

The Development of PDA biosensor with controlling the chain length of PDA derivatives

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Polydiacetylene (PDA)-based biosensors have been attracting steady interest by virtue of their unique, intense colorimetric properties. When diacetylene monomers are self-assembled and polymerized by UV light, they generally produce a blue color that changes to red under various stimuli such as temperature, pH, mechanical force, solvent, and most interestingly, ligand-receptor interactions occurring at the polydiacetylene matrix interface.

The color transition of polymerized PDAs is depending on their physical properties such as chain length and contents of PDA monomers. In this study, to optimize the chain length of PDAs for sensitivity of the color transition, three PDA derivatives with different chain length such as 10, 12-pentacosadiynoic acid (PCDA), 10, 12-tricosadiynoic acid (TCDA), 8, 10-heneicosadiynoic acid (HCDA) were used to make PDA vesicles (liposome).