A Spatially Varying Charge Model for Regulating Siteselective Protein Adsorption and Cell Behaviors

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Figure S1. SEM images of the KNN, polarized KNN,MPK and polarized MPK surface. The results indicate that samples before and after polarization have the same

morphology.



Figure S2. Optical images of contact angle on different samples: KNN, polarized KNN, MPK and polarized MPK. All samples showed very good hydrophilicity with a contact angle of zero.



Figure S3. Fluorescence images of protein adsorption behavior and cellular behavior surface island-type MPK and polarized island-type the of MPK. on Immunofluorescence image of fibronectin on island-type MPK (A1) and the polarized island-type MPK (A2) (scale bar = $200 \mu m$). (B) Fluorescence images of high density cells on island-type MPK and polarized island-type MPK after culturing for 24 h with F-actin stained with FITC (green) and nucleus stained with DAPI (blue) (scale bar = 100 µm). The areas irradiated by the laser were different, but the distribution

characteristics of the charges were the same, which further demonstrating the surface spatial distribution of charge-regulated protein adsorption to affect cell behavior.



Figure S4. Analysis of cell orientation, spreading and proliferative behavior. Fluorescence images of lower cell density cells on KNN, polarized KNN, MPK and polarized MPK after culturing for 24 h with F-actin stained with FITC (green) and nucleus stained with DAPI (blue). (scale bar = $200 \mu m$, $20 \mu m$)