

The simple and fast Detection of protein/small molecule interactions by protein-induced fluorescence enhancement

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We herein describe a simple and fast detection method for protein/small molecule (SM) interactions based on protein-induced fluorescence enhancement (PIFE). Especially, ligand-receptor interaction is detected by measuring fluorescence intensity induced by close distance by optimization. When a target ligand combined with aptamer-Cy3 interacts with receptor, it comes to the vicinity of Cy3, leading to PIFE on Cy3. As a result, the significant fluorescence enhancement is observed from Cy3. With this approach, we successfully analyzed a model target interaction, thyroid hormone/receptor interaction, within 10 min. Also, inhibitor test was achieved, verifying its applicability. Finally, the practical applicability of this method was demonstrated by reliably determining thyroid hormone in human serum.