Photocell signal detection and amplification

Self-propagating cascade reactions are a recent development for chemosensing protocols. These cascade reactions, in principle, offer low limits of detection by virtue of exponential signal amplification and are initiated by a ...

Importantly, the signal amplification strategy combines the effective photoactive material of Au nanoparticles/CdS quantum dot/TiO 2 composites, a PEC aptasensor for determination of CAP with an ultralow detection limit of 4.12 pM is achieved in a self-powered mode with great selectivity and accuracy. This work proposes a novel reasonable approach ...

TL;DR: In this paper, the utility model provided a faint current signal detection device of silicon photocell, including that analog switch switches module, IV conversion module, uA level ...

In conclusion, we report an aptamer-based electrochemical biosensor combining Au NPs-mediated dual signal amplification for sensitive detection of MCF-7 cancer cell-derived exosomes. The Au NPs-based nanoprobe is simultaneously modified with CD63 Apt for the specific recognition of target exosomes, and iDNA as the initiator for the HCR process ...

The quenched fluorescence in this process is recovered, realizing double signal amplification in the detection process. The analytical figure of merit for fluorescent ...

The present study utilized the hybridization chain reaction (HCR) as the output terminal for signal amplification [14,15,16]. In the context of nucleic acid molecular detection, efficient signal amplification can be facilitated by creating hairpin primers (HP1 and HP2) that are specifically tailored to the target sequence (DNA or RNA).

This SERS sensor achieved a wide range of detection from 1 fM to 1 nM and had a good linear relationship. The limits of detection (LOD) for miRNA-21-5p and miRNA-let-7a were 0.015 and 0.011 fM, respectively. This ...

A simple, inexpensive, andreliable apparatus forphotocell detection andamplification sdescribed. Thesensitivity, voltage andcurrent amplification, andspeedfthis apparatus, makeit well suited o ...

The RNA target was specifically recognized and the detection sensitivity of the strategy was 285 fM, which was improved by ~100 fold compared with single CRISPR/Cas13a-mediated detection. In addition, the signal amplification reaction after CRISPR/Cas13a-mediated cleavage did not require any expensive enzymes, which greatly decreased the ...

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In this contribution, we review recent research developments in PEC biosensors with a particular focus on promising photocatalytic materials. Besides addressing the benefits ...

Firstly, efficient, sensitive and applicable sensors, for trace and rapid detection of small molecule substances, would become the main goals of research. It is difficult to detect trace substances in complex samples only relying on a single signal amplification, so multiple signal enhancement strategies in biosensors should be emphasized.

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