Supporting Information

Covalent Patterning and Rapid Visualization of Latent Fingerprints with Photocrosslinkable Semiconductor Polymer Dots

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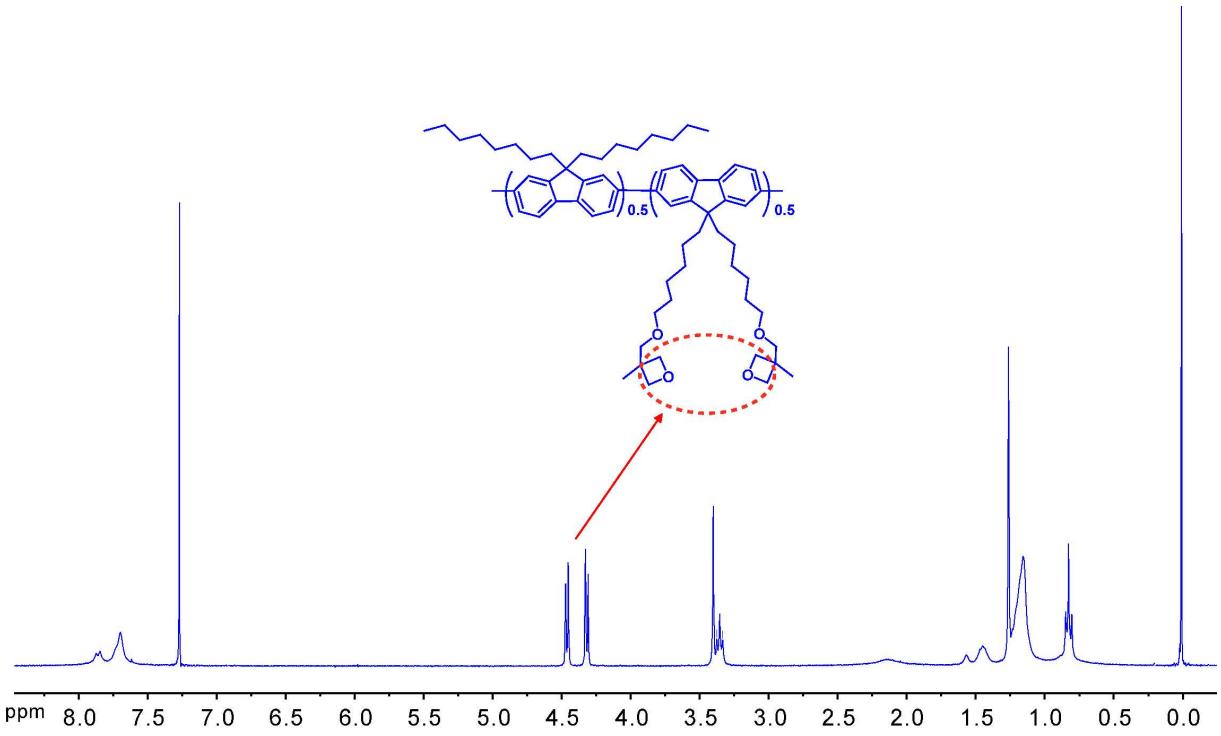

Figure S1. ^{1}H-NMR ($CDCl_3$) spectra of do-PFO polymer.

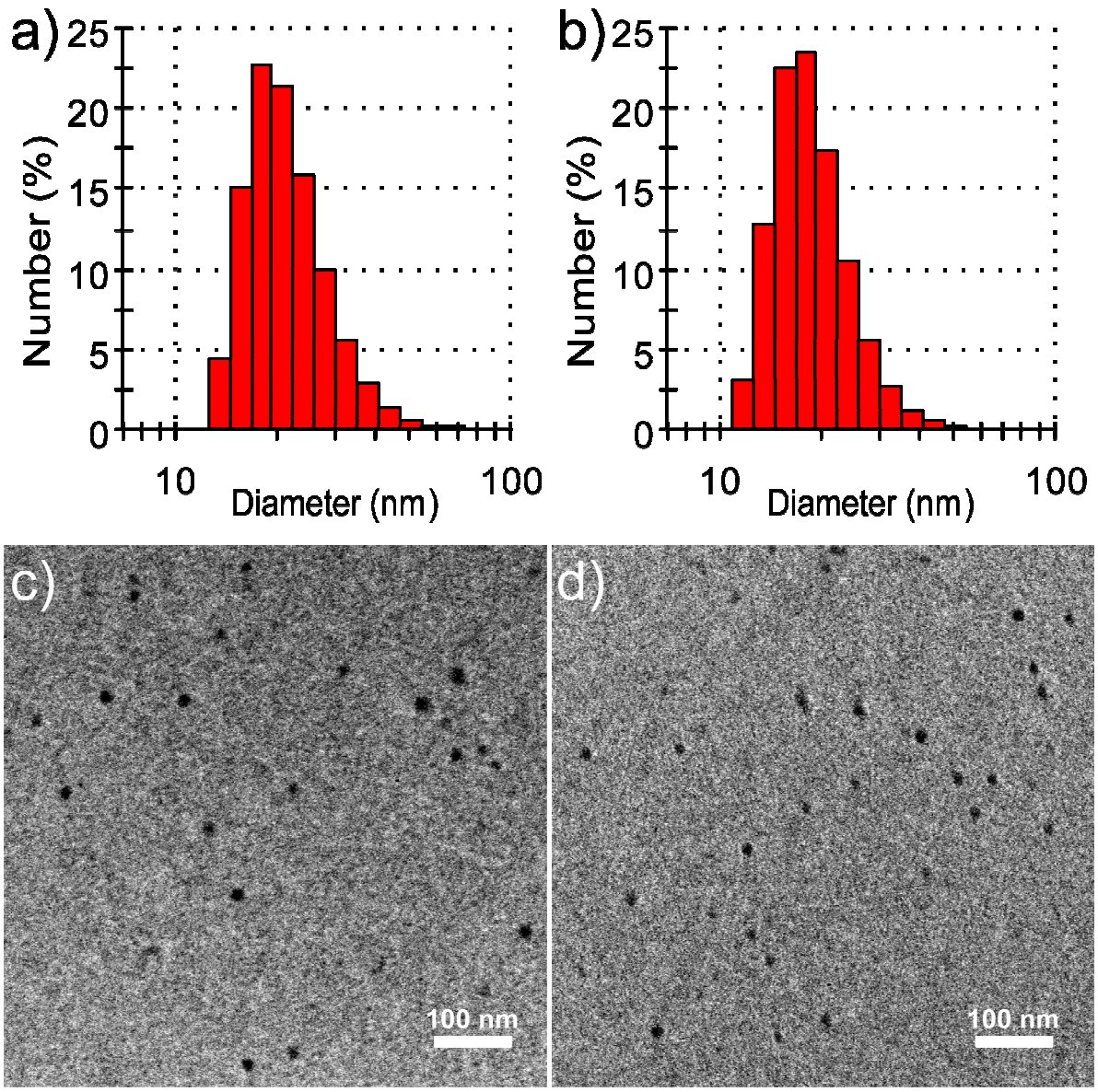

Figure S2. Particle size characterizations by dynamic laser scattering (DLS) and transmission electron microcopy (TEM). a) Particle size distribution of blue-emitting polymer do-PFO measured by DLS. b) Particle size distribution of red-emitting polymer do-PF5DTBT measured by DLS. c) Typical TEM image of do-PFO Pdots; d) Typical TEM image of do-PF5DTBT dots.

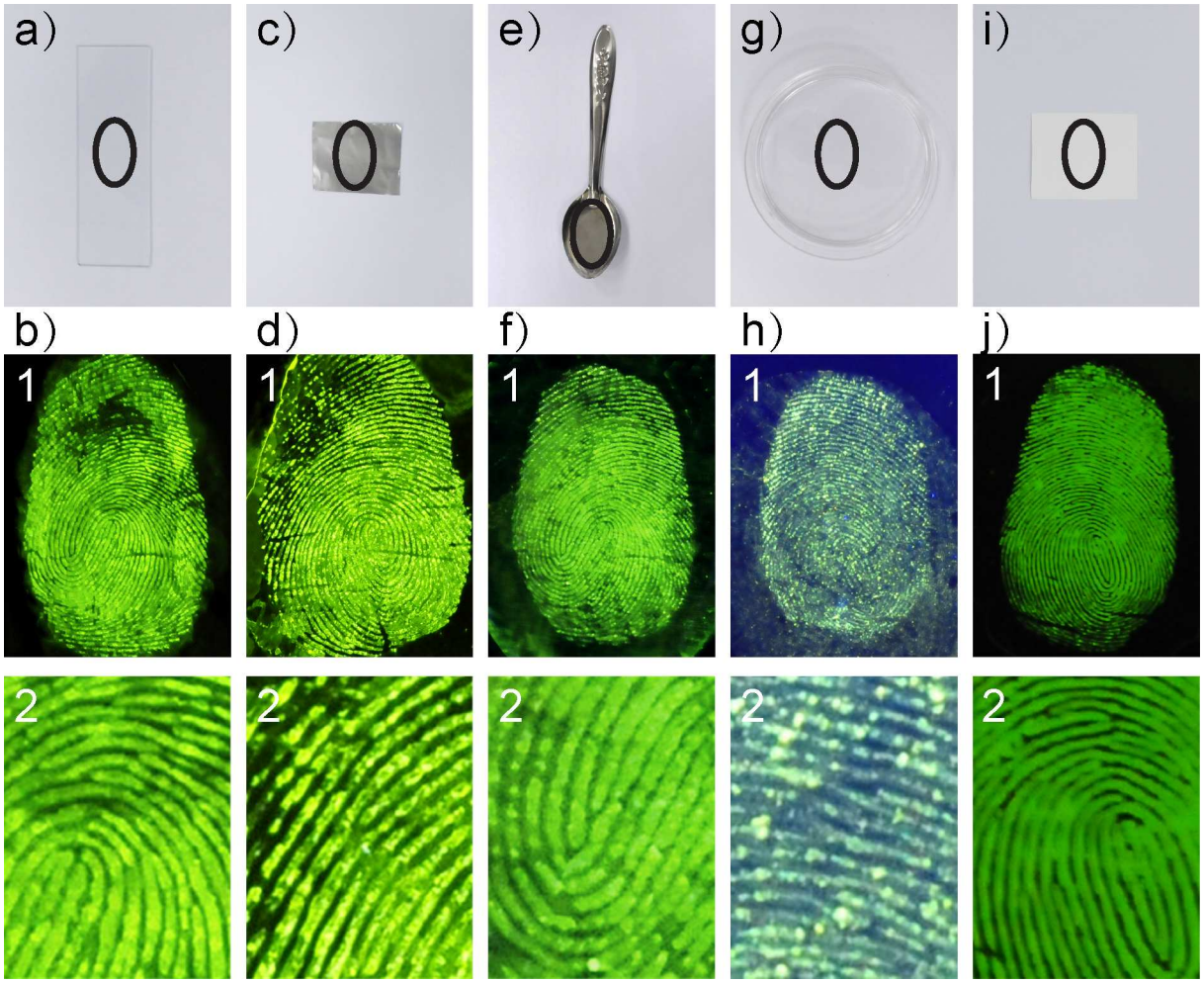

Figure S3. a) Photograph of a glass microscope slide with a latent fingerprint in the black circle. b) Fluorescence image of fingerprint on the slide (1) and the corresponding magnified image (2). c) Photograph of an aluminum foil with a latent fingerprint in the black circle. d) Fluorescence image of fingerprint on the aluminum foil (1) and the corresponding magnified image (2). e) Photograph of an iron spoon with a latent fingerprint in the black circle. f) Fluorescence image of fingerprint on iron spoon (1) and the corresponding magnified image (2). g) Photograph of a Petri dish with a latent fingerprint in the black circle. h) Fluorescence image of fingerprint on Petri dish (1) and the corresponding magnified image (2). i) Photograph of a polyvinyl difluoride (PVDF) membrane with a latent fingerprint in the black circle. j) Fluorescence image of fingerprint on PVDF membrane (1) and the corresponding magnified image (2).

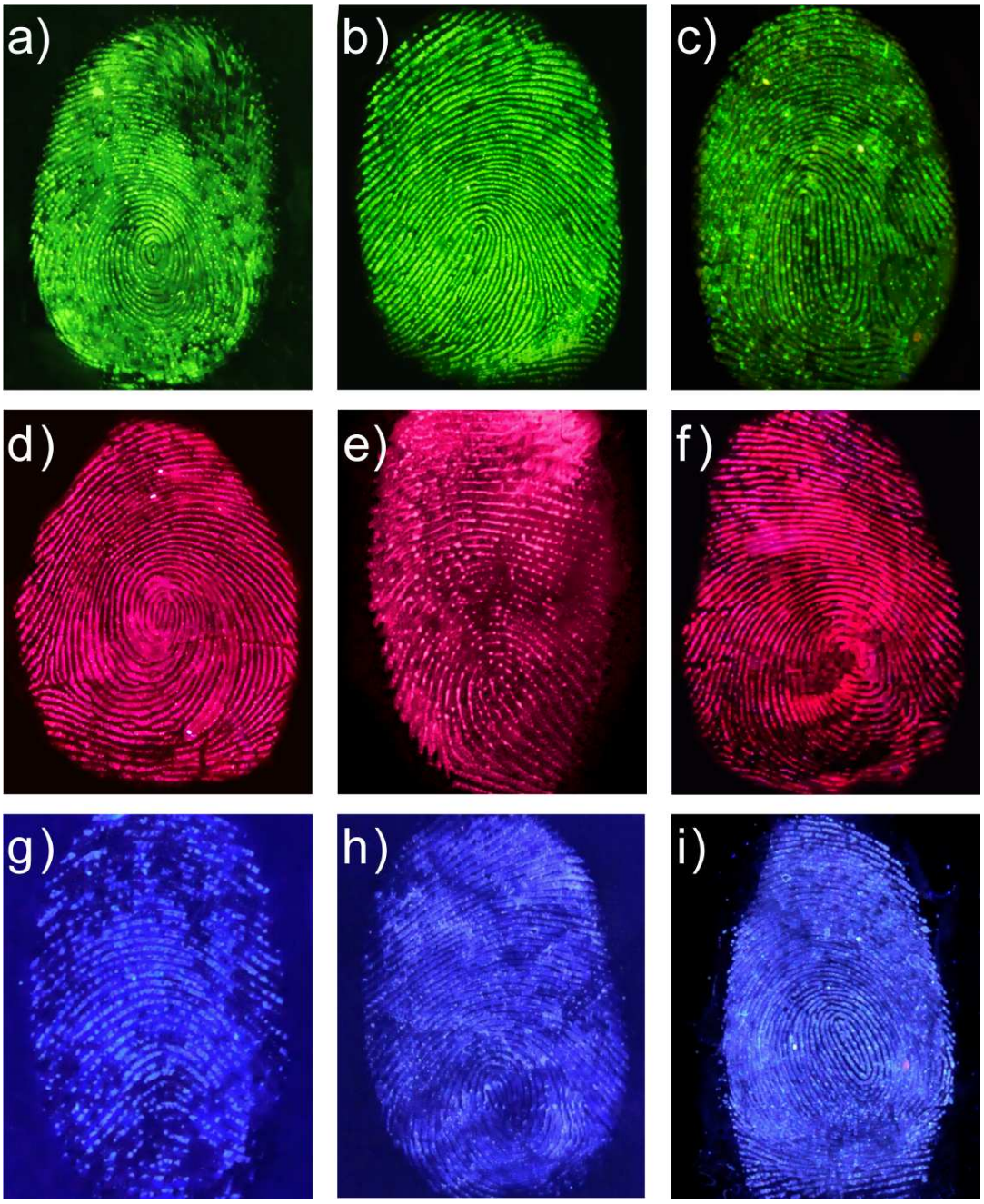

Figure S4. Fluorescence images of fingerprints from nine volunteers developed with Ox-Pdot solutions.

Figure S5. Full-color fluorescence patterning by using the Ox-Pdot inks under a UV lamp illumination. a) Fluorescence photograph of the printed logo of Jilin University on a PVDF substrate. b) Fluorescence photograph of the handwritten words generated by the pen-on-paper approach on a piece of white sulfite paper. c) Fluorescence photograph of an individual seal.

Inkjet Printing by using the Ox-Pdot Inks. The aqueous Ox-Pdot solutions were concentrated to ≈ 2000 ppm by using Amicon Ultra-15 centrifugal filter in the presence of surfactant triton X-100 (0.05 wt%). The concentrations of do-PFO, do-PF10BT and do-PF5DTBT aqueous suspensions were adjusted to 0.6 mg/mL, 0.4 mg/mL, 0.7 mg/mL, respectively. The three types of Ox-Pdot inks were filled to an empty tricolor ink cartridge (HP 704) by syringe needles according to their respective emission colors. Versatile

fluorescent patterns were printed on PVDF membranes by using a computer-controlled desktop inkjet printer (HP Deskjet 2010). Fluorescent images of multicolor patterns were obtained with a Nikon D300S digital camera under the 365 nm UV excitation.

Handwritten patterns by using the Ox-Pdot Inks. The aqueous Ox-Pdot solutions were concentrated to ≈2000 ppm by using Amicon Ultra-15 centrifugal filter. For the pen-on-paper and brush-on-paper approach, the Pdots solutions (≈100 ppm) were filled to three fountain pens, respectively. The filled pens were then employed to handwrite the letters on a piece of white sulfite paper. As for the brush-on-paper and ink stamping methods, the concentration of Ox-Pdots do-PFO, do-PF10BT and do-PF5DTBT aqueous suspensions were adjusted to 0.3 mg/mL, 0.2 mg/mL, 0.4 mg/mL, respectively.