

Design of structure-controllable conformation switch for aptosensors

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Aptamers are single-stranded DNA or RNA molecules with ligand-binding capabilities to form defined tertiary structures to engage a specific target for binding. In recent years, various optical and electrochemical aptamer-based sensors (aptosensors) have been advanced. We aim to develop new signal transduction methods for aptosensor. We report herein the recent study of our group on how to design stem-controllable conformational switch for efficient signalling the aptamer-target binding events, including: 1) modulates stem stability of aptamer-beacon using γ -CD inclusion interaction; 2) design molecular beacons based on the metal-DNA base ligation interactions; and 3) design of aptamer-based sensing platform using triple-helix molecular switch. These strategies might open up new opportunities in the application of functional nucleic acid in biosensing.

Biography

Ronghua Yang, distinguished young scholar and chang-jiang scholar professor of China, completed his Ph.D. from Hunan University. From 1994 to 2001, he was a faculty member at Hunan University. After post-doctoral study from 2001 to 2003 at Peking University, he became an Associated Professor of Peking University. From 2008, he has been employed in Hunan University as a Professor. His research is mainly focused on fluorescent biosensors design and application, publishing approximately 80 papers in the field.

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