Electronic Supplementary Material (ESI) for Nanoscale.

In situ plasmonic Ag nanoparticles anchored TiO_2 nanotube arrays as visible-light-driven photocatalysts for enhanced water splitting

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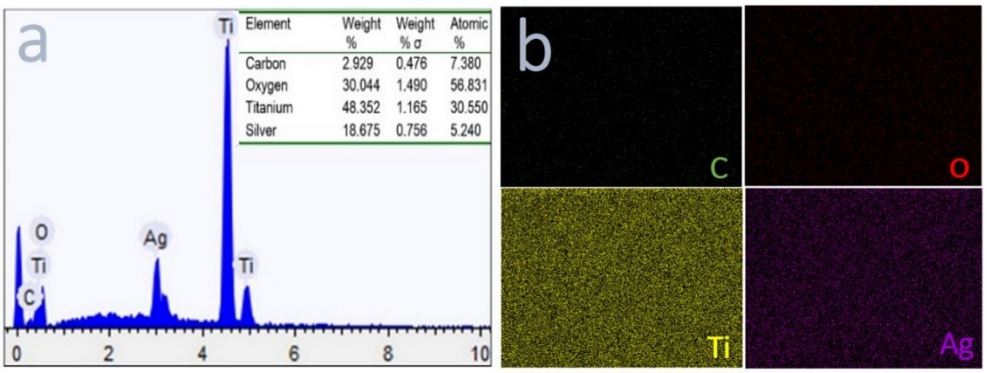

Figure S1. EDX and corresponding element mapping images (in Figure 1c) for Ag@TiO_2 NTAs with ultrasonication-assisted deposition time for 5 min.

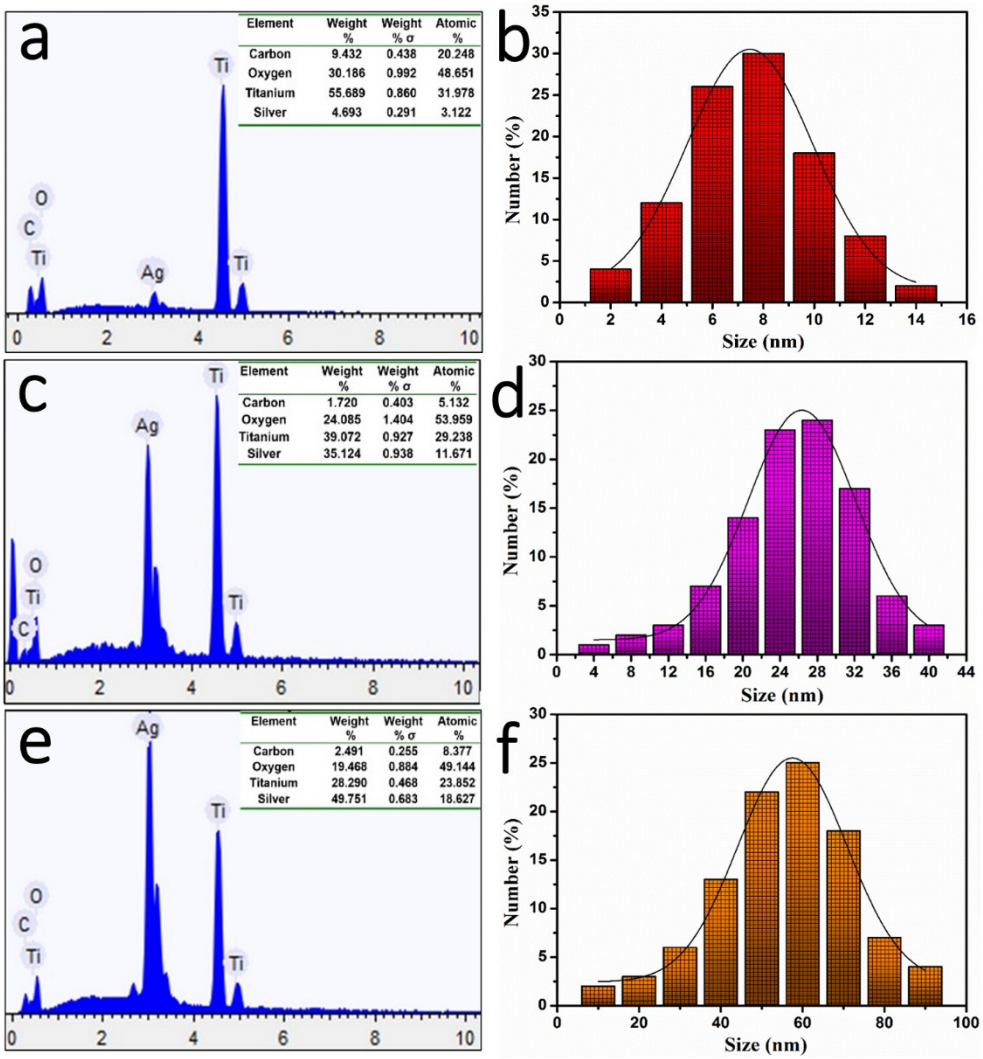

Figure S2. EDX spectra (a) of Ag@TiO_2 NTAs with ultrasonication-assisted deposition time for 2 min (a), 10 min (c), and 15 min (e), respectively. The size of Ag nanoparticles of Ag@TiO_2 NTAs with ultrasonication-assisted deposition time for 2 min (b), 10 min (d), and 15 min (f), respectively.

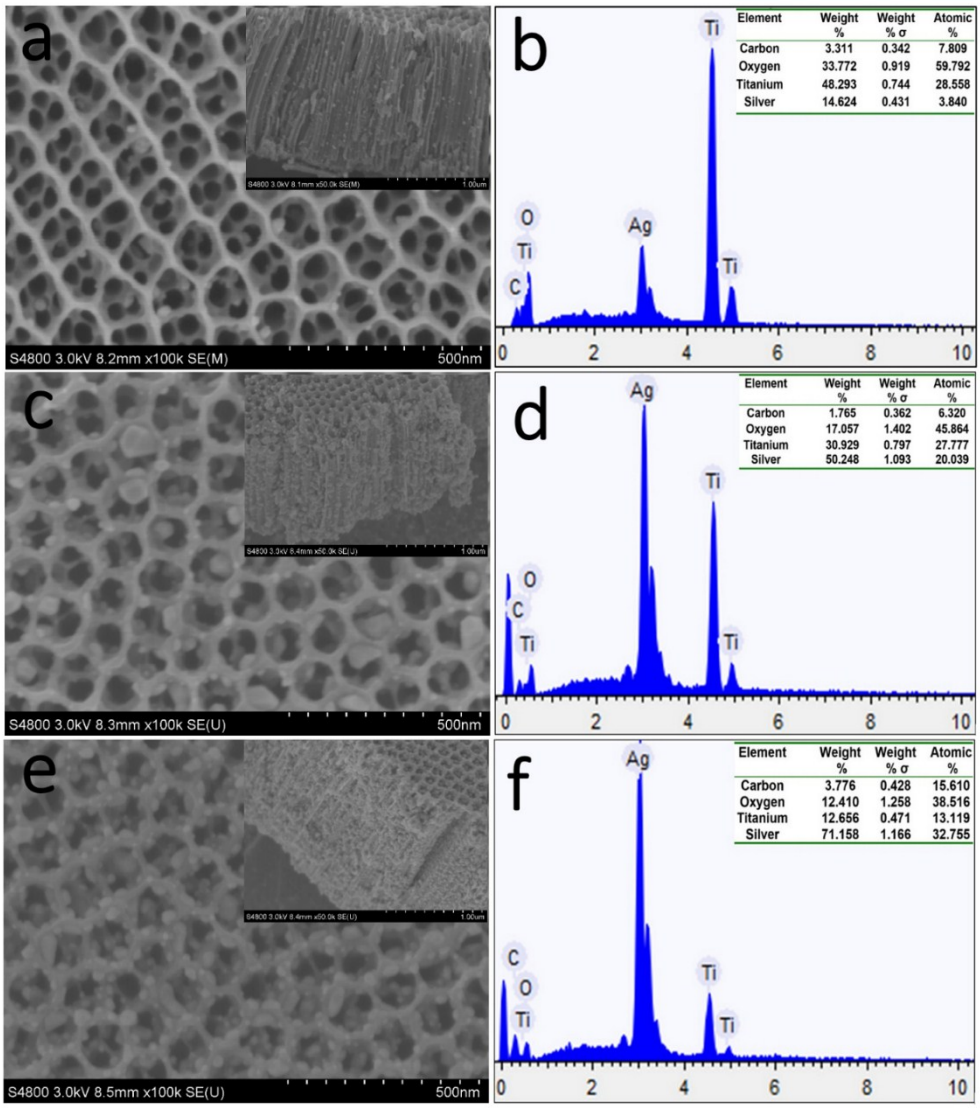

Figure S3. SEM images of Ag@TiO_2 NTAs with ultrasonication-assisted deposition time for 5 min with 5 (a), 20 (c), and 40 mM $AgNO_3$ (e), respectively. EDX spectra of Ag@TiO_2 NTAs with ultrasonication-assisted deposition time for 5 min with 5 (b), 20 (d), and 40 mM $AgNO_3$ (f), respectively.

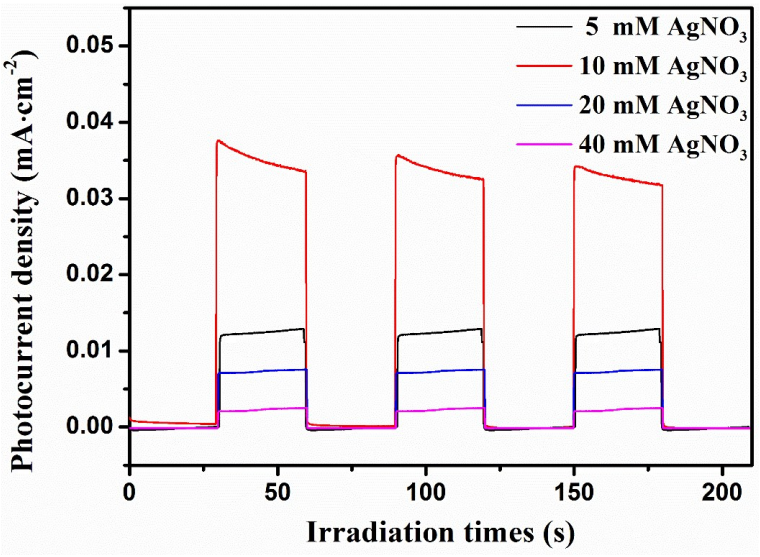

Figure S4. Photocurrent responses of as-prepared pure TiO_2 NTAs and Ag@TiO_2 NTAs with ultrasonication-assisted deposition time for 5 min with 5, 10, 20 and 40 mM $AgNO_3$ under visible light irradiation in 0.1 M Na_2SO_4 solution recorded at 0.3 V. The illumination from a 150 W Xe lamp (with a UV-light cutoff filter $\lambda \geq 420$ nm).

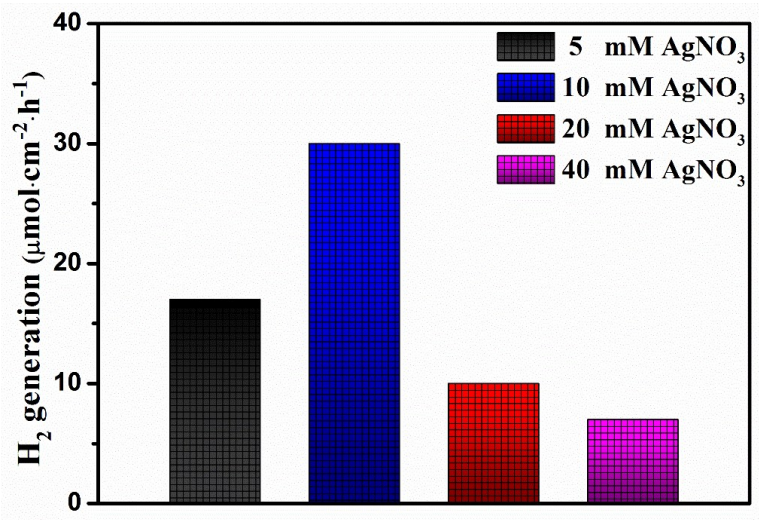

Figure S5. Photoelectrocatalytic hydrogen production rate of the Ag@TiO_2 NTAs with ultrasonication-assisted deposition time for 5 min with 5, 10, 20 and 40 mM $AgNO_3$ in distilled water containing 20 vol% methanol under 500 W Xe lamp (80 mW·cm^{-2}) with a UV light cutoff filter ($\lambda \geq 420$ nm).