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Self-accelerated Electrochemiluminescence Emitters of Ag@SnO_2 Nanoflowers for Sensitive Detection of Cardiac troponin T

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Abstract

Metal oxide semiconductor nanocrystals (NCs), which emerged as a novel class of electrochemiluminescence (ECL) emitters with low cost and good biocompatibility, have attracted particular research interests in ECL biosensors. However, their analytical applications still remained a substantial challenge of relatively low ECL intensity. Herein, the novel self-accelerated ECL emitters of silver nanoparticles functionalized SnO_2 nanoflowers (Ag@SnO_2 NFs) were first prepared by *in situ* generating silver nanoparticles on the surface of SnO_2 nanoflowers *via* silver mirror reaction, which exhibited high-intensity ECL emission with the maximum emission peak at 542 nm in the case of $S_2O_8^{2-}$ as a co-reactant. It was worthy to note that compared with traditional ECL emitters of SnO_2 NCs with diameters below 10 nm, the obtained Ag@SnO_2 NFs with diameters about 1~2 μM showed a stronger ECL emission. The ECL enhancement was supposed to derive from 1) the strong size effect of flower-like nanostructure aggregating by ultrathin SnO_2 nanosheets, which would

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