

Supporting Information for Manuscript Entitled with
**Smart surfaces based on thermo-responsive polymer brushes prepared
from L-alanine derivatives for cell capture and release**

Yong Shen^b, Guannan Li^b, Yinan Ma^b, Deyang Yu^b, Jing Sun^{a,*},
and Zhibo Li^{a,b,*}

^aSchool of Polymer Science and Engineering, Qingdao University of Science and Technology, Qingdao 266042, China.

^bBeijing National Laboratory for Molecular Sciences (BNLMS), Institute of Chemistry, Chinese Academy of Sciences, Beijing 100190, China.

E-mail: jingsun@qust.edu.cn, zbli@qust.edu.cn

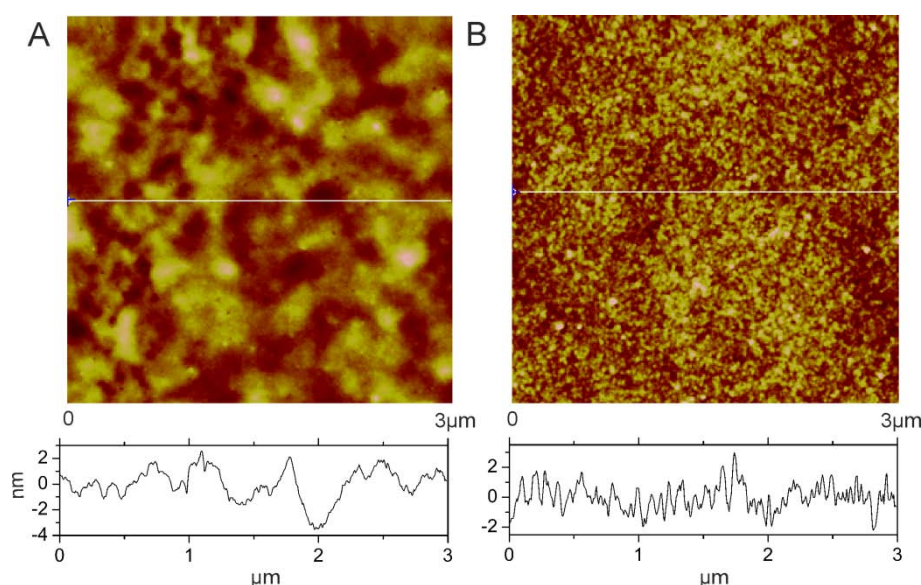


Figure S1. AFM topography scans as well as cross sectional profiles of a poly(MA-L-Ala-OMe) brush (A, thickness = 30 nm) and a poly(MA-L-Ala-iPA) brush (B, thickness = 10 nm). The average root mean square (RMS) roughness calculated for poly(MA-L-Ala-OMe) and poly(MA-L-Ala-iPA) brushes is 2.0 ± 1.3 nm and 0.76 ± 0.02 nm, respectively (5 images were counted for each). The difference of RMS roughness between both brushes can be attributed to the difference in the thickness of the films.¹

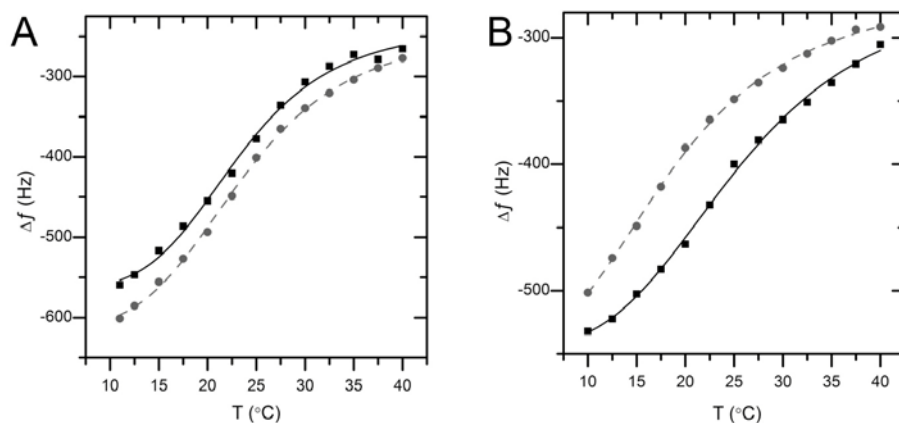


Figure S2. Temperature dependence of the third overtone of the frequency shift (Δf) for (A): a poly(MA-L-Ala-OMe) brush and (B) a poly(MA-L-Ala-iPA) brush as measured by QCM-D in water in a heating (■) and cooling (●) cycle.

Table S1. Elemental compositions of ATRP initiator, poly(MA-L-Ala-OMe) brush and poly(MA-L-Ala-iPA) brush modified substrates.

Sample	Elemental compositions (%) ^a				
	C	N	O	Si	Br
ATRP initiator	14.47	1.57	42.91	40.42	0.63
poly(MA-L-Ala-OMe)	66.71	9.08	24.22	0	0
poly(MA-L-Ala-iPA)	66.52	12.64	15.21	5.63	0

^a The elemental compositions were given as molar percentage.

Table S2. Water contact angles of poly(MA-L-Ala-OMe) (thickness = 25 nm) and poly(MA-L-Ala-iPA) (thickness = 17 nm) brushes measured at different temperatures.

Sample	Water contact angle (°)	
	R.T. ^a	50 °C
poly(MA-L-Ala-OMe)	57.2 ± 2.3	64.5 ± 2.1
poly(MA-L-Ala-iPA)	54.3 ± 2.6	56.6 ± 0.5

^a Room temperature is around 22 °C.

References:

1. S.Q. Wang and Y.X. Zhu. Langmuir, 2009, 25, 13448-13455.