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# MIXED AD LAYERS OF POLY(LYSINE)-BASED COPOLYMERS TO DYNAMICALLY CONTROL CELL ADHESION/MIGRATION.

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Keywords:
Polymer brush, responsive polymers, cell adhesion/migration, PLL copolymer

Current challenges in tissue engineering and cell biology often require control over when and where cells can attach, migrate, or proliferate. In addition, it's highly desirable to allow a dynamic control of the cell-substrate interactions; to this aim, surface properties of the substrate should be switchable by localized non toxic stimuli. In this context, stimuli responsive polymer brushes are exiting tools although highly demanding surface chemistry is often required.
We explore here a straightforward method to functionalize anionic surfaces with controlled densities of diverse polymer grafts and applied it to modulate specific and non-specific adhesion/deadhesion patterns of mammalian cells via stimuli-triggered properties. It relies on tight spontaneous adsorption of comb-like polycationic derivatives of poly(Lysine) (PLL). We studied PLL grafted with either polyethylene oxide (PEO) reactive strands [1], or temperature-responsive ones (poly(N-isopropylacrylamide strands, PNIPAM)[2-5]. Surface properties have been carefully analyzed by AFM, quartz crystal microbalance, and particle capture experiments. Both nonspecific and specific interactions have been considered. Examples of applications on the thermal control of capture of particles [2, 5], dynamic modulation of cell adhesion/migration [3], and kinetics of coagulation [4] will be discussed.

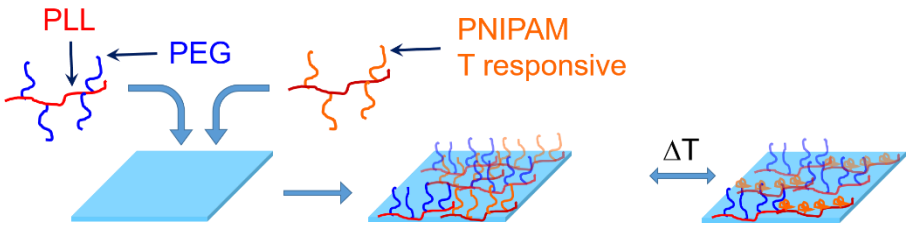


**Fig.1: Examples of mixed brush based on PLL-PEG and thermo-responsive PLL-NIPAM**

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