

Supplementary Information

A novel graphene barrier against moisture by multiple stacking large-grain graphene

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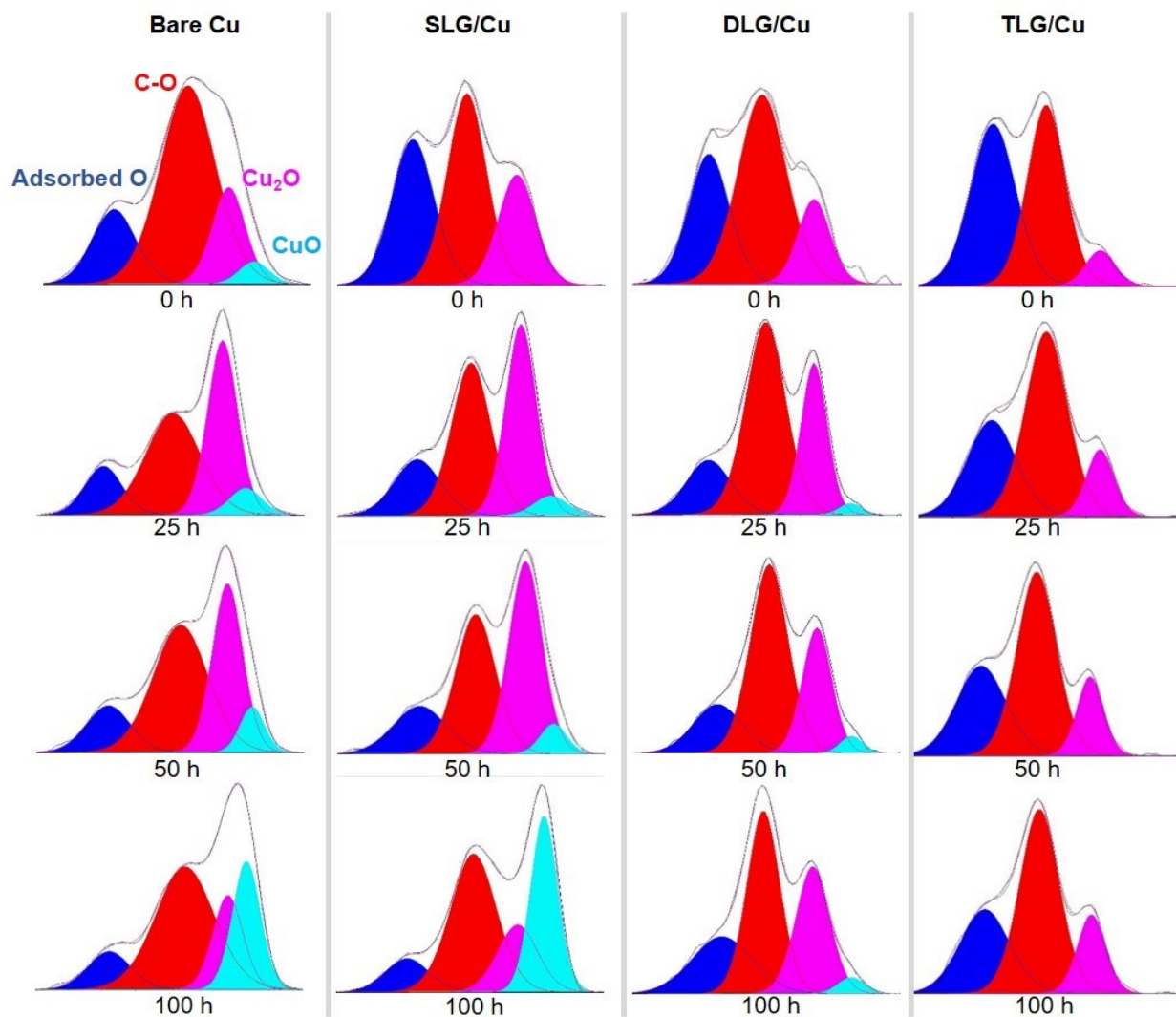
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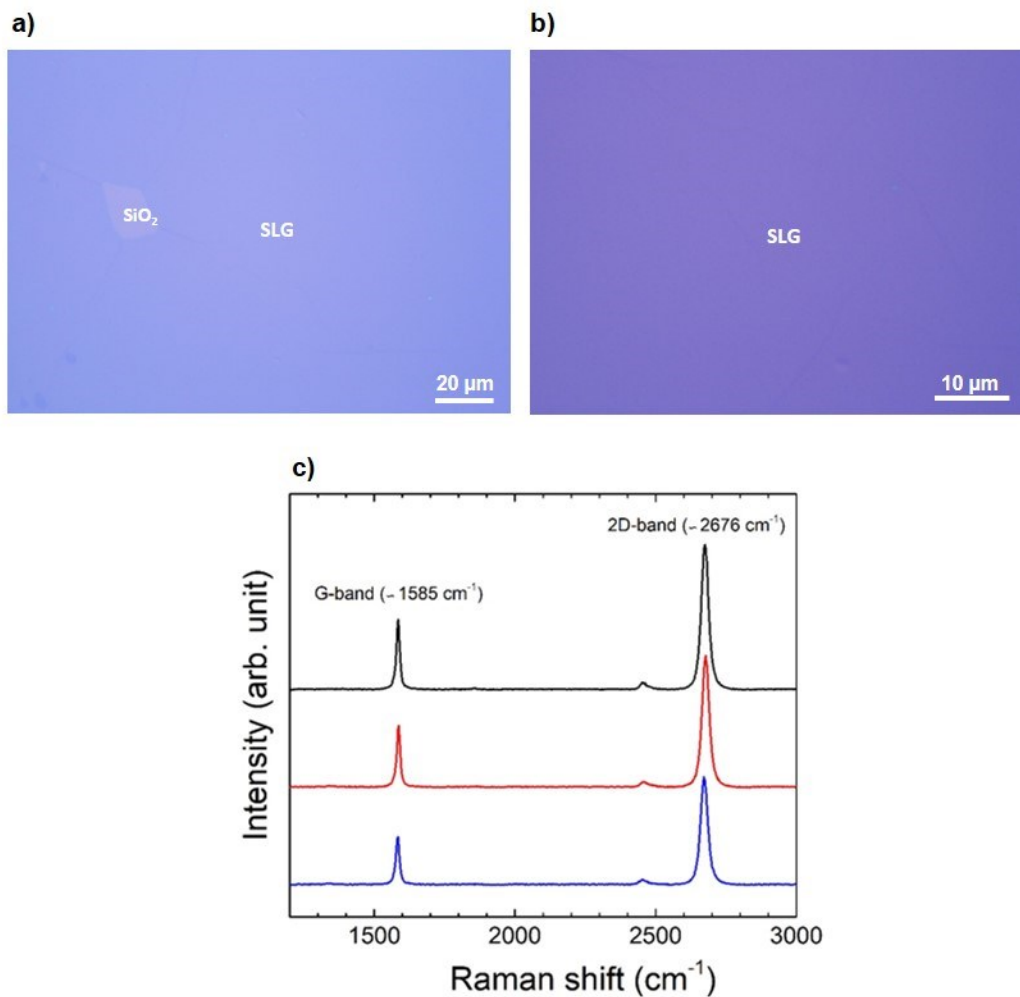
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Supplementary Figure S1. O 1s curve fittings showing the amount of O atom in Cu₂O, CuO, C–O bonds, and adsorbed O on each sample surface. The evolution of O atoms in the Cu₂O and CuO components of the O 1s spectra corresponds to the analysis of the Cu 2p spectra. Adsorbed O and C–O components were omitted in the calculation of O/Cu ratios.



Supplementary Figure S2. Characterization of SLG. Panels (a and b) show Optical micrographs of SLG grown on Cu(111)/sapphire substrate after transferring the film to a SiO₂ (300 nm)/Si substrate. For panel (a), we chose the area with a hole showing bare SiO₂ to demonstrate that the growth of uniform SLG, almost free from multilayers. Panel (c) shows Raman spectra measured on the transferred SLG surface (excitation wavelength of 532 nm).