Supporting Information

Direct growth of ZnO nanowire arrays on UV-irradiated graphene

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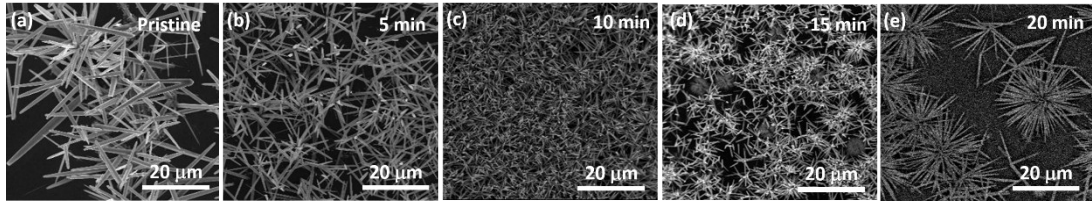Corresponding author: mylu@ccu.edu.tw

Figure S1. Top-view FE-SEM images of ZnO NWs on graphene samples that had been UV-irradiated for (a) 0, (b) 5, (c), 10, (d) 15, and (e) 20 min.
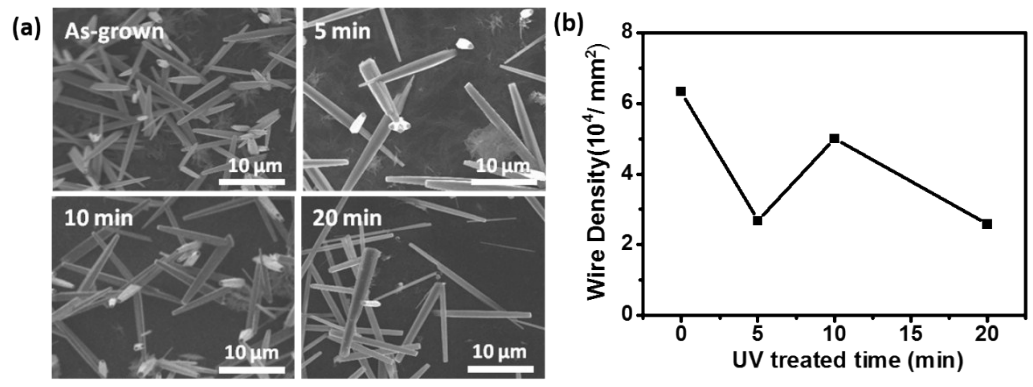
Figure S2. (a) SEM images of ZnO NW arrays grown on unseeded UV-treated graphene for different durations. (b) Densities of ZnO NWs grown on graphene substrates UV-irradiated for various lengths of time.
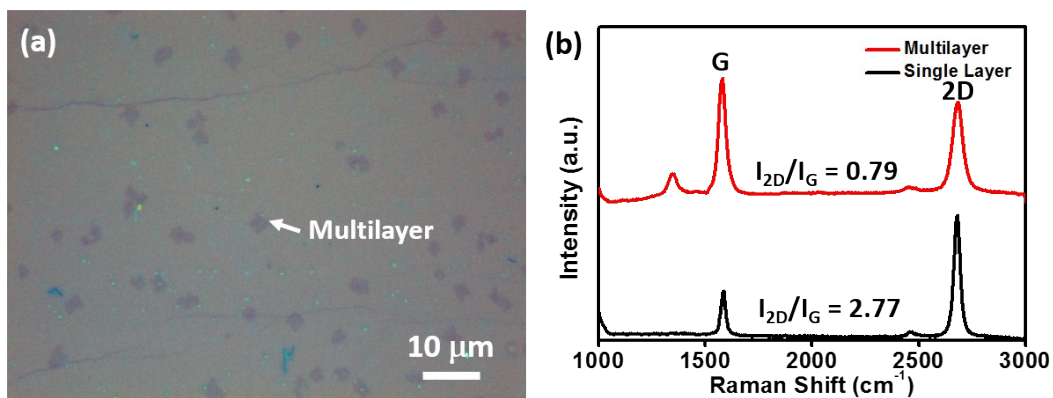
Figure S3. (a) OM image of pristine graphene on a SiO_2 substrate; most of the substrate is covered with single-layer graphene, with less than 10% of the sample area being multilayer graphene (darker areas). (b) Raman spectra of single-layer and multilayer graphene, revealing I_{2D}/I_G ratios of approximately 2.77 and 0.79, respectively.
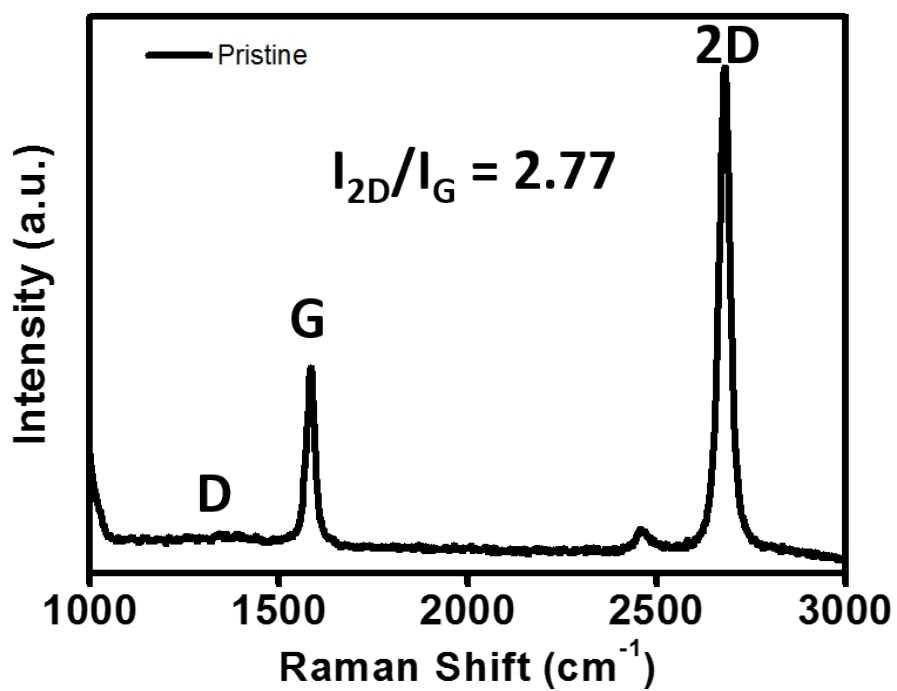
Figure S4. Raman spectrum of pristine graphene; the I_{2D}/I_G ratio (ca. 2.77) implies that this graphene was of the single-layer type.
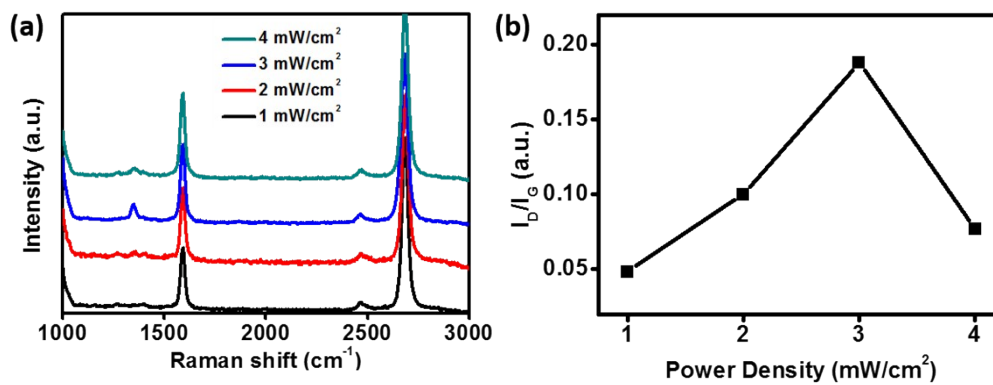
Figure S5. (a) Raman spectra and (b) I_D/I_G ratios of graphene that had been subjected to UV irradiation for 10 min at power densities of 1, 2, 3, and 4 mW/cm^2.
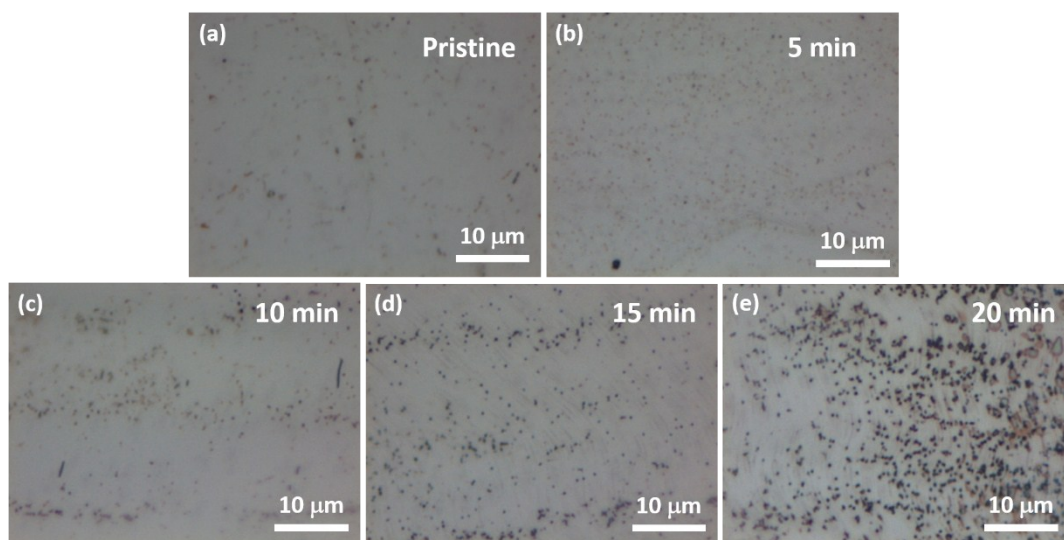
Fig. S6 OM images of (a) non-irradiated and UV-irradiated for (b) 5 min, (c) 10 min, (d) 15 min, and (e) 20 min graphene/Cu substrates. The samples were dipped with Cu etchant to form etching pits (dark dots) on the Cu surface.