Poster

PROBING THE PROTEIN TRANSFER EFFICIENCY ONTO ACTIVE SURFACES - A COMPARISON OF DIFFERENT PATTERNING TECHNIQUES

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Fabrication of micro- and nano-patterned surfaces with biomolecules is a fundamental step for the development of bio-engineered materials, proteomic microarrays and biosensors. The main challenge when producing patterning surfaces is the development of transfer techniques and surface chemistries that allow the selective immobilisation of proteins or other biomolecules while retaining their biological activity. [1]

Some of the biomolecule transfer techniques that are currently being used are the spotting technique (micropatterns), microcontact printing technique (micro and nanopatterns) [2] and dip-pen nanolithography technique (nanopatterns) [3].

Here we present the results of a quantitative and qualitative comparison of these techniques based on the measurement of protein transfer efficiency, density, distribution, activity and orientation. For this purpose, streptavidin protein marked with fluorophores has been transferred onto Glass, Mica, PMMA and functionalised and non-functionalised gold sufaces by different patterning techniques and the pattern characterisation has been performed by fluorescence microscopy, atomic force microscopy and Time-of-Flight Secondary Ion Mass Spectrometry (TOF-SIMS).

References:

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Figures:

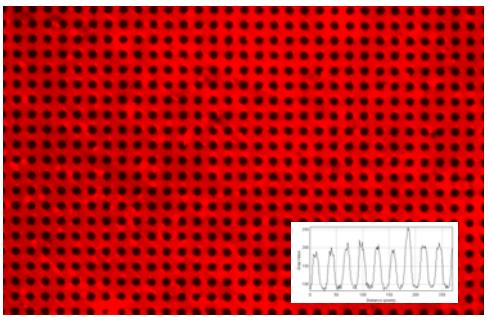

Figure 1) Fluorescence microscopy image of a Streptavidin–Texas Red pattern on Glass obtained by microcontact printing technique (motives size is 5µm).