The effects of the crystalline orientation of Cu domains on the formation of nanoripple arrays in CVD-grown graphene on Cu

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Supporting Information
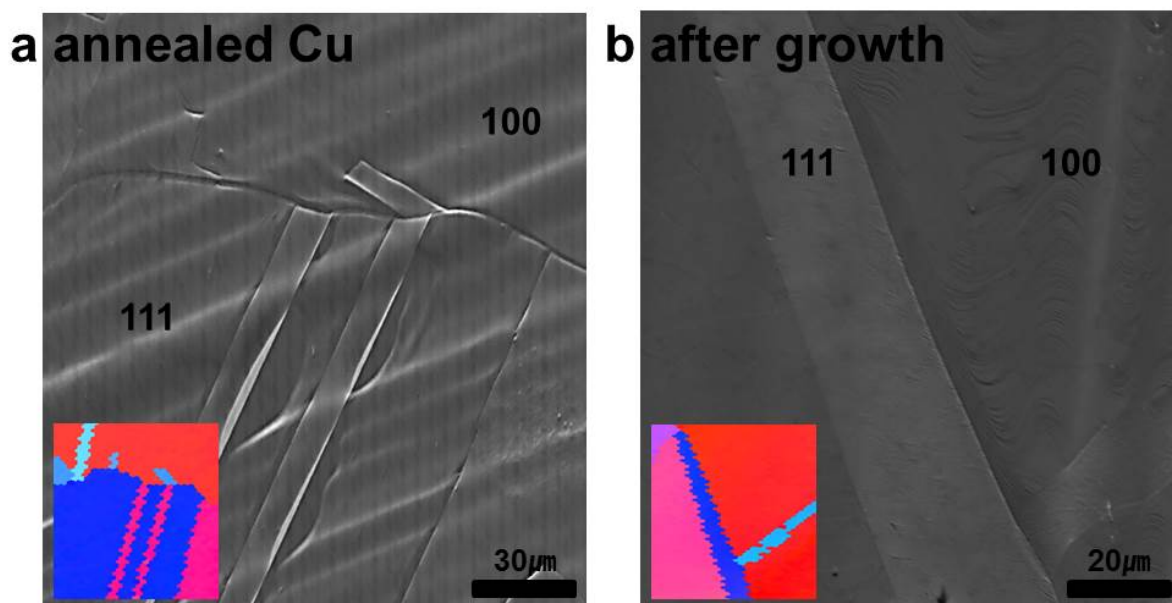
Figure S1. Surface structure variation after graphene growth. (**a**) SEM image of annealed Cu foil and corresponding EBSD image. (**b**) SEM image of Cu foil after graphene growth and corresponding EBSD image. The annealing process cleans and smoothens the Cu surface. Cu surface introduces the rippled structure during graphene growth, significantly in Cu domains except Cu (111) domain.
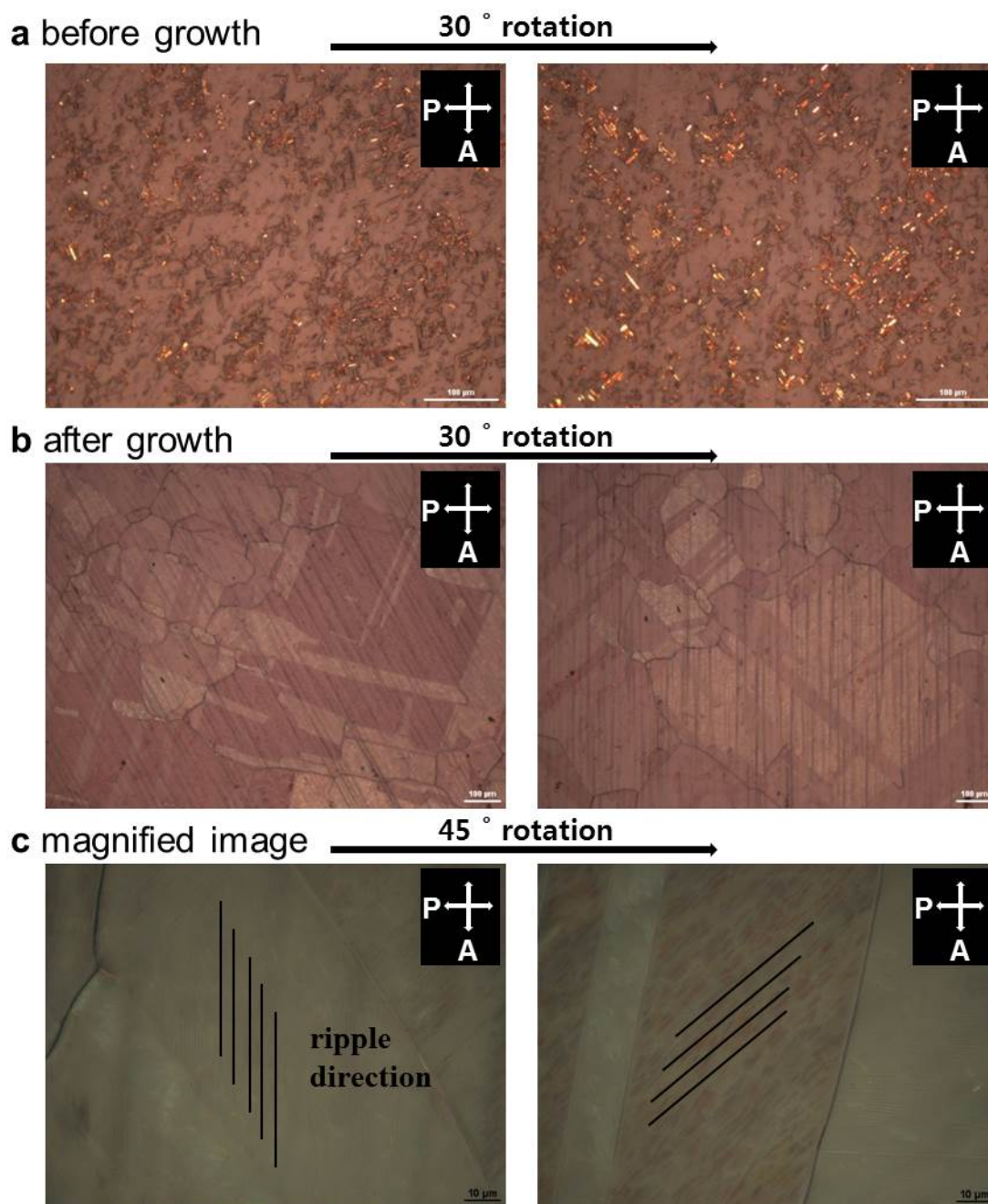
Figure S2. Formation of periodic nano ripple arrays following the shape of Cu domains.
(**a**) POM image of Cu foil without CVD growth. The intensity of reflected light is not changed during sample rotation. (**b**) POM image of Cu foil after CVD growth. Because both intensity and polarization of reflected light significantly change on the periodically modulated metal surface, rippled regions of Cu after CVD are easily distinguished by POM. The intensity of reflected light in a Cu domain is changed as rotate the sample to 30°, indicating that ripples are formed to typical direction in a whole Cu domain. (**c**) Magnified POM image of rippled regions on a Cu domain. Black lines are indicating the direction of ripple arrays.