

FRET-Nanomaterials for One-Step Sensors of Cellular Cholesterol

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Cholesterol is an important component of animal cell membranes and the main precursor for synthesis of different biomolecules such as bile acids, steroid hormones and vitamin D. Various analytical methods have been developed for cholesterol detection in serum, but it's not in real cell membrane. Thus, development of sensing method for detection of cholesterol in cell membrane is highly desirable. Turn-on sensing mechanism based on FRET(Energy transfer between two light-sensitive molecules) is suitable for targeting a low concentration of cholesterol in cell membrane because of its high sensitivity. We developed one-step fluorescence turn-on sensing materials with combination of commonly used nanomaterials (Gold nanoparticles, GO) and chem-bio ligand interfacing. It can be observable to detection of cholesterol in cell membrane.