Selective Immobilization of Protein Clusters on Polymeric Nanocraters

Abstract:
A method for fabricating chemically nanopatterned surfaces based on a combination of colloidal lithography and plasma-enhanced chemical vapor deposition (PECVD) is presented. This method can be applied for the creation of different nano-patterns, and it is in principle not limited in patterning resolution. Nanocraters of poly(acrylic acid) (carboxylic moieties) surrounded by a matrix of poly(ethylene glycol) are fabricated. Chemical force microscopy demonstrates that the process is able to produce the expected surface chemical contrast. Finally, the carboxylic groups of the craters are activated in order to induce the covalent binding of fluorescent-labeled proteins. Fluorescence investigation using scanning confocal microscopy shows that the proteins are preferentially attached inside the functional craters.

URI:

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