

Synthesis of Au Nanowires for Biosensing Applications

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Metal nanowires are the most attractive materials because of their unique properties, these nanowires are used for various applications such as perpendicular recording media, optoelectronics, chemical and biological sensors etc [1-3]. Also, electrodeposition is widely used in the production of nanostructured materials that require chemical and physical properties. The various nanoporous templates such as AAO, track etched polycarbonate membranes, self-assembled diblock co polymers are used for growing the different kinds of nanowire materials with different aspect ratios. The suspended Au nanowires are important due to its high ductility and wear resistance which is necessary for electrode contacts for miniaturized nano devices.

In comparison with the polycarbonate, AAO membrane pores are very uniform but the probability for the deposition is equal in both the cases. The electrolyte bath consists of 0.5 g/l of Gold(II) Cyanide, 3.1 g/l of potassium hydroxide, and 4.3 g/l of citric acid. The full length of the nanowires growth in the pores were confirmed through the current time profiles during the deposition. As Au is a very well established materials and having good surface properties so biomolecules such as protein are immobilized on the Au surface and confirmed the binding evidence through confocal spectroscopy measurement.

References:

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