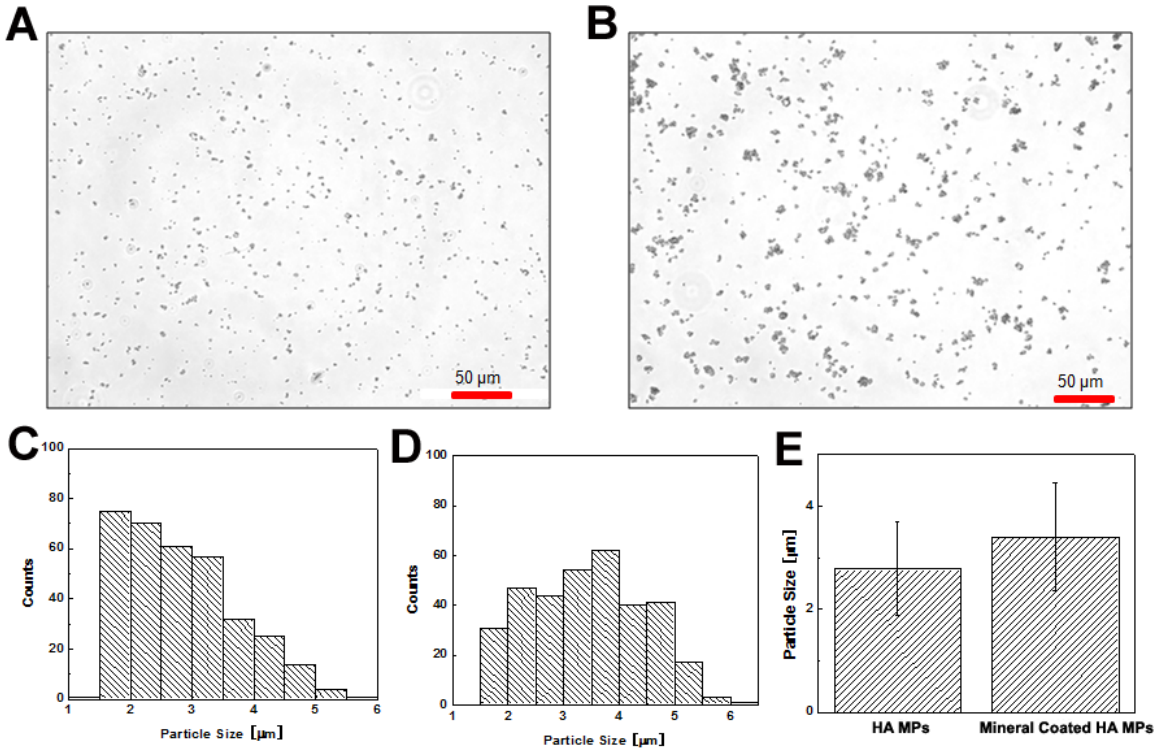


Fig. S-3 MCMs particle size characterization: A) Micrograph of HA MPs without mineral coating B) Micrograph of MCMs C) Particle size distribution of HA MPs D) Particles size distribution of MCMs E) Average size of HA MPs and MCMs

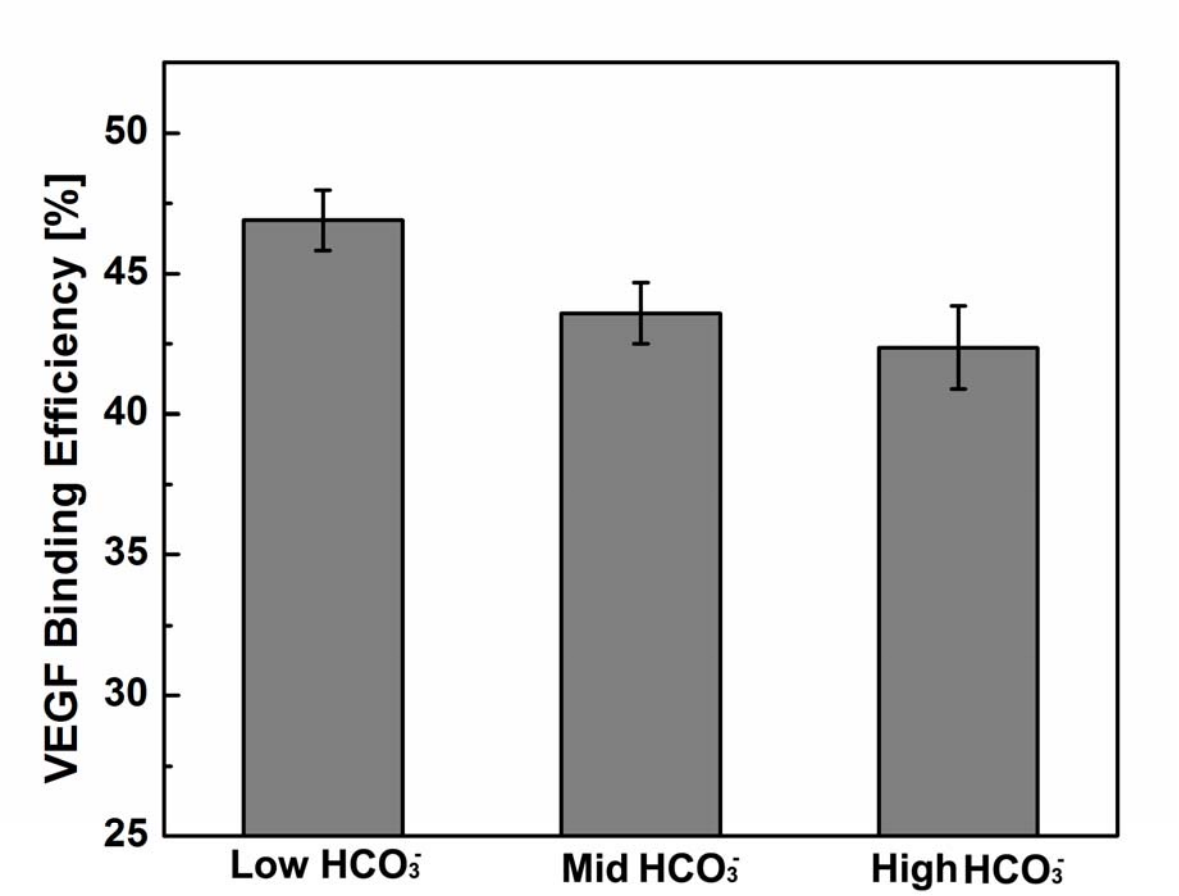


Fig. S-4 VEGF binding efficiency on MCMs with different carbonate substitution