Rapid photochemical surface patterning of proteins in thiol-ene based microfluidic devices - DTU Orbit (29/12/2018)

Rapid photochemical surface patterning of proteins in thiol-ene based microfluidic devices
The suitable optical properties of thiol–ene polymers combined with the ease of modifying their surface for the attachment of recognition molecules make them ideal candidates in many biochip applications. This paper reports the rapid one-step photochemical surface patterning of biomolecules in microfluidic thiol–ene chips. This work focuses on thiol–ene substrates featuring an excess of thiol groups at their surface. The thiol–ene stoichiometric composition can be varied to precisely control the number of surface thiol groups available for surface modification up to an average surface density of 136 ± 17 SH nm⁻². Biotin alkyne was patterned directly inside thiol–ene microchannels prior to conjugation with fluorescently labelled streptavidin. The surface bound conjugates were detected by evanescent waveinduced fluorescence (EWIF), demonstrating the success of the grafting procedure and its potential for biochip applications.

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