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A Duo-toehold-mediated displacement amplification on DNA tetrahedron for RNA detection of dengue virus

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Dengue is the most rapidly spreading endemic viral disease in the subtropical and tropical area of the world. This disease is threatening more than 2.5 billion people in more than 100 countries. Here, a novel duo-toehold-mediated displacement amplification strategy on DNA tetrahedron has been developed for sensitively detecting RNA of dengue virus. In this strategy, protector DNA was annealed to the tetrahedron to form a FRET-ON status at initial stage. When targets presented, the protector could be displaced by the target and switch to FRET-OFF. Meanwhile, the targets could be displaced again by the capture DNA and recycled in the process to amplify the signal. Simply by using the fluorescence spectrometer, the detection limit could be as low as 10 pM, which was more sensitive by 3 orders of magnitude than traditional non-amplified detecting methods.

Biography

Shengxi Chen has completed his PhD at the age of 27 years from Peking Union Medical College and postdoctoral studies from University of Virginia. He is the Associate Professor Research in Center for BioEnergetics, Bidesign Institute, Arizona State University. He has published more than 30 papers in reputed journals.

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