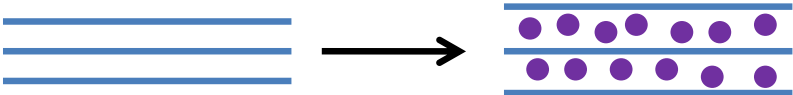
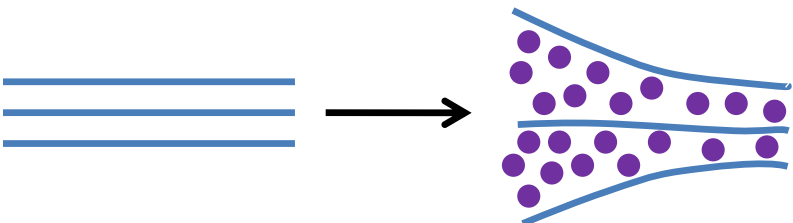
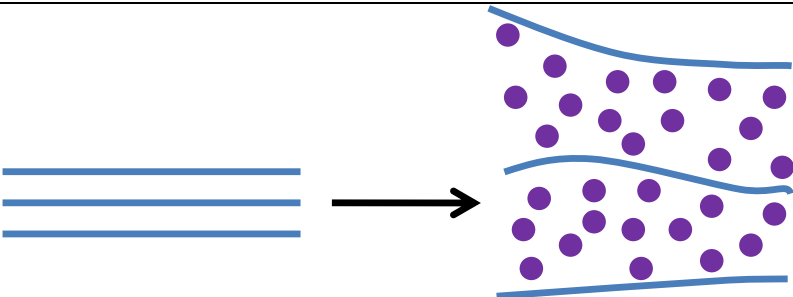


Supplementary information

Table 1. Effects of anodic currents on graphite electrodes. The aqueous electrolyte consists of 1 M Na₂SO₄. Anodic currents duration is limited within one hour.

Current range (mA cm ⁻²)	Phenomena	Schematic demonstration
0 - 100	Mild expansion and no exfoliation.	
100 - 300	Moderate expansion and slow exfoliation. (Electrochemical leavening of graphene foams)	
> 300	Intense expansion and fast exfoliation. (Electrochemical exfoliation of graphene sheets)	

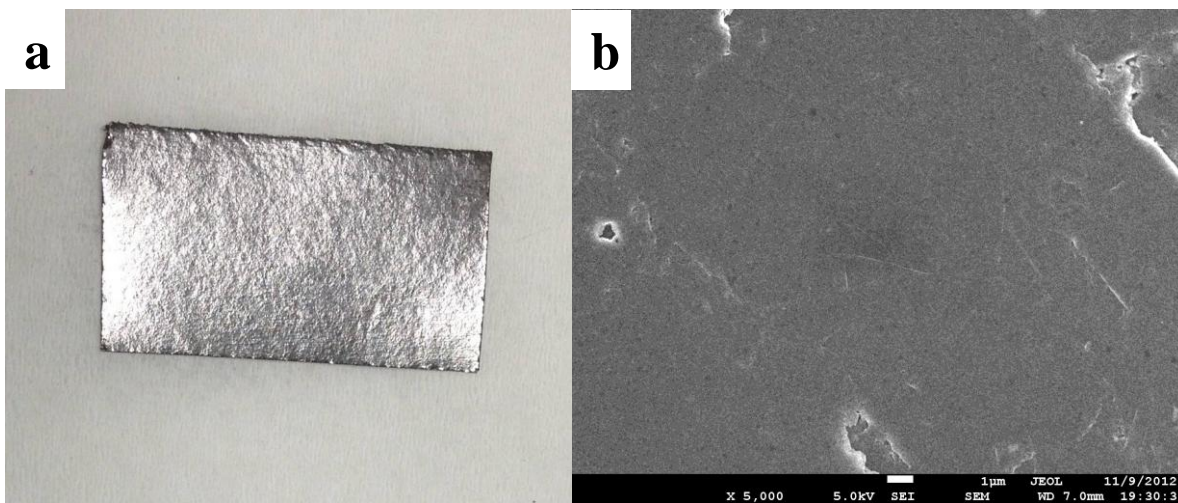


Figure S1. (a) The optical and (b) SEM images of the pristine graphite paper.

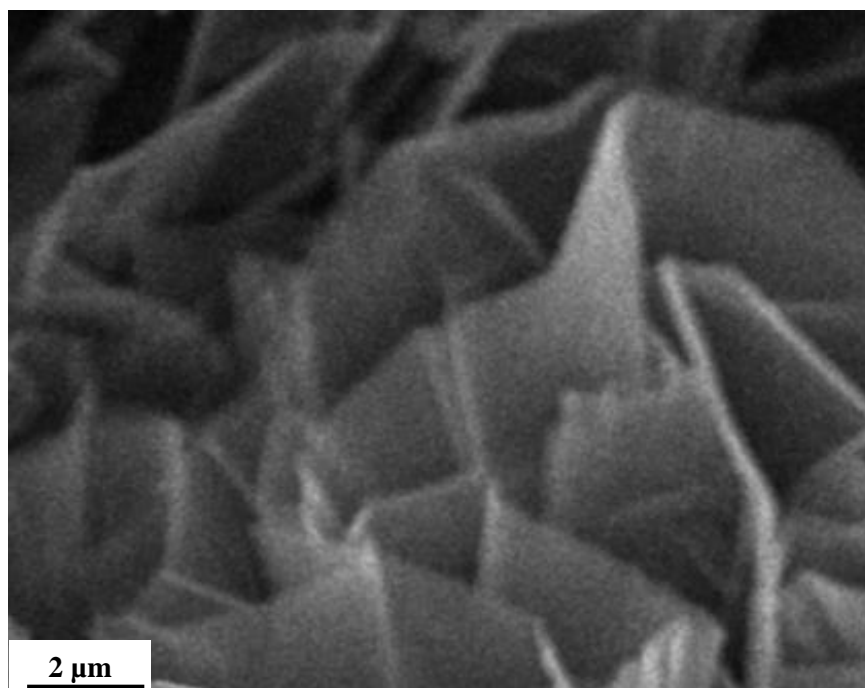


Figure S2. The SEM image of the graphene foam after annealing in Ar.

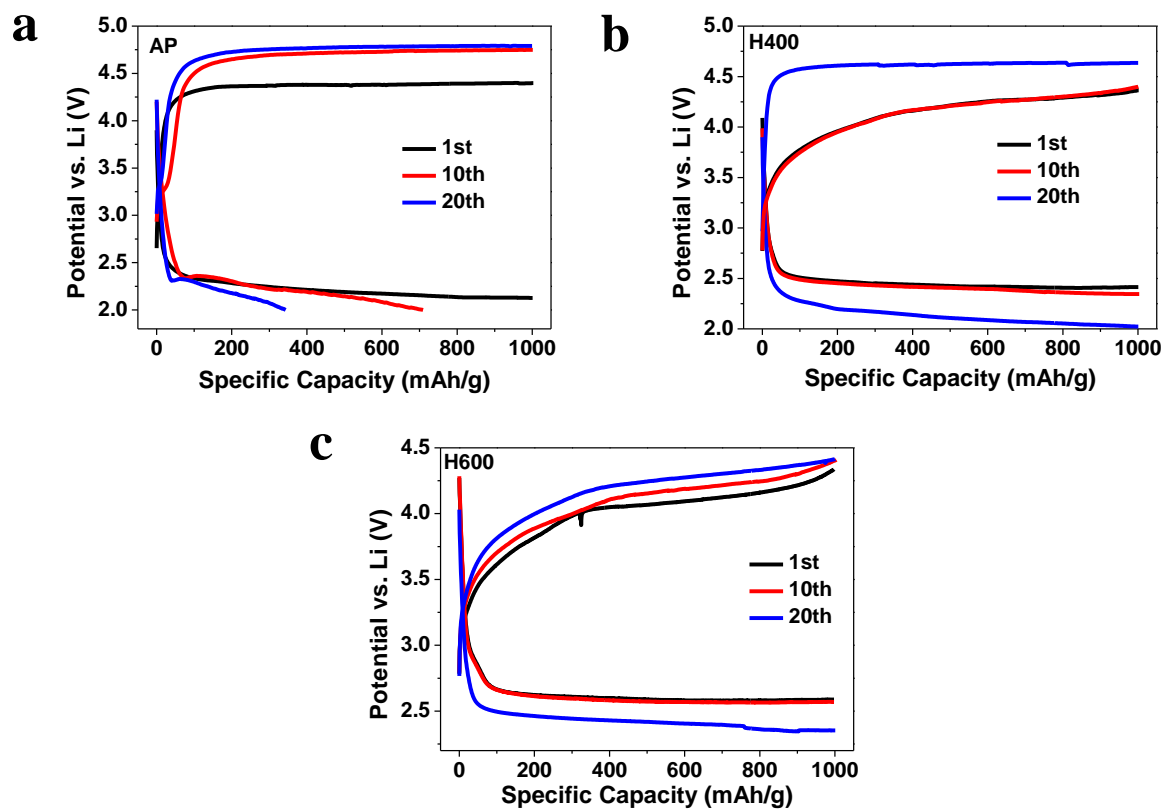


Figure S3. Cycling performance of the graphene foams (a) without annealing and after annealing in Ar at (b) 400 and (c) 600 °C at 100 mA/g.