Electronic Supplementary Material (ESI) for RSC Advances.

Supporting Information

The Custom Making of Hierarchical Micro/Nanoscaled Titanium Phosphate Coatings and Their formation Mechanism Analysis

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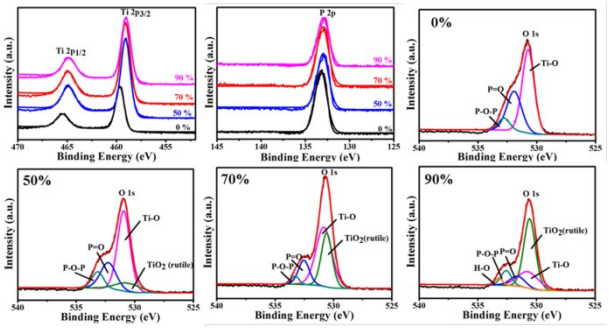


Fig. S1. The XPS high resolution spectra for Ti_{2p}, P_{2p} and O_{1s} of the TiP coatings reacted for 24 h in mixed solution with H_2O_2/H_3PO_4 at 9:1 under 120℃ with water content varying from 0 to 90%.

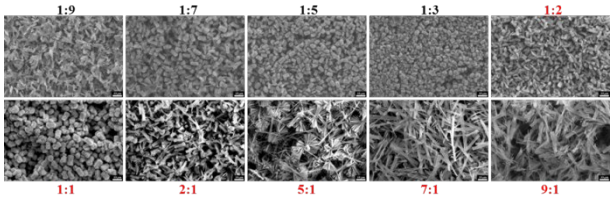


Fig. S2. SEM images showing the surface morphology of the TiP coatings reacted for 24 h in mixed solution with H_2O_2/H_3PO_4 varying from 1:9 to 9:1 containing 70wt% water under 120℃.

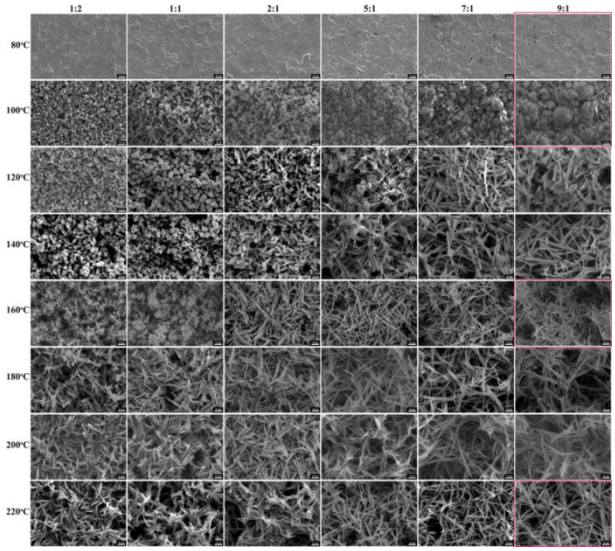


Fig. S3. SEM images showing the surface morphology of the TiP coatings reacted for 24 h in mixed solution with H_2O_2/H_3PO_4 varying from 1:2 to 9:1 containing 70wt% water under different temperature from 80℃ to 220℃.

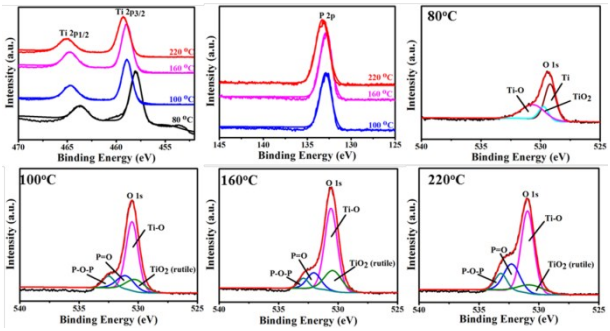
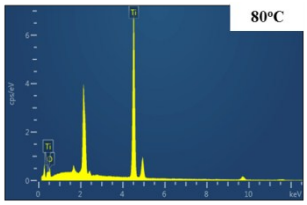


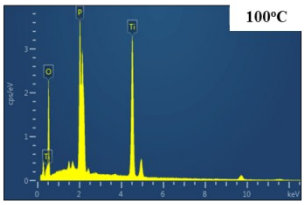
Fig. S4. The XPS high resolution spectra for Ti_{2p}, P_{2p} and O_{1s} of the TiP coatings reacted for 24 h in mixed solution with H_2O_2/H_3PO_4 at 9:1 containing 70wt% water under 80℃, 100℃, 160℃ and 220℃, respectively.

Table S1. The value of contact angle and surface energy for the TiP coatings reacted for 24 h in mixed solution with H_2O_2/H_3PO_4 at 9:1 containing 70wt% water under 80℃, 100℃, 160℃ and 220℃, respectively.

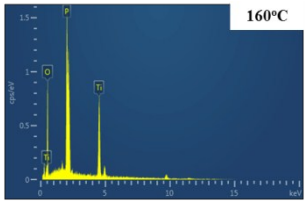
Sample	80℃	100℃	160℃	220℃
Contact Angle (°)	46.09±4.14	5.57±0.63	0	0
Surface Energy (J)	55.81±4.32	84.2±3.55	87.08	87.08



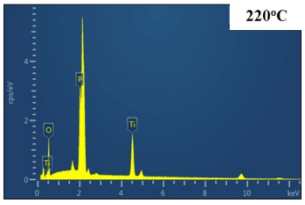
Element	Wt%	At%
O	11.48	27.98
Ti	88.52	72.02
Total	100.00	100.00



Element	Wt%	At%
O	40.93	65.2
P	11.57	9.52
Ti	47.50	25.28
Total	100.00	100.00



Element	Wt%	At%
O	45.51	68.95
P	16.87	12.92
Ti	36.62	18.13
Total	100.00	100.00



Element	Wt%	At%
O	45.25	69.00
P	17.19	13.58
Ti	37.56	17.42
Total	100.00	100.00

Fig. S5. The EDS analysis and element content of the TiP coatings reacted for 24 h in mixed solution with H_2O_2/H_3PO_4 at 9:1 containing 70wt% water under 80℃, 100℃, 160℃ and 220℃, respectively.

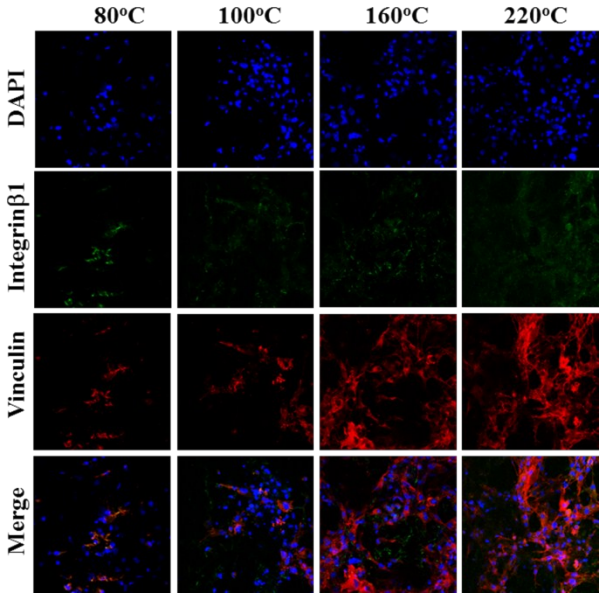


Fig. S6. The Integrinβ1 and vinculin expressions of BMSCs investigated by CLSM after 48 h incubation on the TiP coatings reacted for 24 h in mixed solution with H_2O_2/H_3PO_4 at 9:1 containing 70wt% water under 80℃, 100℃, 160℃ and 220℃, respectively.