

A novel immobilization strategy inducing the spaces between nanoprobe by various interlinker for signal amplification

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This study is experiment which induces a signal amplification of biochip manufactured by polydiacetylene (PDA) liposome. PDA liposome based-solid sensors have held a critical drawback that the PDA liposomes are not stably immobilized to a solid substrate. Therefore, to overcome this problem, we introduced an interlinker, ethylenediamine, which acts as a cross-linker of individual PDA liposome. But, although so many probes are immobilized on substrate, only the outside of the PDA liposomes immobilized by interlinker react to targets or receptors. Introducing the long material as interlinker induces the spaces between PDA liposomes. The spaces made by interlinker means enlargement of surfaces which can react to targets. But the larger number of spaces, the less of immobilized probes is presented within the same area. Then we used the mixture of various length interlinker. In this study, we concluded optimum quantity of various interlinkers which shown best fluorescence signal when detected pathogens, proteins, and chemical substances.