

Detecting Respiratory Syncytial Virus (RSV) Infected Cells by Bio-functional Au/Si nanorods

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A new type of Respiratory Syncytial Virus (RSV) detection technology was developed using Au/Si nanorods. The Si nanorods were fabricated by glancing angle deposition method and the Au was sputtered onto the Si nanorods. Dye Alexa 488-succinimide was immobilized onto the annealed Si nanorods via the attachment between the dye ester and the primary amine supplied by the 3-Aminopropyltriethoxysilane (APTES). The antibody of RSV (131-2A) was annealed to Au via Dithiobis[succinimidylpropionate] (DSP) self-assembly monolayer (SAM). Due to the high aspect ratio nature of the Si nanorods, hundreds or thousands of dye molecules attached to the rod produced enhanced fluorescence signal. These biologically functionalized nanorods have been successfully used to detect RSV infected cells. This new technique will be of great significance in the biomedical applications, such as virus detection, imaging, drug delivery, as well as medical therapy.