Supporting Information

Bioinspired by both mussel foot protein and bone sialoprotein: universal adhesive

coatings for the promotion of mineralization and osteogenic differentiation

Xiaoling Long,^a Huilin Xu,^a Dongyue Zhang^{*a,b} and Jianshu Li^{*a,b}

^aCollege of Polymer Science and Engineering, Sichuan University, Chengdu, 610065, China

^bState Key Laboratory of Polymer Materials Engineering, Sichuan University, Chengdu, 610065,

China

MKTALILLSI	LGMACAFSMK	NLHRRVKIED	SEENGVFKYR	PRYYLYKHA.	50
YFYPHLKRFP	VQGSSDSSEE	NGD.DSSEEE	EEEEETSNEG	ENNEESNE	100
DEDSEAENTT	LSA TTLG	YGEDATPGTG	YTGLAAIQLP	KKAGDITNKA	150
TKEKESDEEE	EEEEEGNENE	ESEAEVDENE	QGINGTSTNS	TEAENGNGSS	200
GGDNGEEGE.	EESVTGANA	EGTTETGGQG	KGTSKTTTSP	NGGFEPTTPP	250
QVYRTTSPP	FGKTTTVEYE	GEYEYTGVNE	YDNGYEIYES	ENGEPRGDNY	300
RAYEDEYSYF	KGQGYDGYDG	G QNYYHHQ			327

Fig. S1 Amino acid sequence alignment of human bone sialoproteins.



Fig. S2 Synthesis routes of monomer methacryloylamido glutamic acid (MGlu) and

dopamine methacrylamide (DMA).



Fig. S3 ¹H NMR spectra (A) of DMA (above) and MGlu (below) and LS-MS spectra (B) of MGlu.



Fig. S4 TGA curves of different polymers (A) and DLS spectra of different copolymers in a mixture of methanol and UP water with 1/1 of volume ratio (B).

Table S1. Average roughness of Si plates modified with various functional polymers.

(calculated by Igor Pro software)							
Samples	Si	PD	PD_2G_1	PD_1G_1	PD_1G_2		
Roughness (nm)	0.63±0.13	194.86±84.66	53.26±25.57	79.73±18.89	67.73±0.31		



Fig. S5. Optical (A) and SEM (B) images of different substrates surface before and after modification with PD_1G_1 coatings.



Fig. S6. XPS spectra of Si plates after modification with various polymers.



Fig. S7. Water contact angles of untreated and treated Si plates modified with different functional polymers.

Table S2 Relative atomic percent of Ca and P for minerals on different polymer-coated

surface.(determined by EDS analysis)

	relative atom		
Samples	Са	Р	Ca/P
PD	3.39	1.52	2.23
PD_2G_1	2.41	0.71	3.39
PD_1G_1	6.45	3.79	1.70
PD_1G_2	2.50	0.99	2.52



Fig. S8. Average cell spreading area of MC3T3-E1 cells on Ti plates before and after being modified with various functional polymers.



Fig. S9. Fluorescence images of live/dead assay for MC3T3-E1 cells after cultivation on bare and PD_xG_y coated Ti plates surface for 1, 4, and 7 days (scale bar= 50 µm).