Supporting Information

Direct synthesis of 3D hollow porous graphene balls from coal tar pitch for high performance supercapacitors

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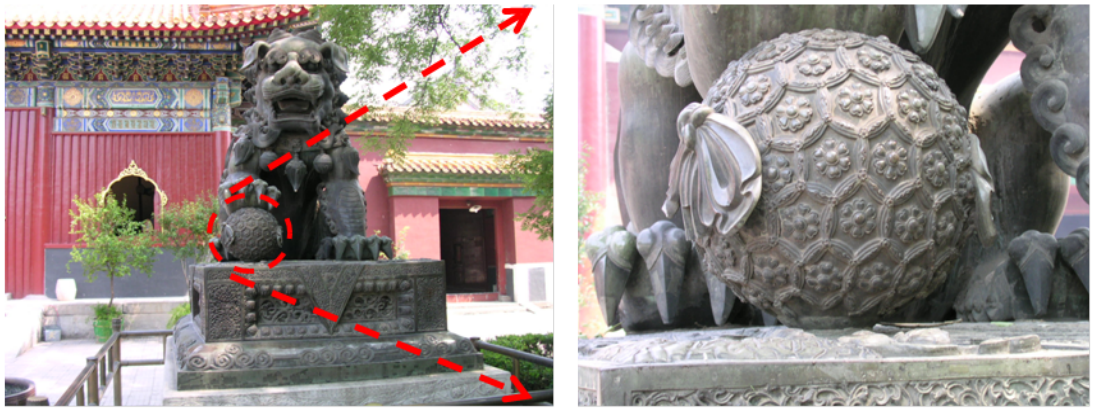

Fig. S1. A graphene-like stone ball under the foot of a monster in front of the **Lama Temple** in Beijing of China, which was designed and built as an art decoration in 1694 in Qing dynasty. The stone ball seems to be made of a blown graphene sheet with only carbon six-member rings.

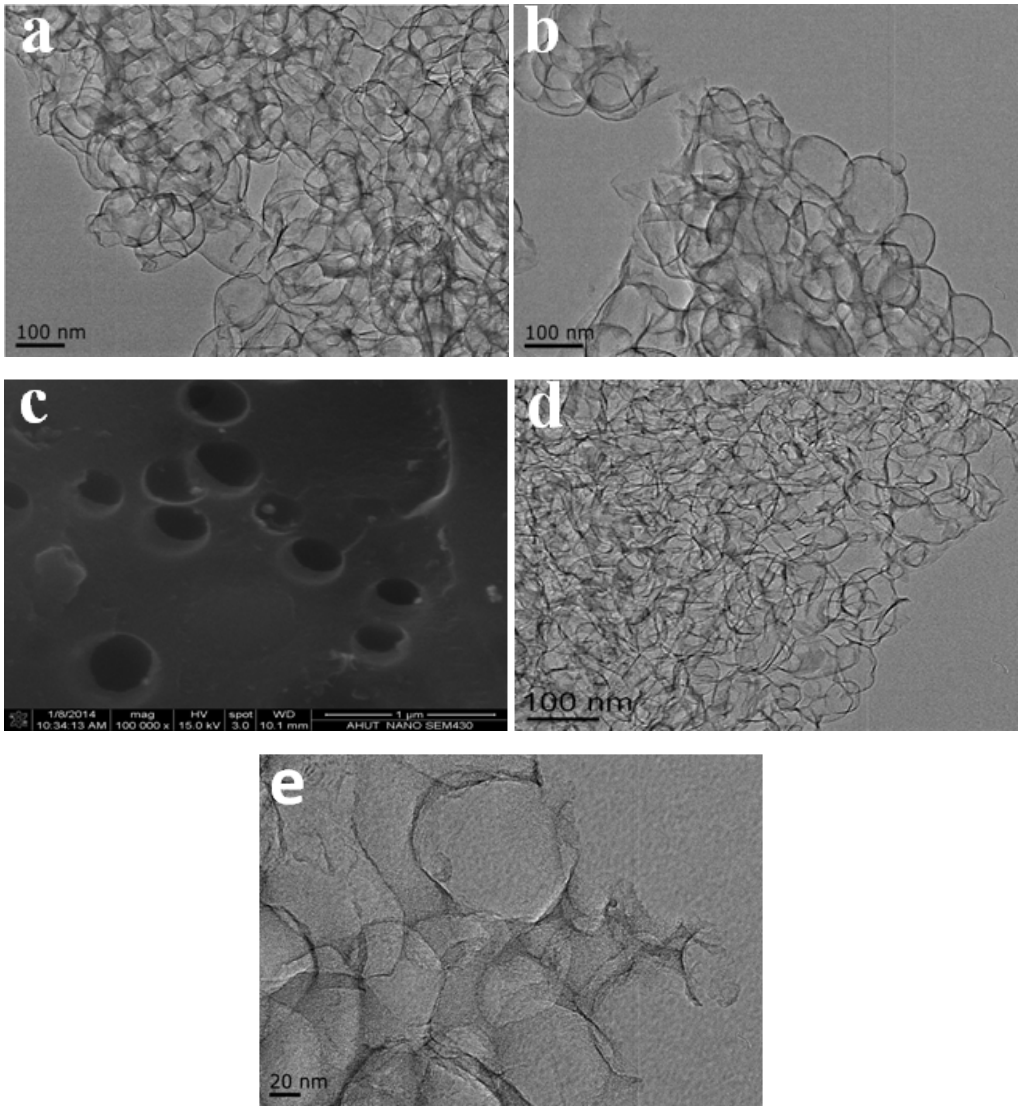

Fig. S2. (a) TEM image of $HPGB_{NP-6}$; (b) TEM image of $HPGB_{NP-4}$; (c) FESEM image of PC_{1Ar}; (d) TEM image of $HPGB_{2Ar}$; (e) TEM image of $HPGB_{Ar}$.

Fig. S2a and b show the TEM images of HPGBs ($HPGB_{NP-6}$ and $HPGB_{NP-4}$) that were synthesized directly from coal tar pitch by a simple nano-MgO template strategy coupled with KOH activation at pressure of −0.05 to −0.10 MPa. Fig. S2c shows that only conventional porous carbon (PC_{1Ar}) was synthesized in the absence of nano-MgO template. Fig. S2d shows the TEM image of HPGB ($HPGB_{2Ar}$) with some wrinkles that was made from coal tar pitch by only using nano-MgO as template. Fig. S2e shows the TEM image of $HPGB_{Ar}$.

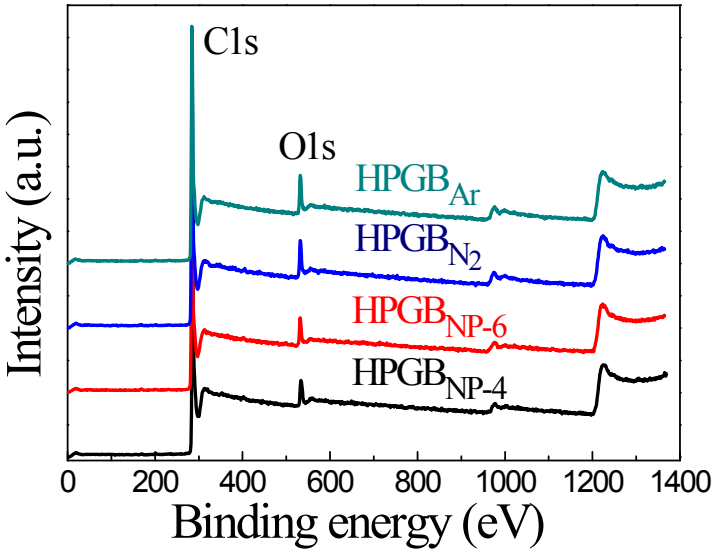

Fig. S3. XPS spectra of HPGBs, showing that no observable N-species (≈396 eV, N1s) are present in $HPGB_{Ar}$, $HPGB_{N2}$, $HPGB_{NP-6}$ and $HPGB_{NP-4}$. This means that the working gas atmosphere is not involved in the chemical reactions related to HPGBs under the experimental conditions.