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Morphology-dependent Electrochemical Behavior of 18-facet Cu₇S₄ Nanocrystals Based Electrochemical Sensing Platform for Hydrogen Peroxide and Prostate **Specific Antigen**

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Abstract

18-facet polyhedron Cu₇S₄ nanocrystal and CuS sphere were prepared from Cu₂O precursor, and CuS flower was synthesized through a simple solvothermal approach. Their electrochemical performances were investigated towards H_2O_2 and it was interesting to discover that Cu₇S₄ nanocrystal had the best electrochemical catalysis compared with CuS sphere and CuS flower. It can deduce that the special structure of Cu₇S₄ nanocrystal endowed it more exposed active points, higher surface area and higher Cu/S ratio. Therefore, Cu₇S₄ nanocrystal was firstly employed to prepare a nonenzymatic biosensor for H₂O₂. Satisfactory results were obtained. In addition, a label-free sensing platform for prostate specific antigen (PSA) was

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