**Electrogenerated chemiluminescence bioassay**

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Electrogenerated chemiluminescence (ECL, electrochemiluminescence), the process whereby light generated from electrochemically generated reagents, has become an important and powerful analytical method due to its attractive advantages, including high sensitivity, low background signal and good temporal and spatial control. Here, we reported a serial of ECL bioassays in our lab, including the strategy to improve the sensitivity, selectivity, stability and speediness. First, novel strategy including nanoparticle amplification, enzyme catalysis and bifunctional peptide-DNA molecules was developed to improve the sensitivity of ECL imaging method and ECL quenching strategy was developed to low background; second, the novel strategy including proximity ligation assay is employed to improve the selectivity; thirdly, the novel strategy including dual potential with potential resolution was developed to improve the accuracy; finally, ECL imaging method was proposed for detecting cancer-related biomarker in cancer cell with sensitivity and visualization.

Keywords: Electrogenerated chemiluminescence, bioassay, imaging

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**Figure 1.** Schematic diagram of proximity hybridization-regulated ECL bioassay of α-fetoprotein via target-induced quenching mechanism.

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