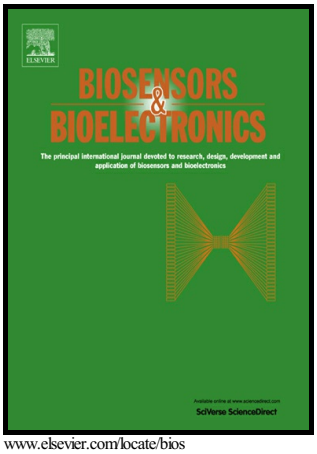

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Yanxia Chen[a], Xuehong Min[d], Xiqi Zhang[b], Feilong Zhang[b], Simeng Lu[e], Li-Ping Xu[a*], Xiaoding Lou[c,d*], Fan Xia[c,d], Xueji Zhang[a*], Shutao Wang[b]

[a]Research Center for Bioengineering and Sensing Technology, Beijing Key Laboratory for Bioengineering and Sensing Technology, School of Chemistry and Biological Engineering, University of Science and Technology Beijing, Beijing 100083, PR China

[b]CAS Key Laboratory of Bio-inspired Materials and Interfacial Science, CAS Center for Excellence in Nanoscience, Technical Institute of Physics and Chemistry, Chinese Academy of Sciences, Beijing 100190, PR China

[c]Faculty of Materials Science and Chemistry, China University of Geosciences, Wuhan 430074, PR China

[d]School of Chemistry and Chemical Engineering, Huazhong University of Science and Technology, Wuhan 430074, PR China

[e]Peking University Health Science Center, Peking University, Beijing 100191, PR China

Abstract

Superwettable microchips with superhydrophilic microwells on superhydrophobic substrate have attracted increasing attention in fluorescence-based biological and medical diagnostics. However, traditional fluorophores often suffer from the aggregation-caused quenching (ACQ) problem at high concentration or in aggregated state. Here, we developed an AIE-based superwettable microchip by combining the evaporation-induced enrichment of superwettable microchips and the aggregation-induced emission of AIEgens together into one chip. Benefitting from the synergistic effect of the above two mechanisms, the AIE molecules (TPE-Z, a tetraphenylethene salt) were enriched from the diluted solution via evaporation and aggregated within the superhydrophilic