

Electronic Supporting information

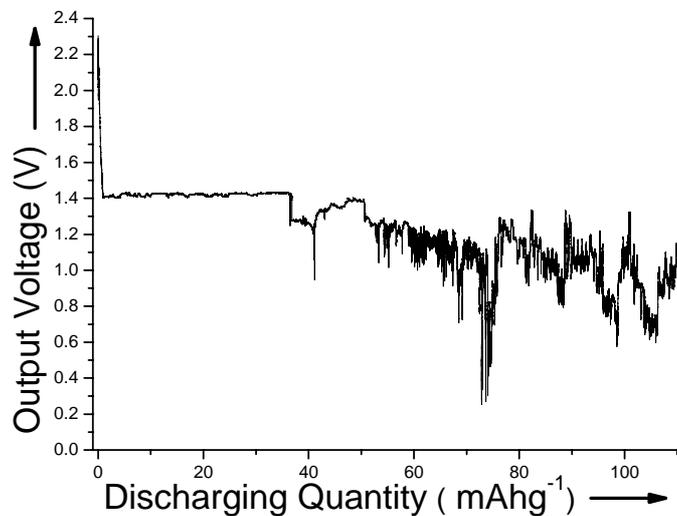


Figure S1. Discharging curve of the self-assembled battery used for electrochemical Li intercalation process, discharging by 0.3 mA electric current.

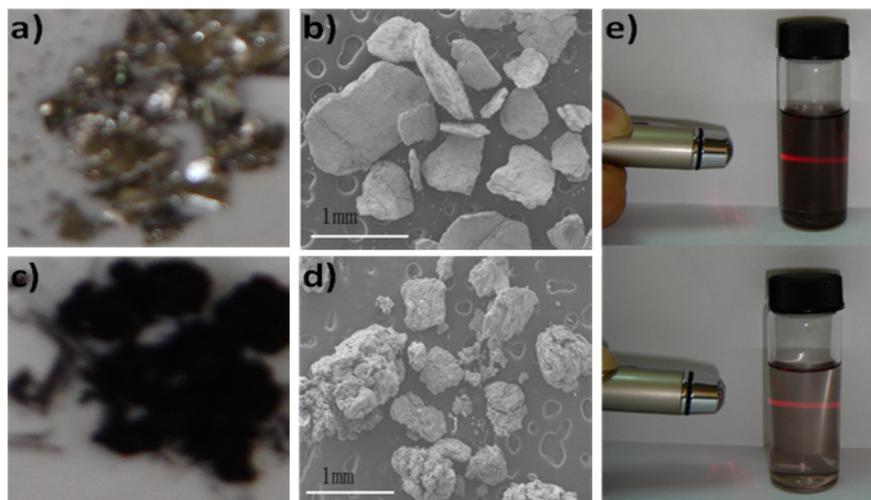


Figure S2. **a), b)** Photograph and SEM micrograph of pristine micro-scaled $\text{Bi}_2\text{Se}_{0.3}\text{Te}_{2.7}$ powder; **c), d)** Photograph and SEM micrograph of $\text{Li}_{0.89}\text{Bi}_2\text{Se}_{0.3}\text{Te}_{2.7}$ powder after Li intercalation (1 mA, Li amount: 30 mAh/g); **e)** The colloidal suspensions of as-produced $\text{Bi}_2\text{Se}_{0.3}\text{Te}_{2.7}$ nano-particles with different densities.

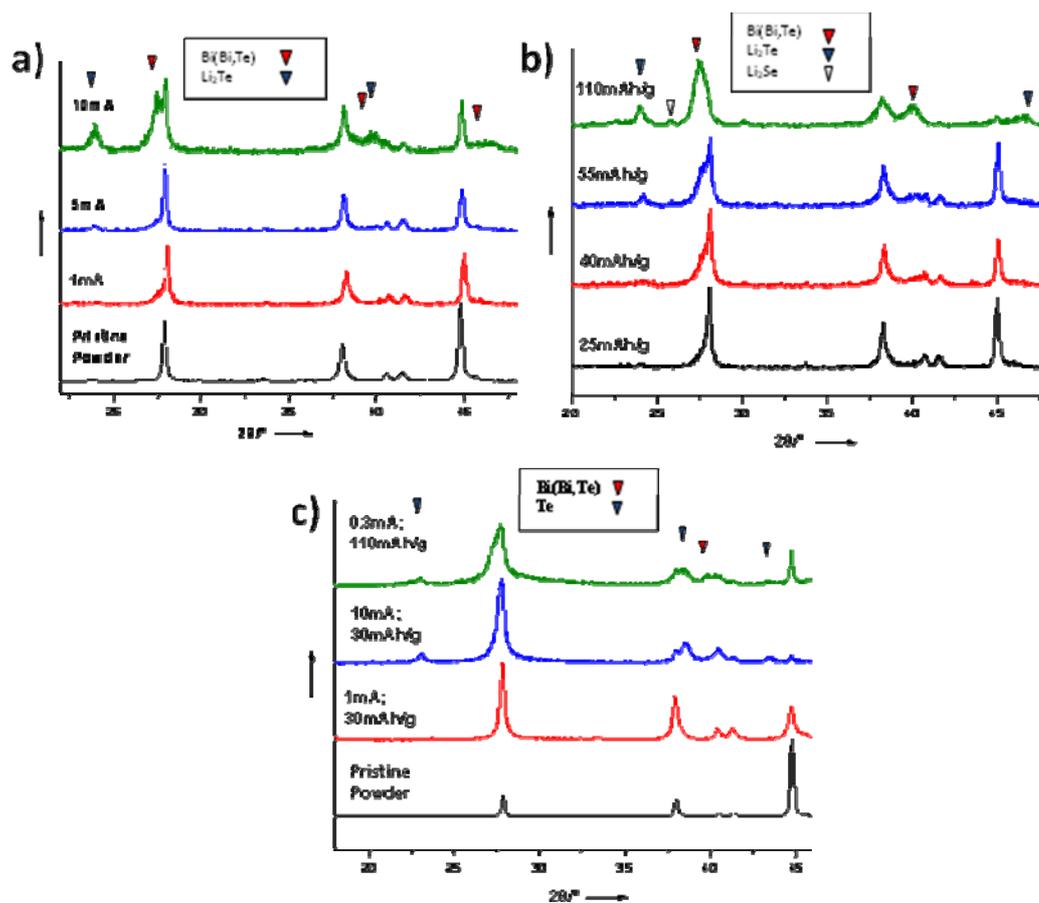


Figure S3. a) XRD patterns of $\text{Li}_{0.89}\text{Bi}_2\text{Se}_{0.3}\text{Te}_{2.7}$ powders with the same Li intercalating amount of $Q/m=30\text{mAh/g}$ using different magnitudes of discharging currents. b) XRD patterns of $\text{Li}_y\text{Bi}_2\text{Se}_{0.3}\text{Te}_{2.7}$ powders with different Li intercalating amounts using the same discharging current of 0.3mA . c) XRD patterns of water exposed products.