## **Supporting Information**

## **Optofluidic Sensing from Inkjet-Printed Droplets: the Enormous Enhancement by Evaporation-Induced Spontaneous Flow on Photonic Crystal Biosilica**

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**Figure S1** The microscopic optical images of the diatom frustules (a) and diatom-Ag NPs after inkjet-printing (b).



Figure S2 Raman spectra of glass and glass-Ag NPs.



Figure S3 Image of 2  $\mu$ L droplet of water on glass with and without diatom (a) and on glass-Ag NPs and diatom-Ag NPs SERS substrate (b).



Figure S4 FTIR spectra of glass and glass-diatom.



**Figure S5** Raman mapping image of 400 droplets TNT  $(10^{-5} \text{ M})$  on a single diatom SERS substrate (a) and the corresponding microscopy image (b).