Electronic Supplementary Material (ESI) for RSC Advances.

Supplementary Information

High-Yield Fabrication of Suspended Two-Dimensional Materials for Atomic Resolution Imaging

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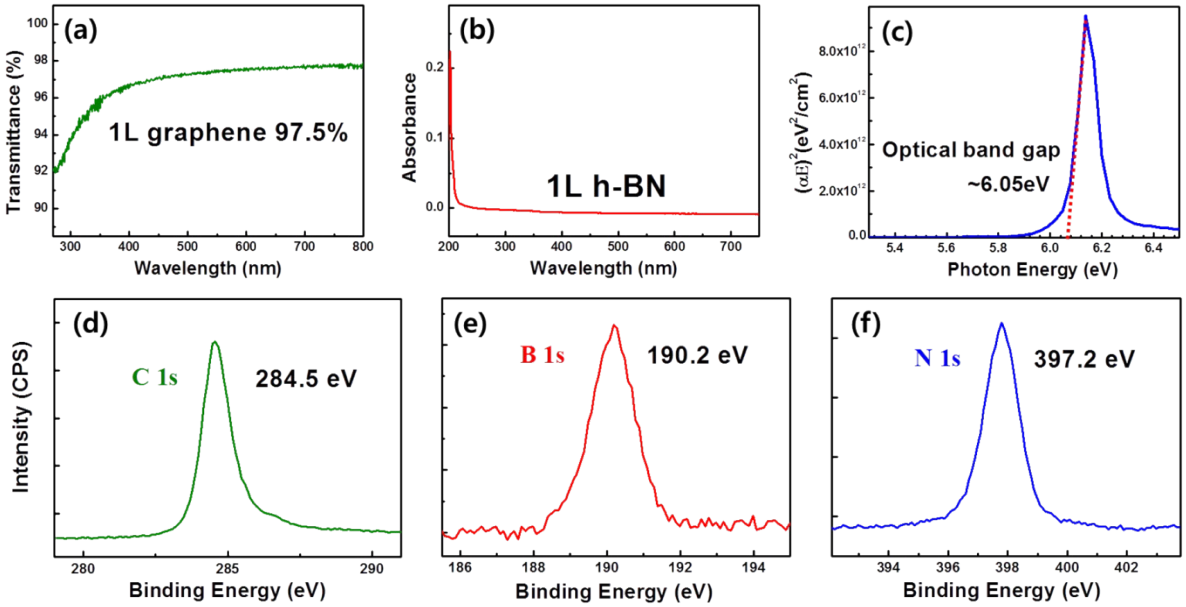
Figure S1.

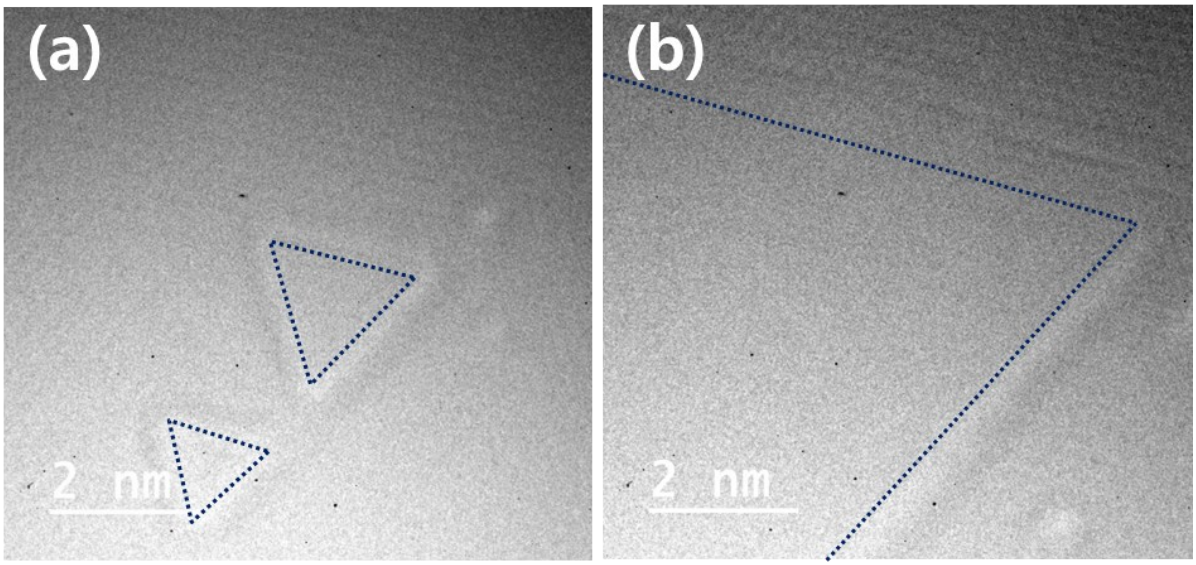
Optical and chemical characteristics of graphene and h-BN.



Transmittance of monolayer graphene (Figure S1a), and absorbance of monolayer h-BN (Figure S1b) were measured using UV-visible spectroscopy on a quartz tube. Optical band gap was calculated in the Figure S1c from the absorbance of h-BN. XPS spectra of (Figure S1d) C 1s, (Figure S1e) B 1s, and (Figure S1f) N 1s core level peaks were measured on graphene and h-BN.

Figure S2.

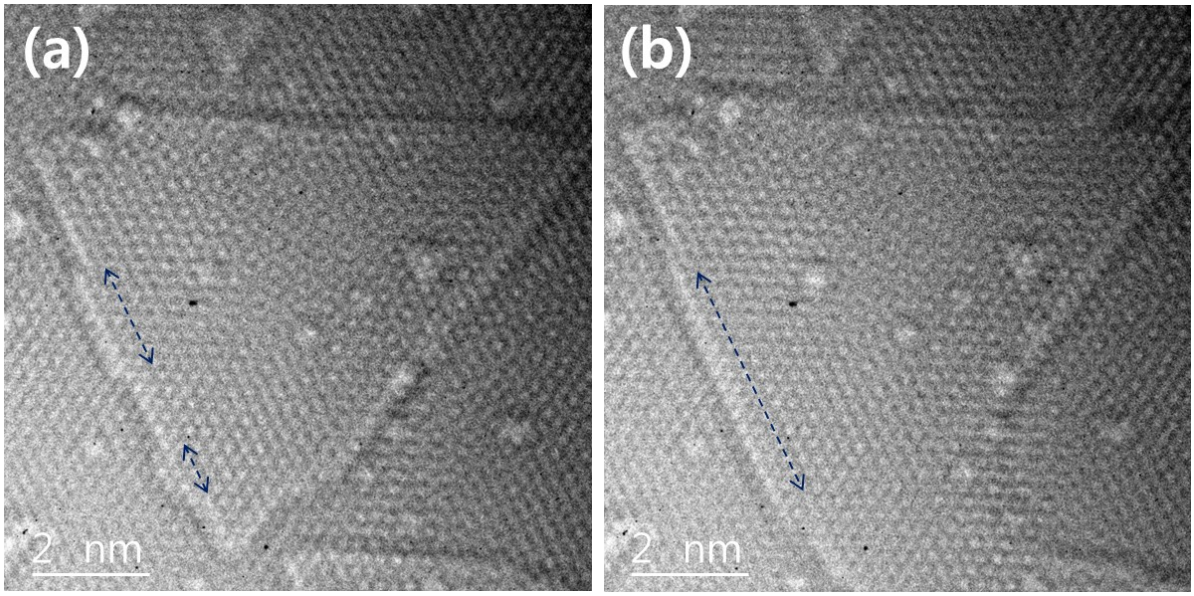
Atomic resolution images of monolayer h-BN showing the merging process of different triangular holes.



Two triangular holes similarly aligned in Figure S2a merged with each other to form a larger hole in Figure S2b while maintaining its own shape as a triangle during electron beam irradiation.

Figure S3.

Atomic resolution images of a few layered h-BN and the process of triangular hole growth.



Irradiation using an electron beam forms small vacancies and triangular holes shown in Figure S3a. Due to the continuous irradiation using the electron beam, sputtering of atoms occurred at specific points along the triangular hole edges as indicated by the blue arrow in Figure S3a. The gradual expansion of the hole is shown in Figure S3b.