## Supporting information

## Suppressing Bacterial Interaction with Copper Surfaces through Graphene and hexagonal-Boron Nitride Coatings.

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**Figure S1**: Transfer of graphene grown on Cu to target substrate by the PMMAassisted method. The transfer is first conducted by spin-coating a thin layer of poly(methylmethacrylate) (PMMA) on top of the as-grown graphene. This polymer provides a supportive framework for graphene before the transfer. The underneath Cu substrate is then etch away by ammonium persulfate ((NH<sub>4</sub>)<sub>2</sub>SO<sub>8</sub>) solution. After the Cu is completely dissolved, the floating membrane can be scooped and placed on a desired substrate, such as SiO<sub>2</sub>. After drying, the polymeric film is dissolved with acetone. Commercial CVD graphene grown on Cu was obtained from Graphene Supermarket Company.

## Thermal treatment of metallic foils.

The Cu foil ( $25\mu$ m thick) was loaded into a CVD furnace and heated to  $1000^{\circ}$ C in 400/40 sccm of flowing Ar/H<sub>2</sub>. After 1000°C was attainted, the foil was annealed for 15minutes. The system was then cooled to room temperature.



**Figure S2:** SEM images of substrate surfaces used for present study. (a) Fresh Copper sample, (b) Thermally treated Copper sample (c) SLG grown on Cu, (d) Single layer h-BN grown on Cu and (e) SLG transferred on Cu. Bar scale corresponds to  $10\mu$ m in all images, except for (b) which corresponds to  $2\mu$ m.



**Figure S3:** Typical photographs of cultivated *E. coli* colonies on agar plates, for bacteria after 24 h interaction with (a) graphene- and BN-coated Cu foils



**Figure S4:** (a) Cell viability of *E. coli* on fresh and treated Cu after 2h. (b) Photographs of corresponding cultivated *E. coli* colonies on agar plates.



**Figure S5:** SEM images of *E.coli* after 24h incubation on: (a) SLG transferred on  $SiO_2$ , (b) SLG transferred on CuF and (c) SLG transferred on CuT. When graphene is transferred onto Cu (fresh or treated) the low quality of the membrane is insufficient to prevent contact between bacteria and metal, leading to microorganism death (Figure 2 for viability measurements).