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## **Supplementary information**

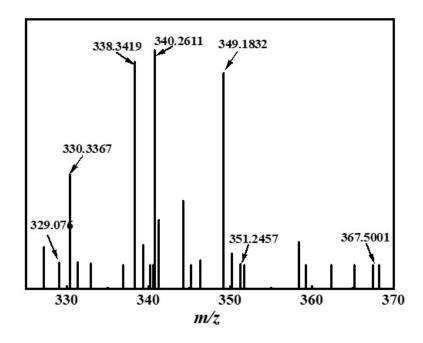


Fig. S1. HRMS spectrum of HDBB.

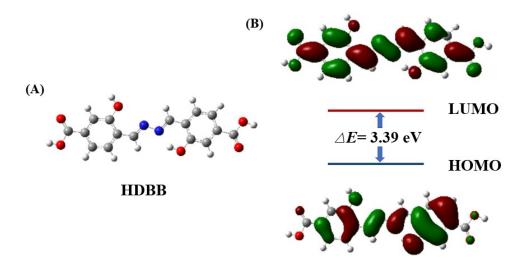


Fig. S2. (A)Optimization structure of HDBB. (B) Frontier molecular orbitals of HDBB.

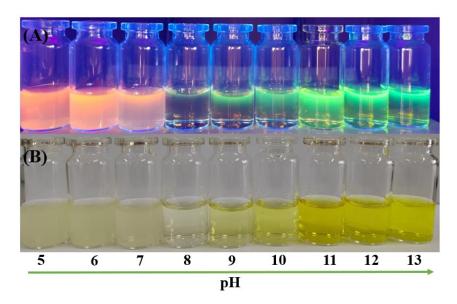


Fig. S3. Images of HDBB solutions at various pH levels. (A) under UV light and (B) under natural light. The pH values in (A) and (B) from left to right: 5, 6, 7, 8, 9, 10, 11, 12, and 13.

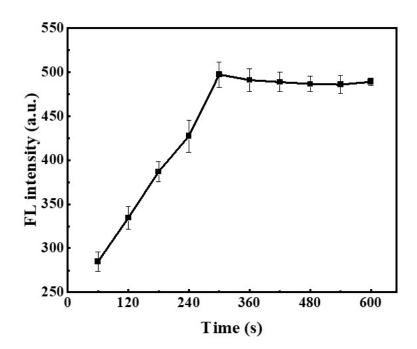


Fig. S4. Response time to the detection of HSA by HDBB excited at 415 nm.

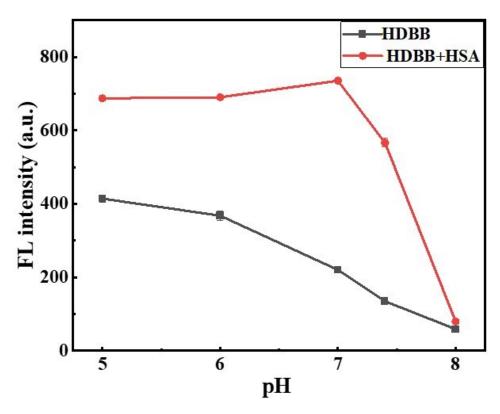


Fig. S5 Influence of pH values on the FL intensities of HDBB before and after the addition of HSA.

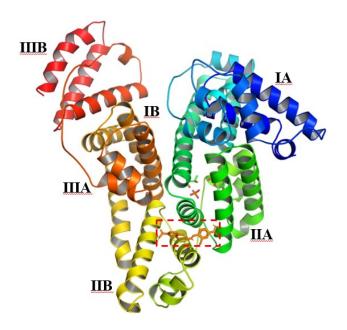


Fig. S6 Molecular docking mode between HDBB and HSA.

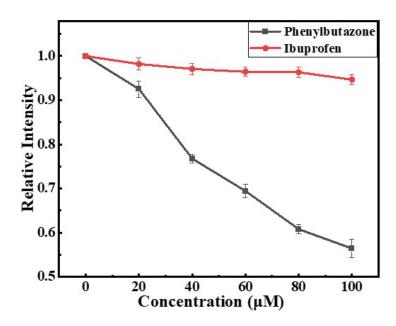


Fig. S7 Changes of relative fluorescence intensities of HDBB-HSA in the presence of different drugs.

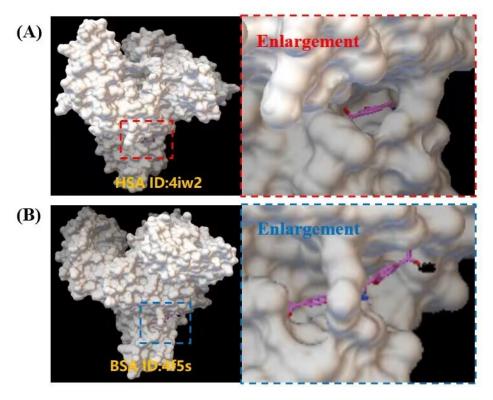


Fig. S8 Overview of binding modes between HDBB with HSA(A) and BSA(B).