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SUPPLEMENTARY INFORMATION

Mechanism of graphene oxide as a growth template for complete reduced graphene oxide coverage on SiO_2 substrate

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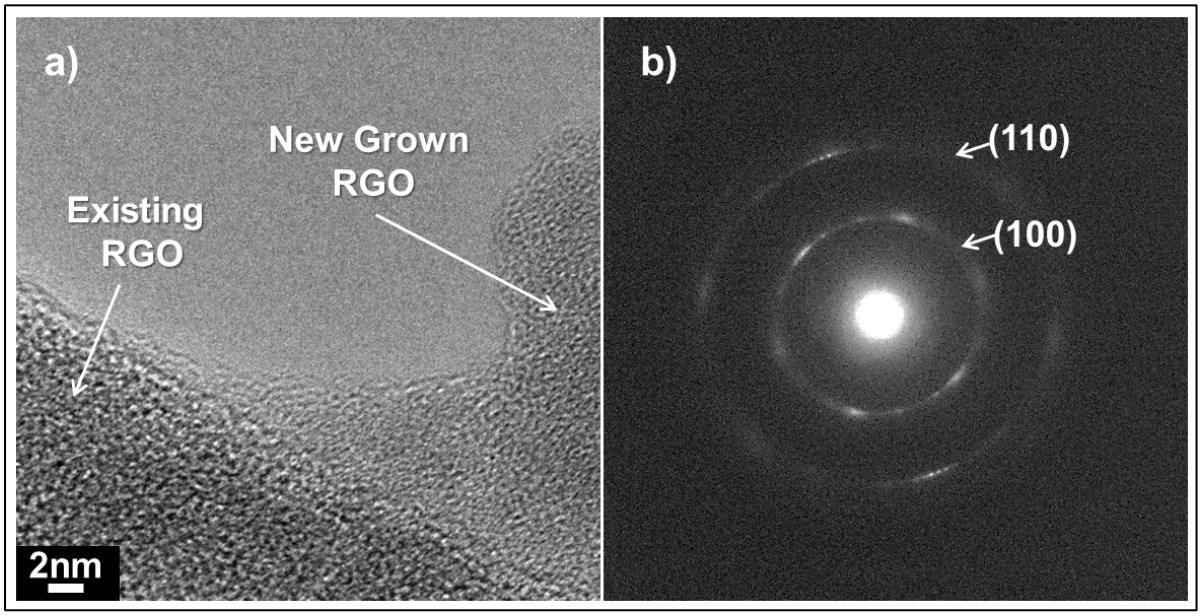

Fig. S1 (a) A bright-field TEM image showing new grown rGO, existing rGO and the boundary between these two regions on a 2-hour ethanol CVD processed sample. (b) SAED pattern from the film shows distinct rings and strong spots with hexagonal pattern indicating high crystallinity of the rGO flakes with some preferential alignment.

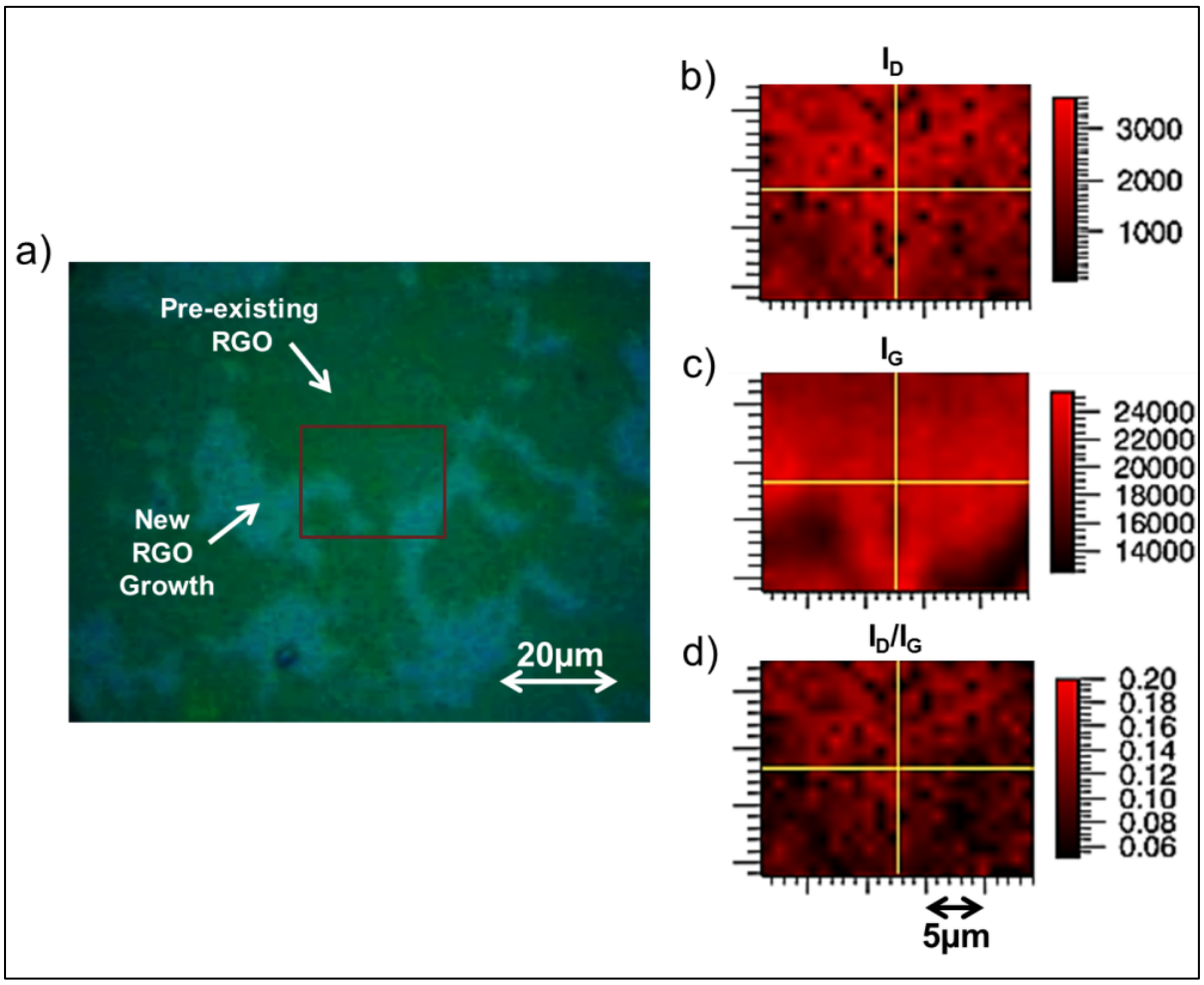

Fig. S2 (a) Optical microscope image on a 2-hour ethanol CVD treated sample. Raman mapping is performed on the boxed 20 x 25µm area. **(b-d)** UV Raman intensity maps of the D, G and D/G band of the marked area. The Raman map shows lower I_D/I_G ratio on the new rGO growth compared to the pre-existing rGO indicating larger sp^2 domains are present on the new rGO growth. The wavelength of the Raman excitation laser is 325nm with spectral resolution of 1µm taken at magnification of 40x.

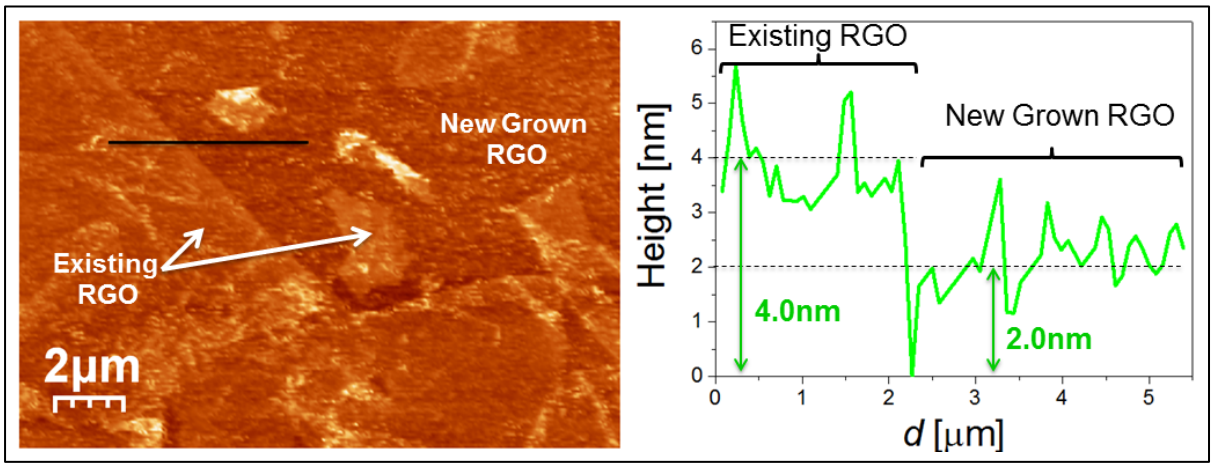

Fig. S3 AFM image and corresponding height profile between existing rGO and new grown rGO of a 2 hour ethanol CVD treated sample.