## ELECTRONIC SUPPLEMENTARY INFORMATION

## Controlling Uni-directional Wetting via Surface Chemistry and

## Morphology

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**Figure S1**. The cross-section SEM images of gold nanofilms (a) for  $\alpha$ =5°, (b) for  $\alpha$ =10°, and (c) for  $\alpha$ =20°, respectively.



Figure S2. Top-view SEM image of fabricated gold nanofilm at  $\alpha$ =5°.



**Figure S3.** Top-view SEM image of fabricated gold nanofilm at  $\alpha$ =10°.



**Figure S4.** Top-view SEM image of fabricated gold nanofilm at  $\alpha$ =20°.



Figure S5. XRD pattern of fabricated directional gold nanofilm.



Figure S6. AFM images of fabricated gold nanofilms at (a)  $\alpha$ =5°, (b)  $\alpha$ =10°, and (c)  $\alpha$ =20°.



Figure S7. Retention Forces of modified AuNRs as a function of the substrate tilt angles.