Supplementary Material

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Fig. S1. (a) FTIR spectrum of GO; (b) TEM image of GO. Inset is image taken 15 days after the ultrasonic treatment

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Fig S2. The particle size distribution for Ag NPs in Ag NPs colloid.

Fig S3. (a) Schematic of GE film without Ag NPs, generating pores and aggregations, which break conductive paths; (b) Films with Ag NPs can avoid restacking, aggregations, and defects, which possess favorable conductive paths and high transmission.
Fig S4. The acoustical signal, friction force and coefficient of friction as functions of load for the RGO/Ag NPs film (12-layer).