

INNOVATIVE PHOTOELECTROCHEMICAL BIOSENSOR BASED ON QUANTUM DOTS

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This work shows the studies carried out to improve the sensitivity of immunoassays using an innovative photoelectrochemical (PEC) technique based on quantum dots (QDs). This system combines the controlled functionalization of polystyrene foils that provides well orientated antibodies on the surface with the enzymatic signal amplification based on the PEC properties of QDs.

Thus, we tested three different polystyrene modifications with two different antibodies in order to achieve the best detection signal. Additionally CdS nanoparticles were used to trigger the PEC response under UV light employing modified electrodes with an osmium polymer. Some combinations reveal better results than conventional procedures using ELISA assays. This method could be easily implemented in a Lab-On-a-Chip (LOC) platform.

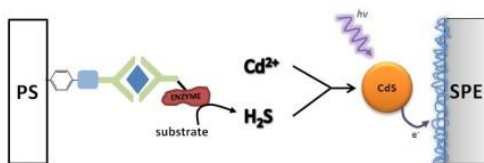


Figure 1: Scheme of the photoelectrochemical biosensor.

REFERENCES:

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