The scanning near-field optical microscope as a tool for proteomics

H. Gao, M. Oberringer, A. Englisch, R. G. Hanselmann and U. Hartmann

The identification of the entire genetic code of human DNA is more or less completed. With this knowledge, research in identifying the real information lying in the genes, will begin. This information is contained in the proteins, which are the main biological actors in the cell. For this reason proteins will be targeted in biological investigations in the future. The structure, affinity and reactivity of each identified protein has to be determined, which is a primary goal in the field of proteomics. This will require new and better strategies to identify protein–protein interaction. Our approach, based on the detection and visualization of single proteins by scanning near-field optical microscopy (SNOM), has allowed us to visualize various fixed and fluorochrome-labelled proteins at the nanometer scale. Subsequently SNOM may then be developed to efficiently detect the specific behavior of a certain protein in response to other biomolecules.