Electronic Supporting Information (ESI)

for

Color resolution improvement of dark-field microscopic imaging of single light scattering plasmonic nanoprobe for microRNA visual detection

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Table S1. Sequences of the nucleic acids

Name	Sequences(5-3)
HS-ssDNA	TTTTTTTTCAAACACCATTGTCACACTCCA
miRNA122	UGGAGUGUGACAAUGGUGUUUG
Single-base mismatch miRNA	UGGAGUGUGACAAUUGUGUUUG
Two-base mismatch miRNA	UGGAAUGUGACAAUUGUGUUUG



Figure. S1. RGB color model. The RGB color model is additive color model in which red, green and blue light are added together in various ways to reproduce a broad array of colors. Additive color mixing: adding red to green yields yellow; adding red to blue yields magenta; adding green to blue yields cyan; adding all three primary colors together yields white.



Figure. S2. The RGB chromaticity diagram according to the 1931 Commission International d'Eclairage.



Figure. S3. HSI color model. The HSI color model (hue, saturation and intensity) attempts to produce a more intuitive representation of color. The I axis represents the luminance information. The H and S axes are polar coordinates on the plane orthogonal to I. H is the angle, specified such that red is at zero, green at 120 degrees, and blue at 240 degrees. Hue thus represents what humans implicitly understand as color. S is the magnitude of the color vector projected in the plane orthogonal to I, and so represents the difference between pastel colors (low saturation) and vibrant colors (high saturation).



Figure. S4. Spectral characterizations and morphologic of the used AuNPs. (A) UV LSPR absorption (black) and scattering (red) spectra, which display a characteristic LSPR absorption band at 535 nm and a characteristic LSPR scattering band at 566 nm. (B) SEM image of the AuNPs in size of 50 nm, and most of them are spherical.

S-4800 20.0kV 12.5mm x90.0k SE(M)

500nm



Figure. S5. Scattered light iDFMs of AuNPs with an average diameter of about 50 nm, and most of them are green. The image scale bar corresponds to 20 μ m.



Figure. S6. Column diagram of the hue shift after the AuNP@DNA probes hybridized with 100 nM miR-122 (MT0), one base-pair mismatched miR-122 (MT1), and two base-pair mismatched miR-122 (MT1).