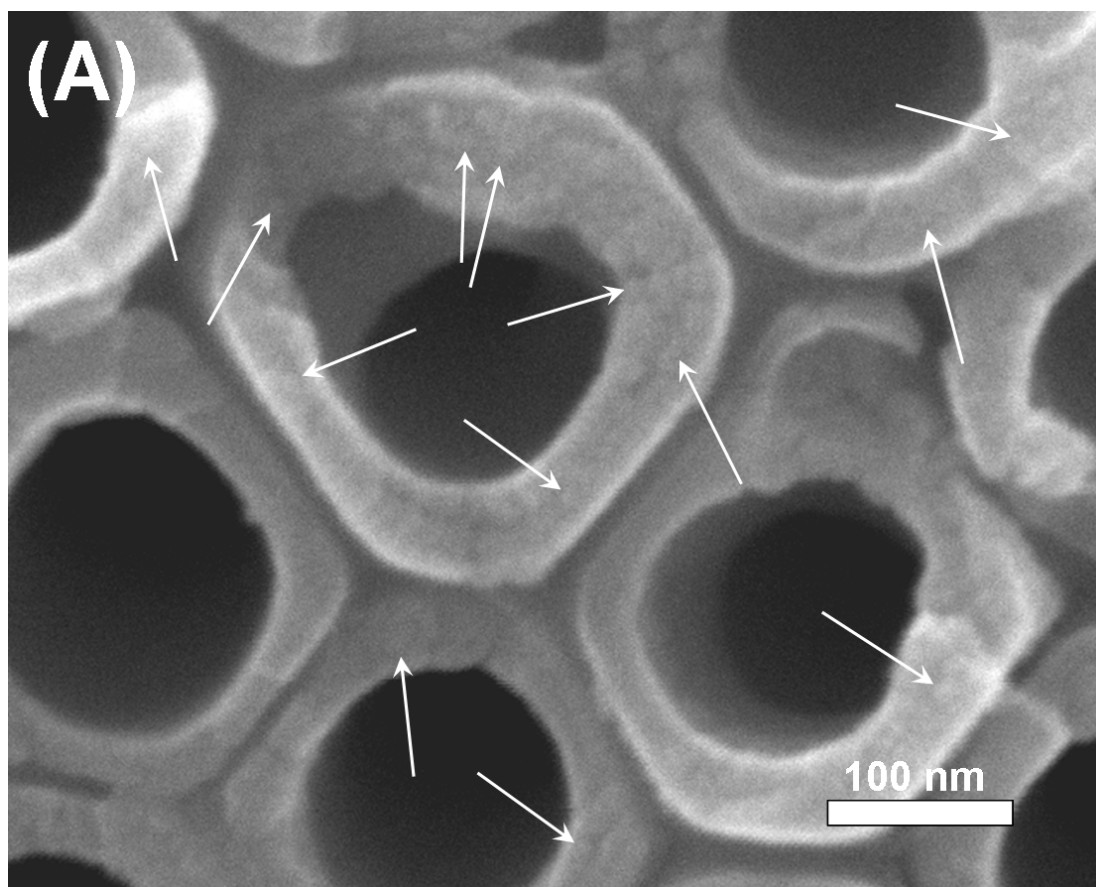
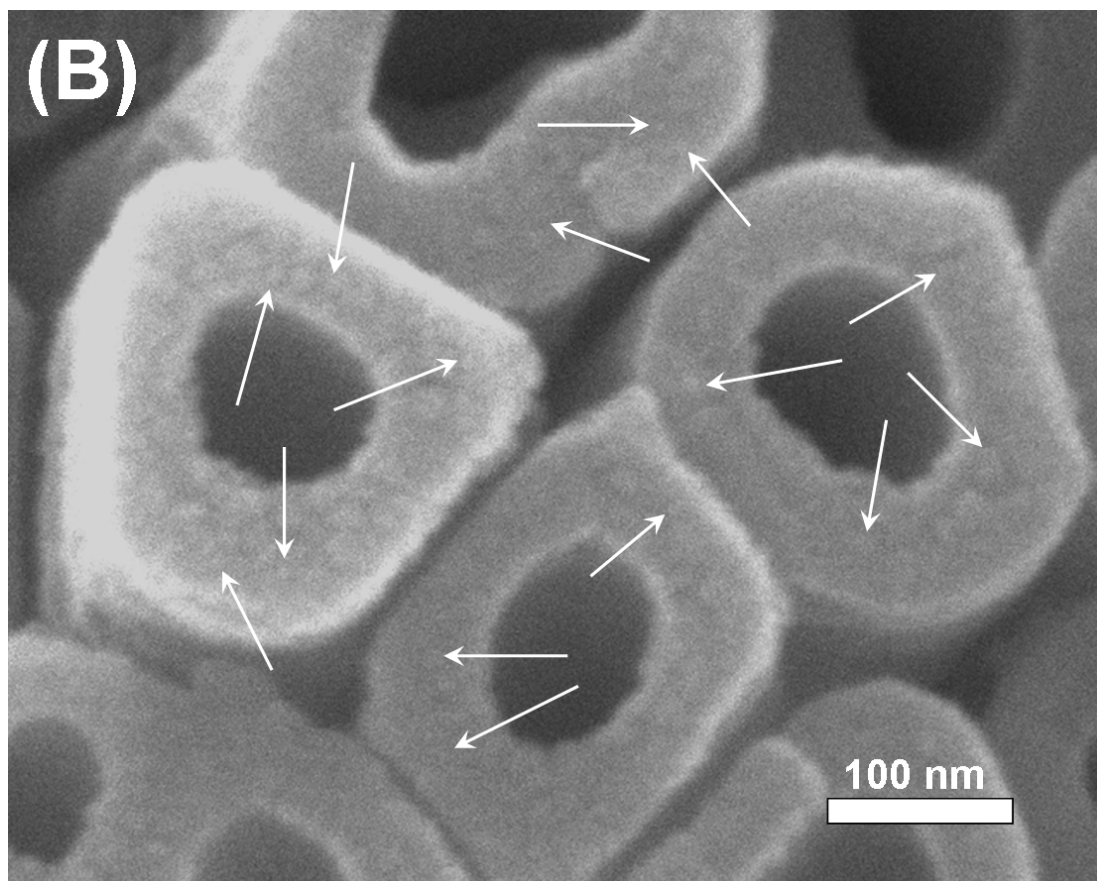


Supporting Information





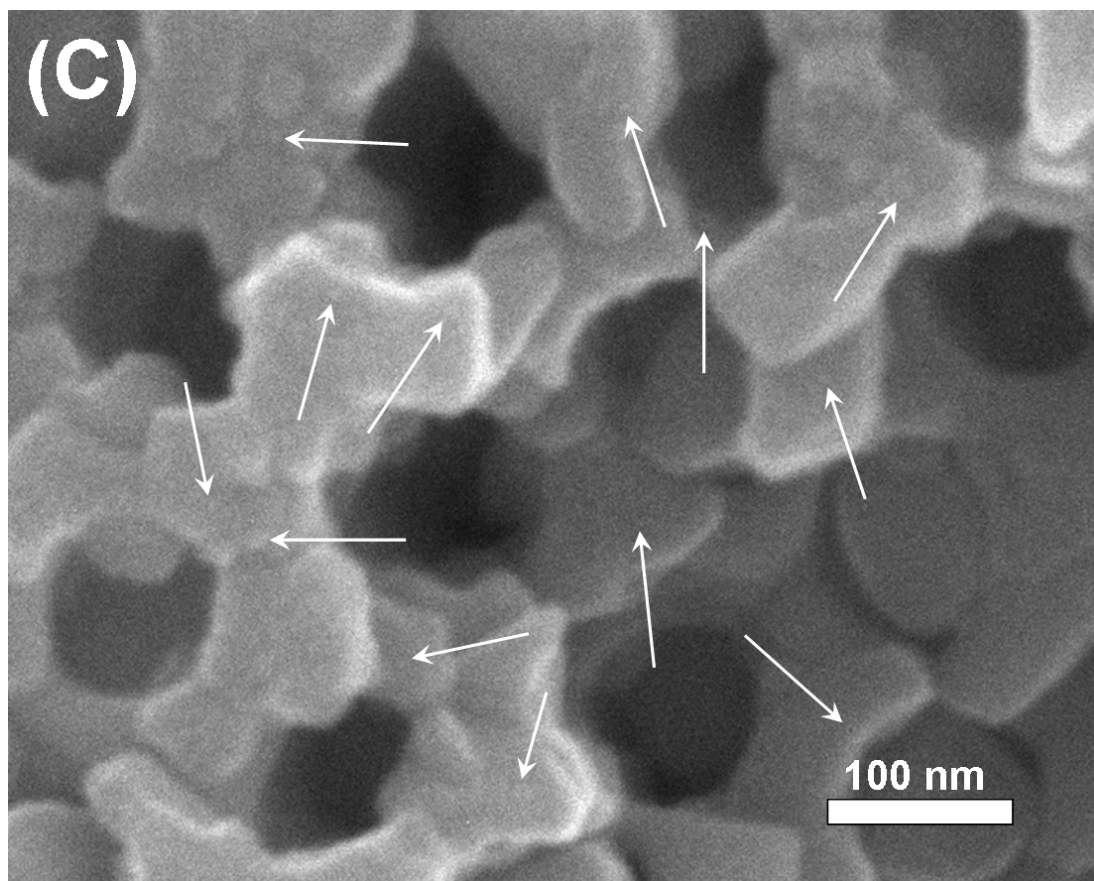


Figure S1. High-resolution FESEM images of PbS(N) NPs/TiO₂ NAs (A, B, and C for N = 5, 10, and 15, respectively).

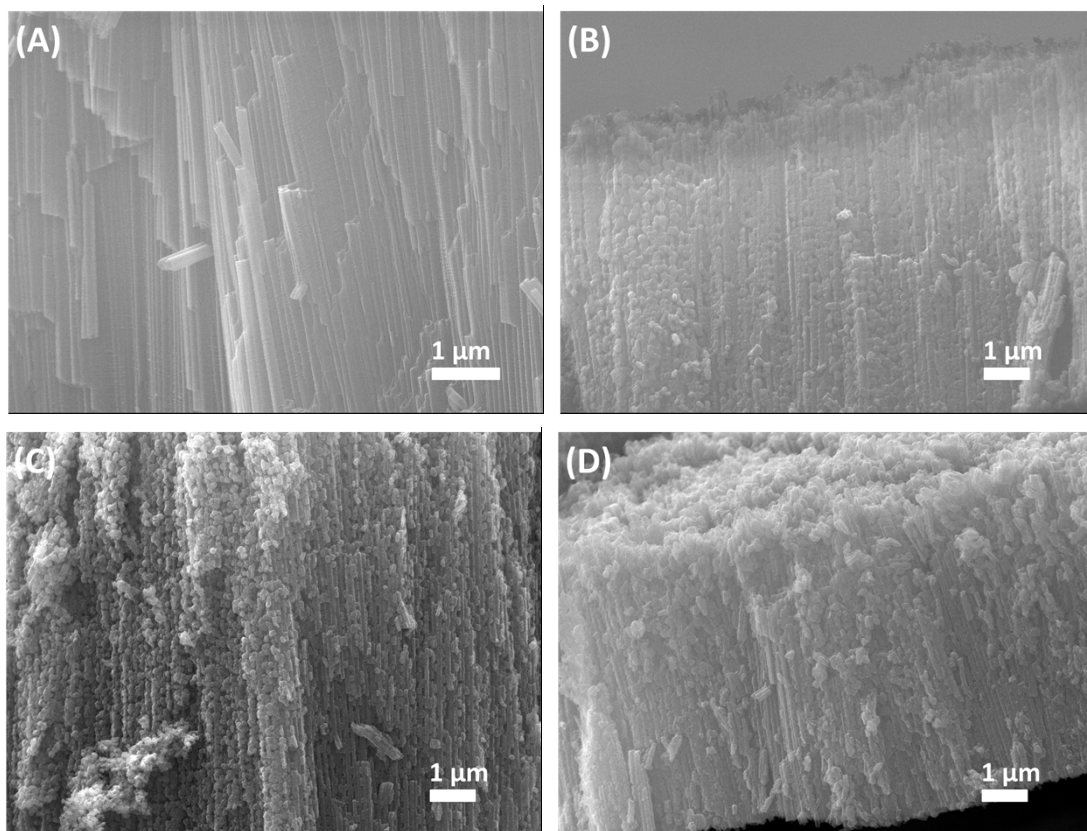


Figure S2. Cross-section FESEM images of pure TiO₂ NAs (A) and PbS(N) NPs/TiO₂ NAs (B, C, and D for n = 5, 10, and 15, respectively).

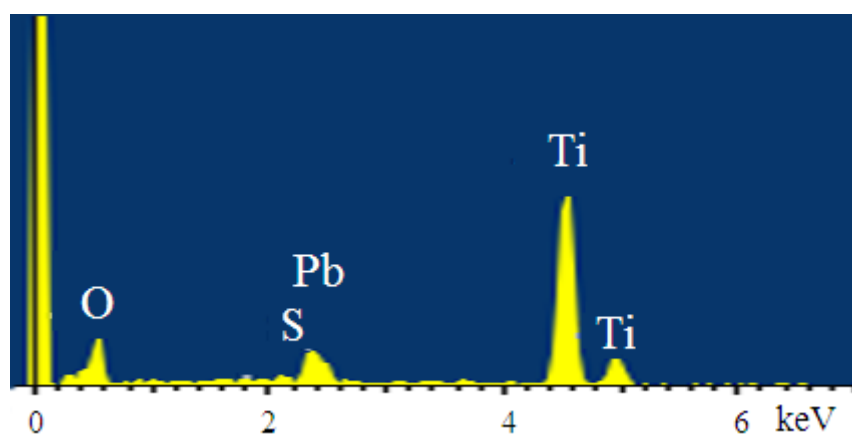


Figure S3. EDX analysis of the marked region in Figure 3A.

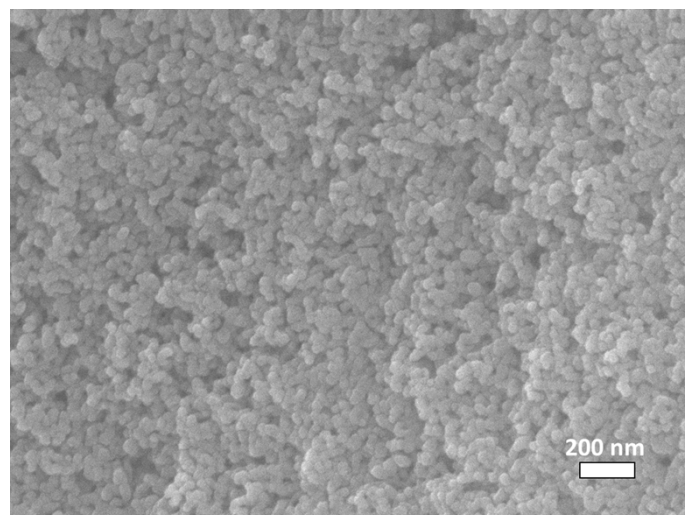


Figure S4. FESEM image of pure PbS NPs.

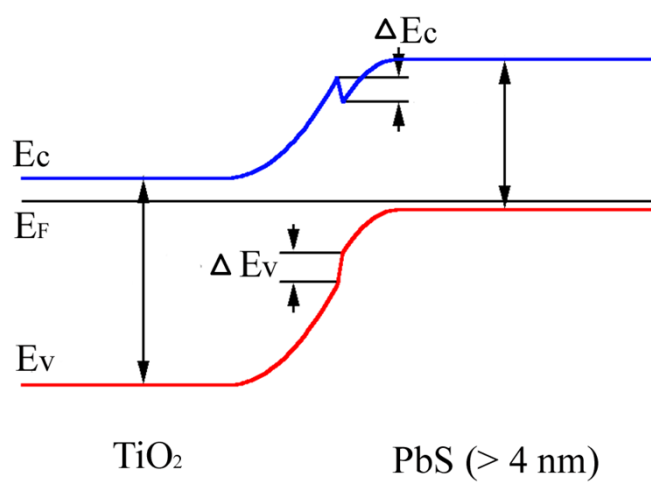


Figure S5. Energy band structure diagram of TiO_2 NAs and PbS NPs ($> 4 \text{ nm}$) at the equilibrium.

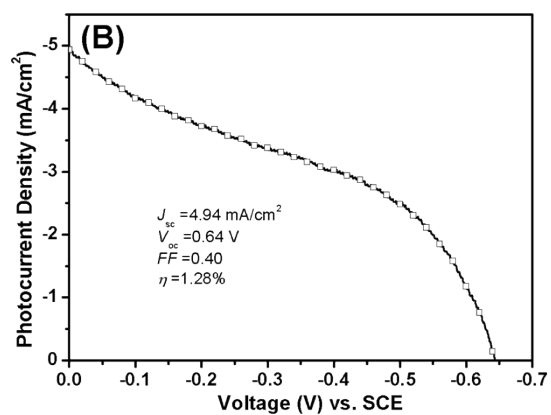
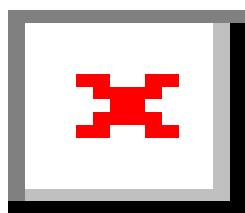


Figure S6. FESEM image (A) and the J - V curve (B) of PbS/TiO₂ NAs.