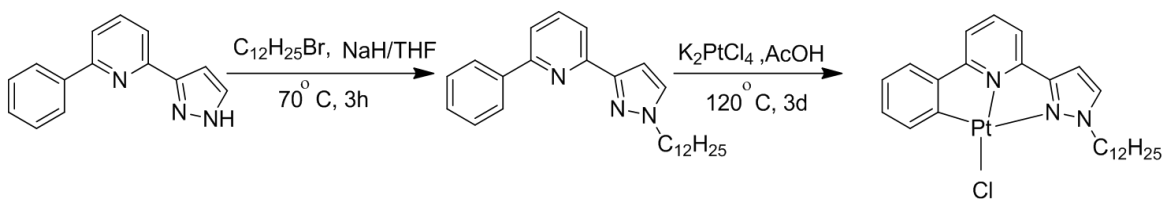
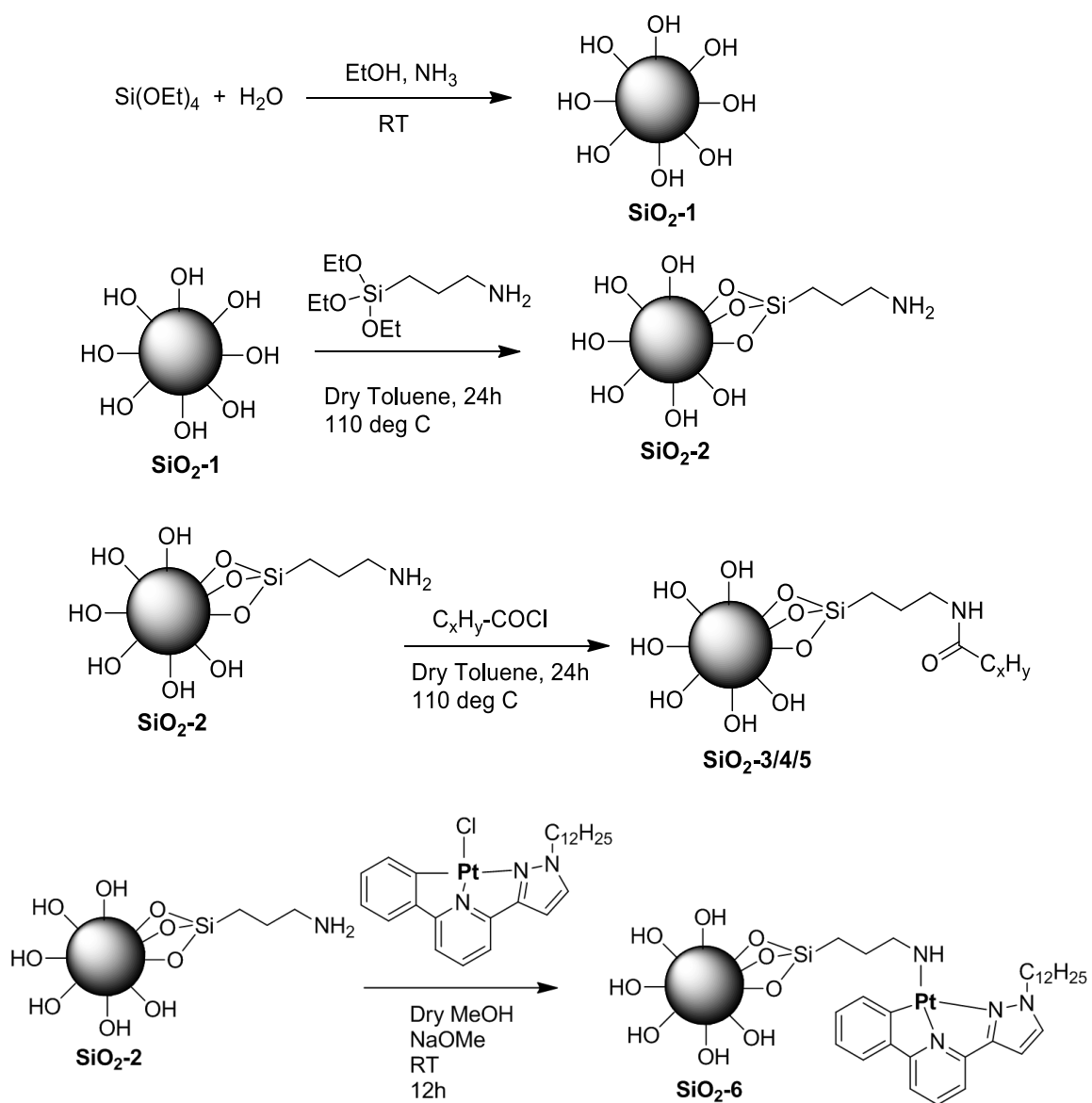


Supplemental Data

Fluorescent amphiphilic silica nano-powder for developing latent fingerprint



Scheme S1. Synthetic scheme for Pt-based luminophore.



Scheme S2. Synthetic scheme for six silica nanoparticles **SiO₂-1/2/3/4/5/6**.

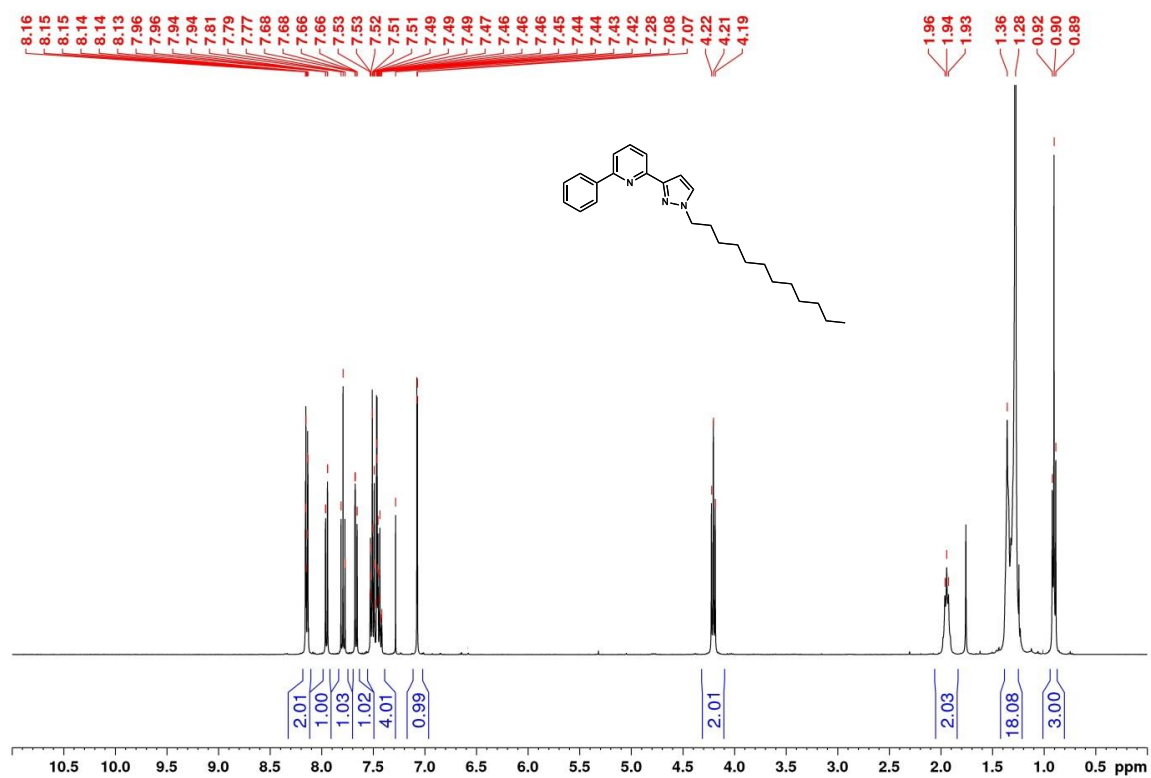


Figure S2. 400 MHz ¹H-NMR spectrum of C-N-N-C₁₂H₂₅ ligand in CDCl₃.

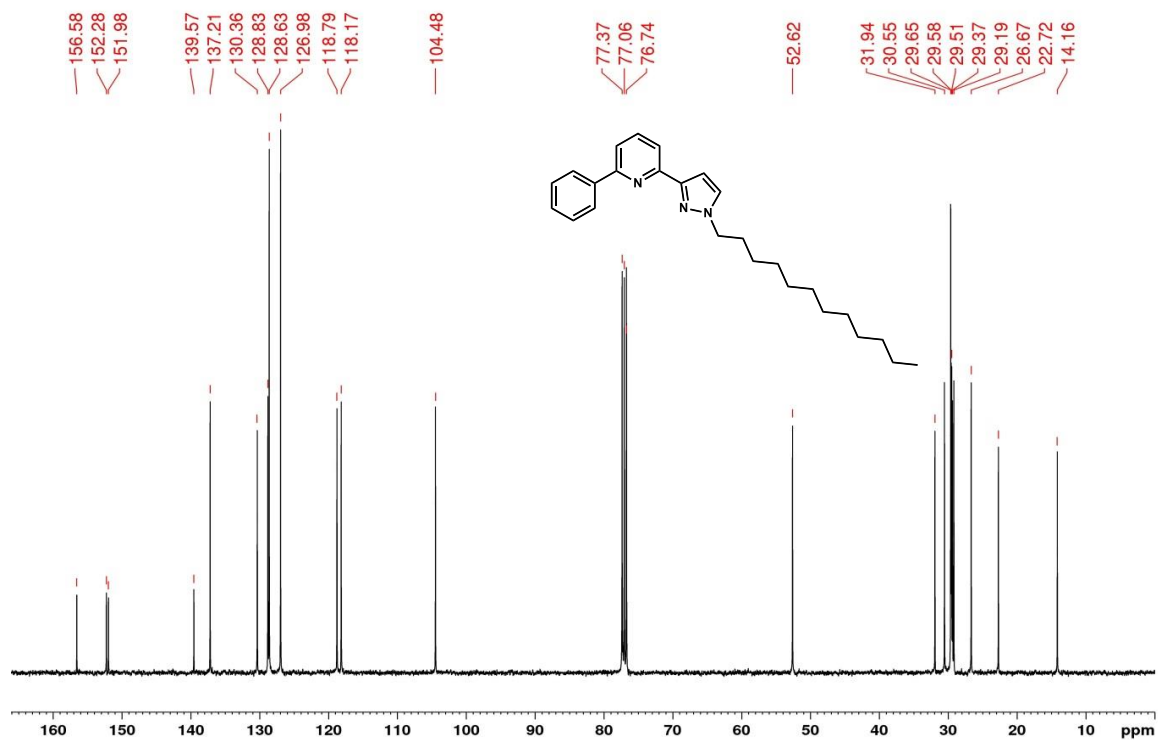


Figure S3. 100 MHz ¹³C-NMR spectrum of C-N-N-C₁₂H₂₅ ligand in CDCl₃.

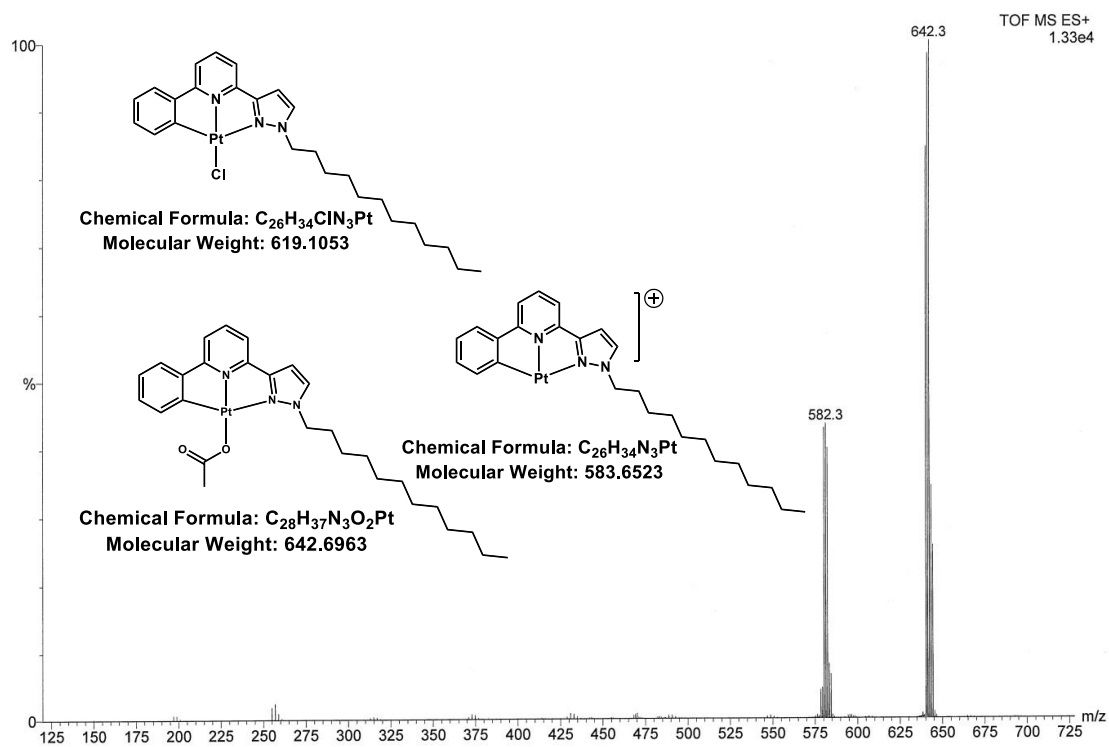


Figure S4. ESI-MS of **Pt** complex.

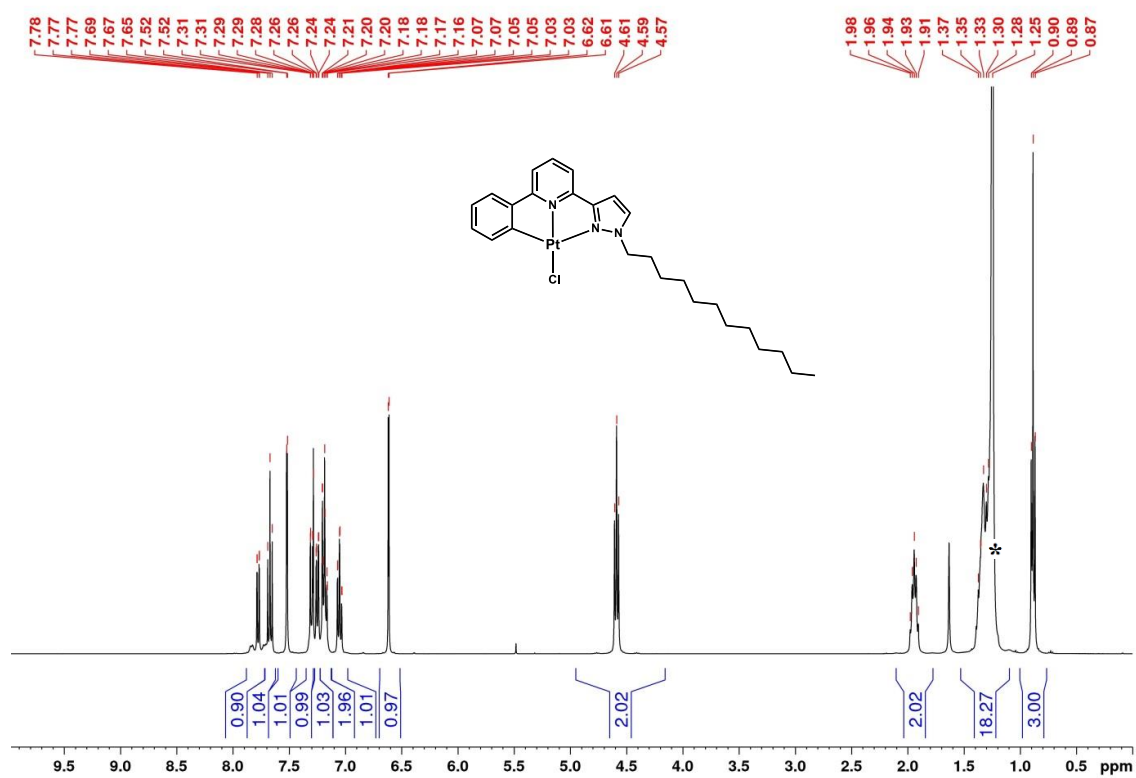


Figure S5. 400 MHz ¹H-NMR spectrum of **Pt** complex in CDCl₃.

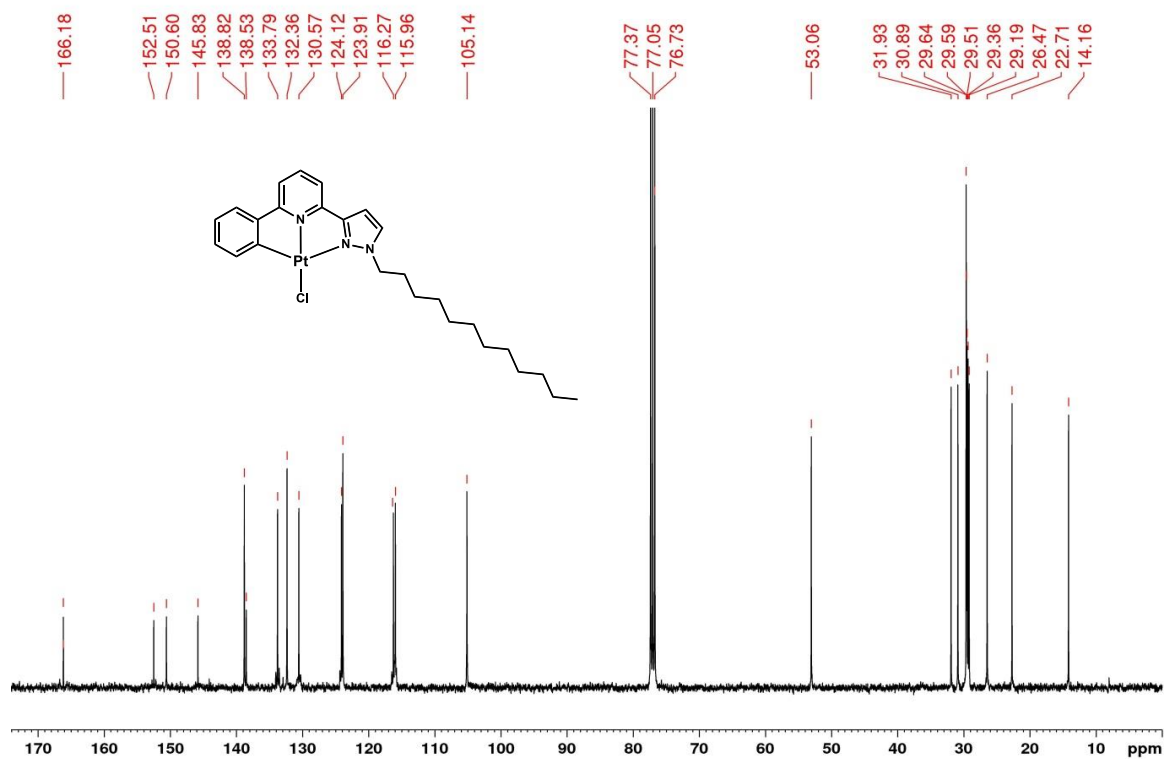


Figure S6: 100 MHz ¹³C-NMR spectrum of **Pt** complex in CDCl₃.

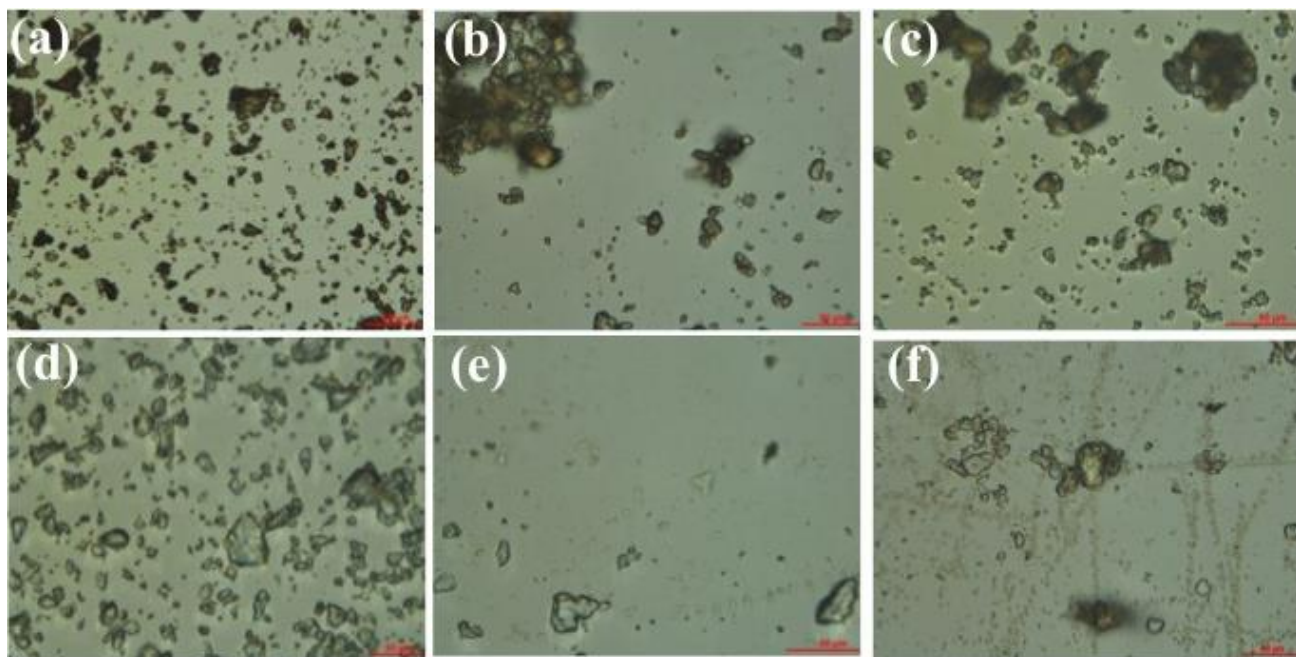


Figure S7. High-resolution optical microscopic images of six different silica nanopowders; **SiO₂-1** (a), **SiO₂-2** (b), **SiO₂-3** (c), **SiO₂-4** (d), **SiO₂-5** (e) and **SiO₂-6** (f). All red scale bar seen with each image is of 50 μm.

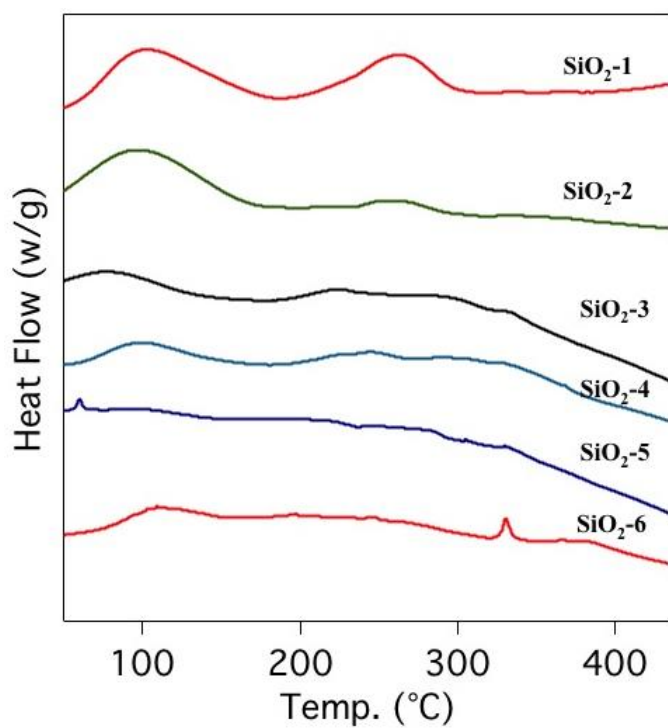


Figure S8. DSC profiles of SiO₂-1/2/3/4/5/6.

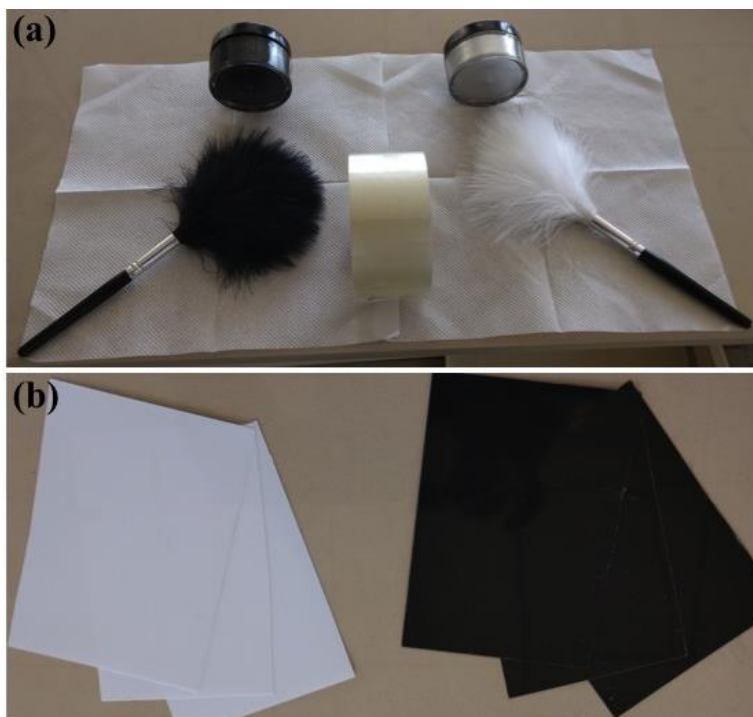


Figure S9. (a) Optical image of commercial black and grey powder, forensic brushes and adhesive tapes for lifting of developed fingerprints; (b) Black and white paper substrates used for preserving lifted fingerprints.

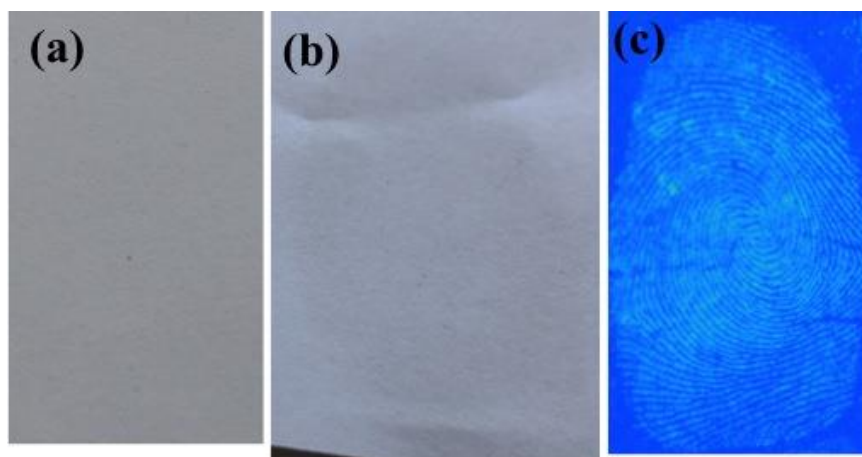


Figure S10. (a) Latent fingerprint (LFP) on white paper (notebook paper, porous substrate); (b) The LFP is powder dusted with $\text{SiO}_2\text{-4}$ but invisible due to same color of white paper and silica powder; (c) The LFP is powder dusted with $\text{SiO}_2\text{-6}$ and imaged with 365 nm UV light.

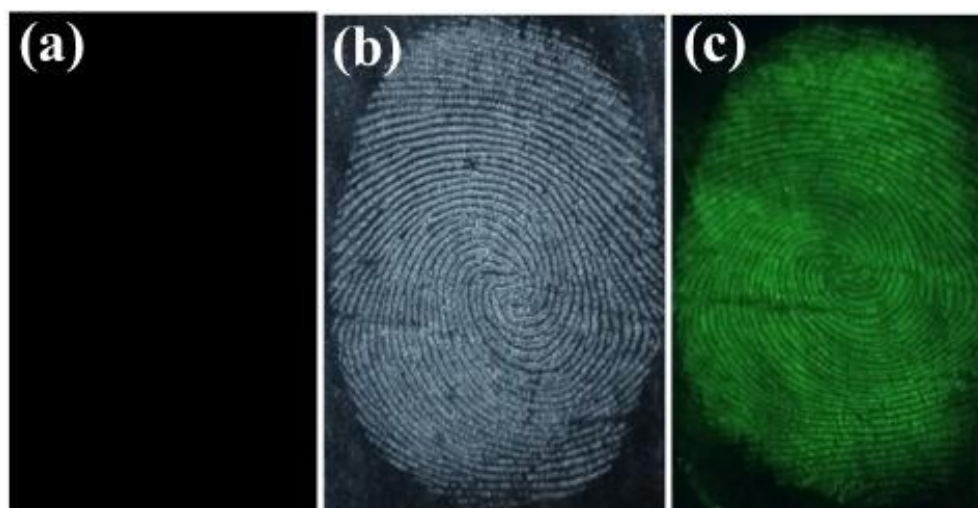


Figure S11. (a) Latent fingerprint (LFP) on black paper (painted with black color so non porous); (b) The LFP is powder dusted with $\text{SiO}_2\text{-4}$; (c) The LFP is powder dusted with $\text{SiO}_2\text{-6}$ and imaged with 365 nm UV light.

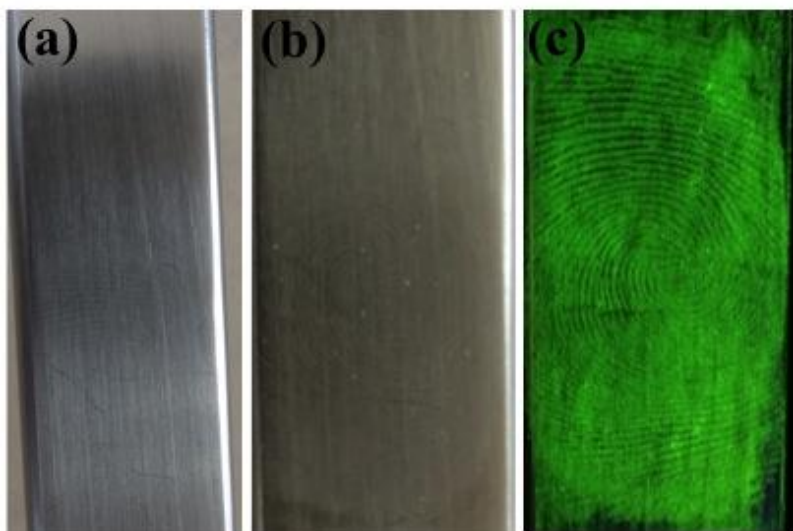


Figure S12. (a) Latent fingerprint (LFP) on metal surface (steel, nonporous); (b) The LFP is powder dusted with **SiO₂-4** but invisible due to similar color contrast of steel and silica powder; (c) The LFP is powder dusted with **SiO₂-6** and imaged with 365 nm UV light.

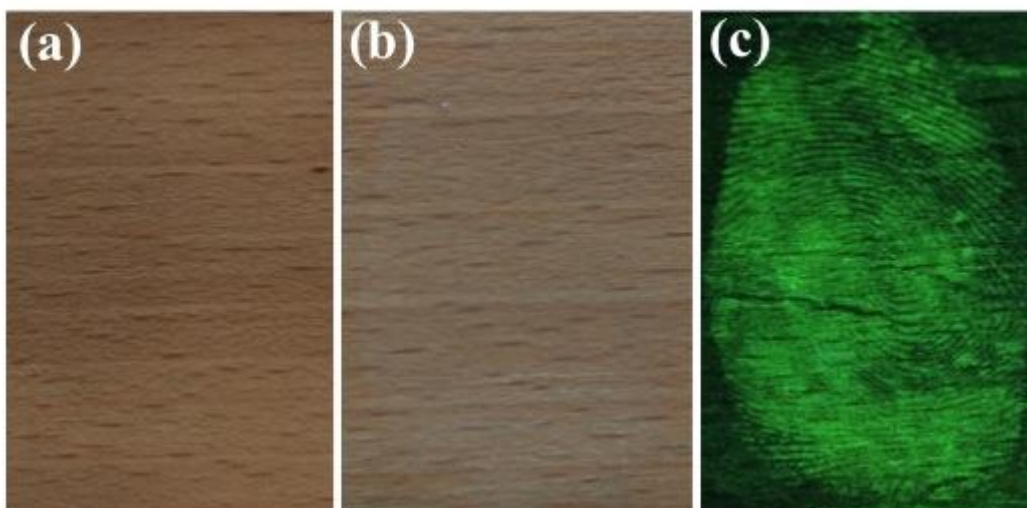


Figure S13. (a) Latent fingerprint (LFP) on wooden surface (semi-porous substrate); (b) The LFP is powder dusted with **SiO₂-4** invisible due to similar color contrast of wood and silica powder; (c) The LFP is powder dusted with **SiO₂-6** and imaged with 365 nm UV light.

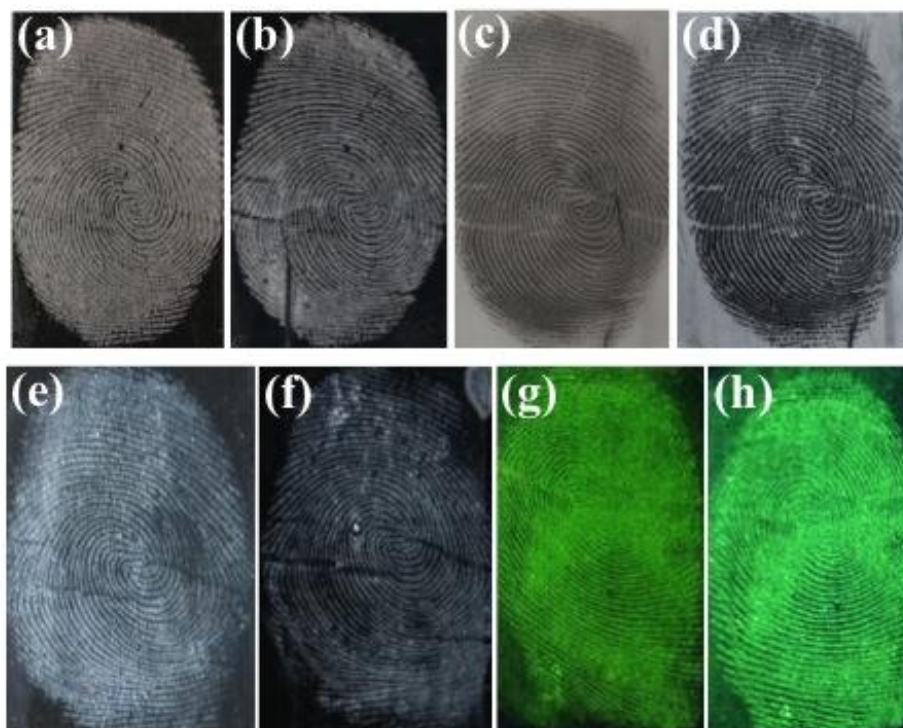


Figure S14. (a) Developed fingerprint by commercial grey powder on glass; (b) same print after lifting with adhesive tape and pested on a black paper substrate, both images were taken under day light. (c) Developed fingerprint by commercial black powder; (d) same print after lifting with adhesive tape and pested on a white paper substrate, both images were taken under day light. (e) Developed fingerprint by **SiO₂-4** powder; (f) same print after lifting with adhesive tape and pested on a black paper substrate, both images were taken under day light. (g) Developed fingerprint by **SiO₂-6** powder; (h) same print after lifting with adhesive tape and pested on a black paper substrate, both images were taken under 365 nm UV light.

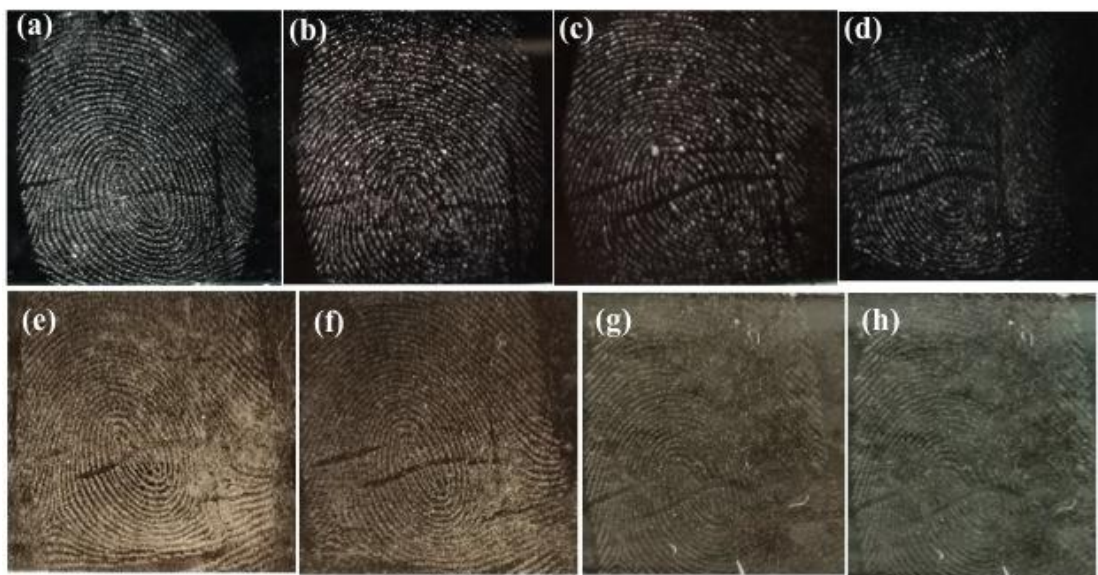


Figure S15. (a) Developed fingerprint by amphiphilic silica ($\text{SiO}_2\text{-4}$) (a-d) and commercial grey powder (e-h) on glass substrate as a depletion series basis.