

Detection of epidermal growth factor receptor using fluorescence resonance energy transfer

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We have detected mutations in the EGFR(Epidermal Growth Factor Receptor) using FRET (Fluorescence Resonance Energy Transfer) phenomenon between CdSe quantum dots and gold nanoparticles. We synthesized chemically modified two types of CdSe quantum dots and gold nanoparticles using four different types of probe DNAs that are perfect complementary to the mutation in exon 19 and exon 21 of EGFR. The FRET phenomenon between green/yellow CdSe quantum dots and gold nanoparticles was shown to occur for the Exon 19 or 21 with mutation. To observe FRET phenomenon, we use the photoluminescence spectroscopy and transmission electron microscopy.