

Supporting Information

Rapid and controllable formation of robust superwetable microchips by click reaction for efficient o-phthalaldehydes and glucose detection

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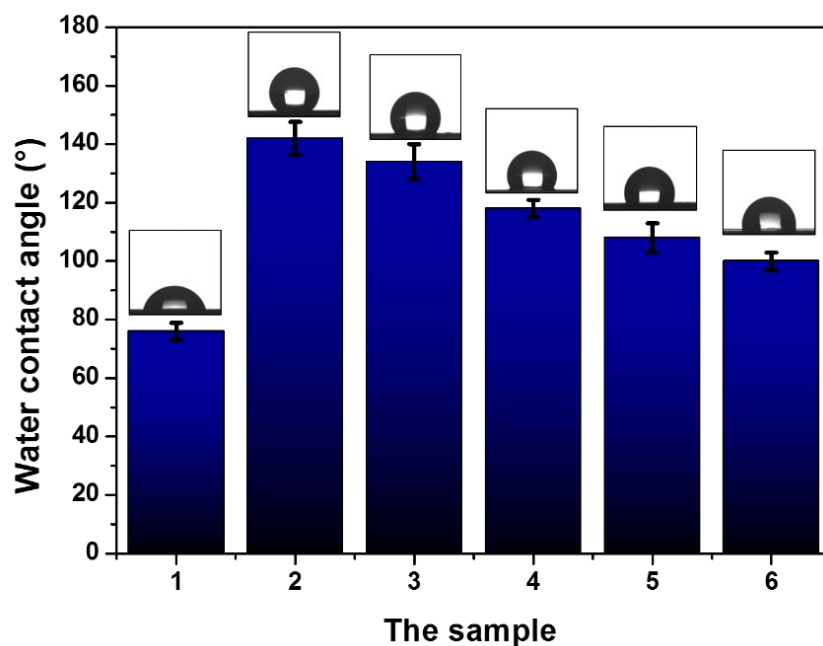


Figure S1. The WCA of sample 1: smooth film. Rough PM-EDMA films: 24 wt.% PM, 16 wt.% ED with different proportions of 1-decanol and cyclohexanol, sample 2: 1-decanol (60 wt.%), sample 3: 1-decanol (50 wt.%) and cyclohexanol (10 wt.%), Sample 4: 1-decanol (40 wt.%) and cyclohexanol (20 wt.%), sample 5: 1-decanol (20 wt.%) and cyclohexanol (40 wt.%), sample 6: cyclohexanol (60 wt.%).

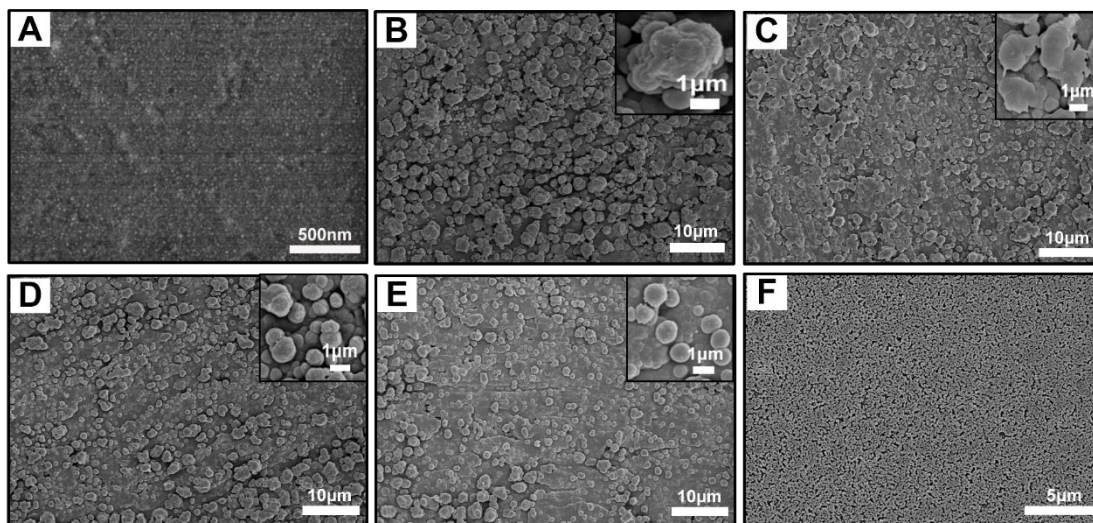


Figure S2. The SEM images of smooth film (A). Rough PM-EDMA film: 24 wt.% PM, 16 wt.% EDMA with different proportions of 1-decanol and cyclohexanol, (B) 1-decanol (60 wt.%), (C) 1-decanol (50 wt.%) and cyclohexanol (10 wt.%), (D) 1-decanol (40 wt.%) and cyclohexanol (20 wt.%), (E) 1-decanol (20 wt.%) and cyclohexanol (40 wt.%), (F) cyclohexanol (60 wt.%).

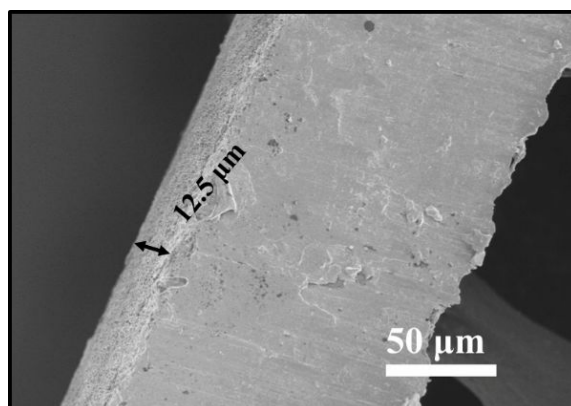


Figure S3. Cross-sectional SEM image of 12.5 µm PM-EDMA film.

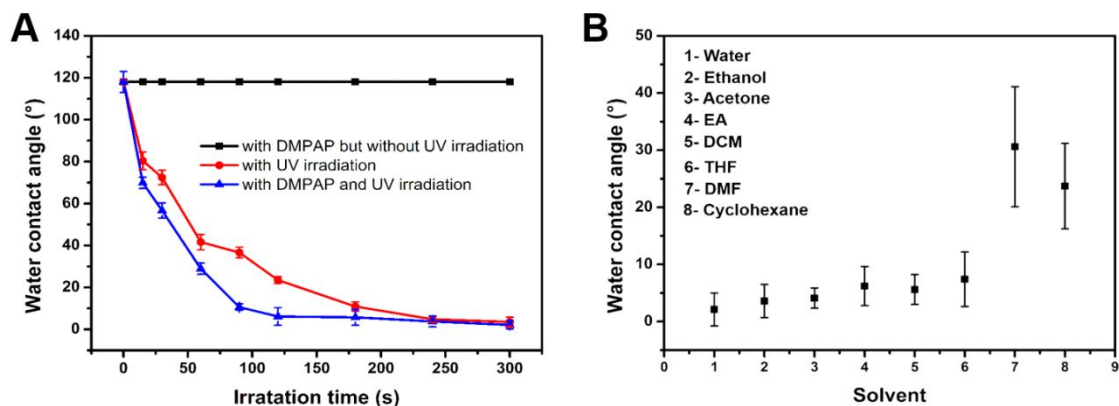


Figure S4. (A) The WCA of PM-EDMA film modified with 2-mercaptoethanol under the different reaction conditions. (B) WCA of PM-EDMA film functionalized with 2-mercaptoethanol dissolved in different solvents.

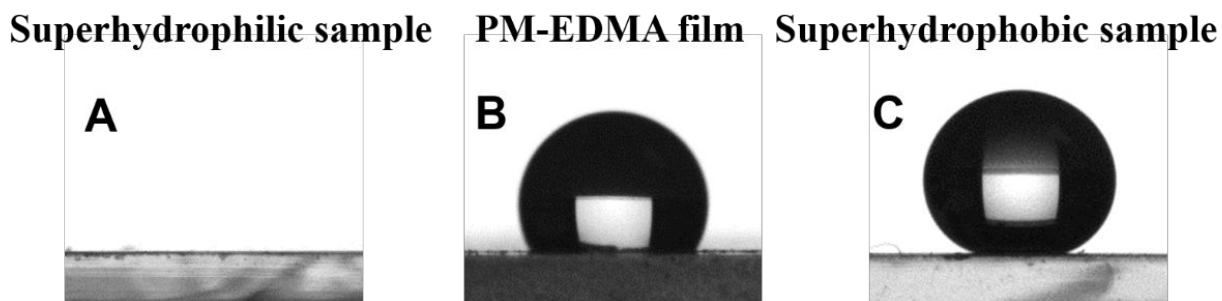


Figure S5. The WCA images of superhydrophilic sample (A), PM-EDMA film (B) and superhydrophobic sample on the glass substrate.

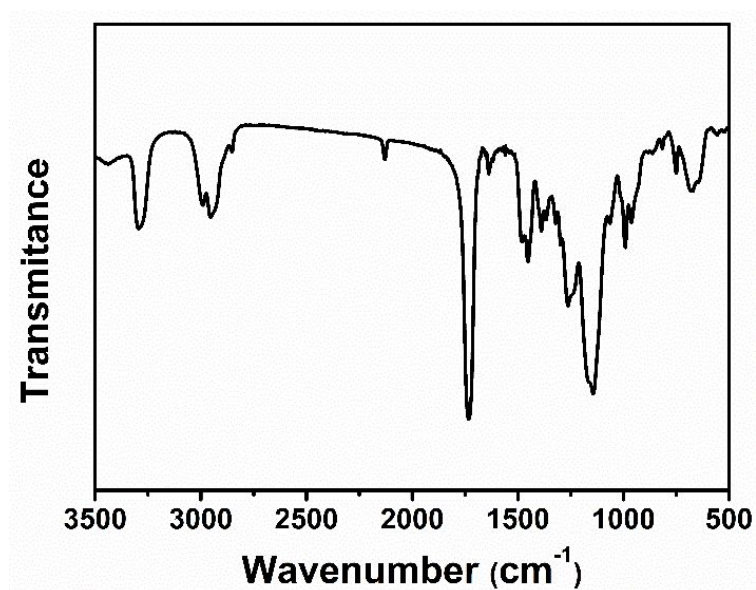


Figure S6. The FTIR of the PM-EDMA film.

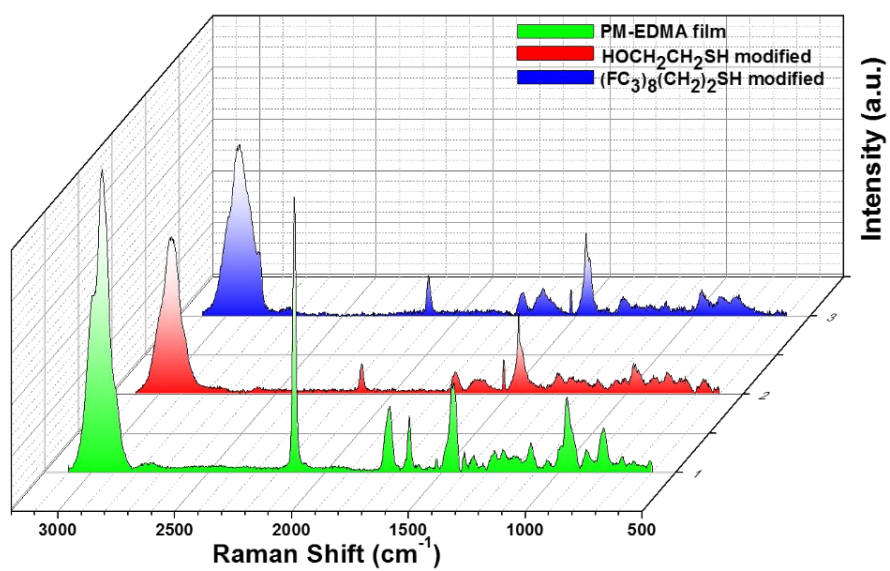


Figure S7. The Raman spectra of PM-EDMA film (green), superhydrophilic sample (red) and superhydrophobic sample (blue).

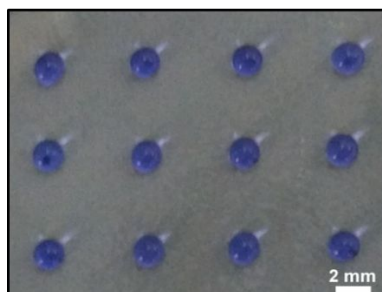


Figure S8. The optical photograph of 2 μL acid blue droplets were distributed onto the superhydrophilic dots of the prepared superwetable micropattern.

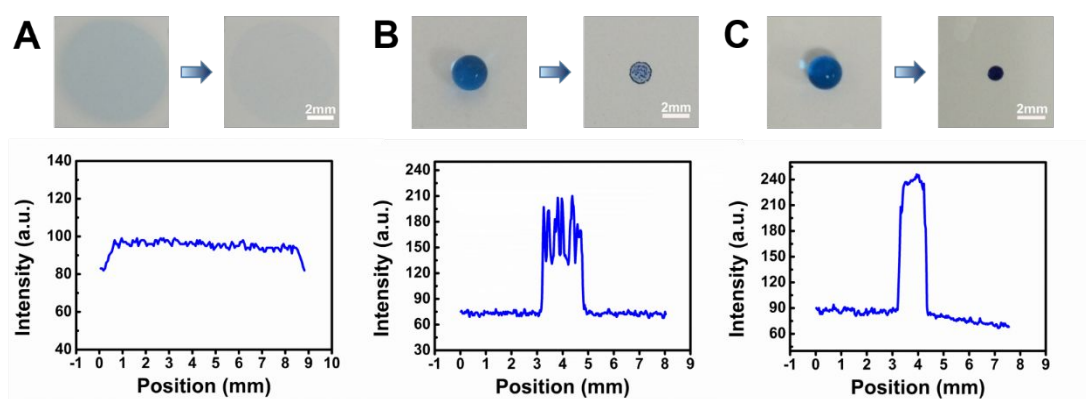


Figure S9. The optical images of acid blue solution (2 μL) before and after evaporation and the intensity analysis of deposit spots on the superhydrophilic sample (A), superhydrophobic sample (B) and superwetable micropattern (the diameter is 1 mm) (C).

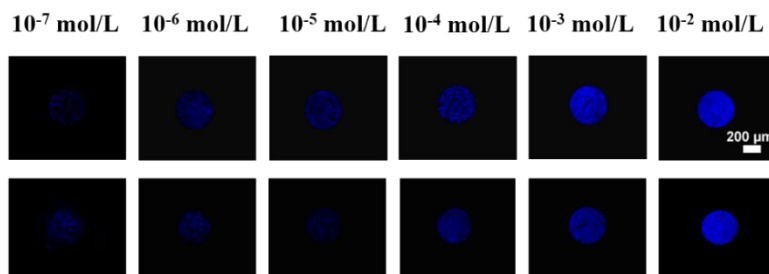


Figure S10. The fluorescence image and intensity of OPA on the microchip after water drop test.

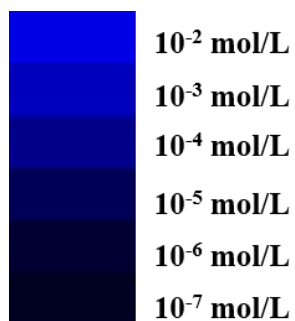


Figure S11. The standard color chart of different OPA concentration.

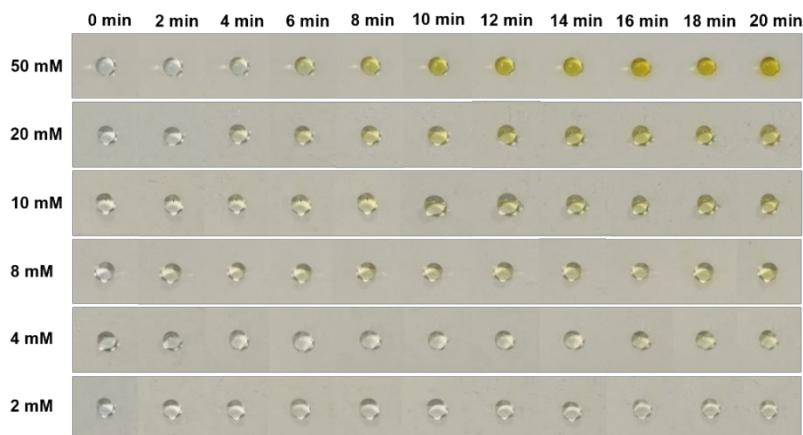


Figure S12. The colorimetric photographs of different concentration glucose droplet every 2 min.

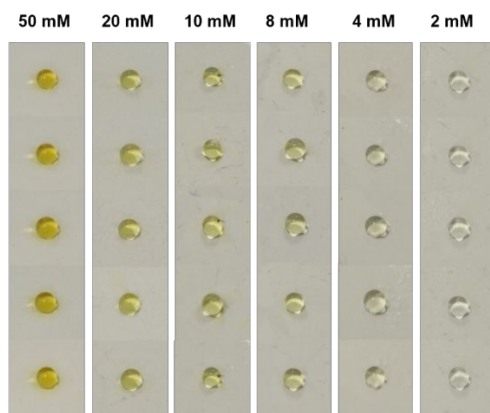


Figure S13. The optical photographs of repeated detection of glucose with different concentrations. Each row represents one test; six tests are shown.



Figure S14. The standard color chart of different glucose concentration.