

Supplementary Materials

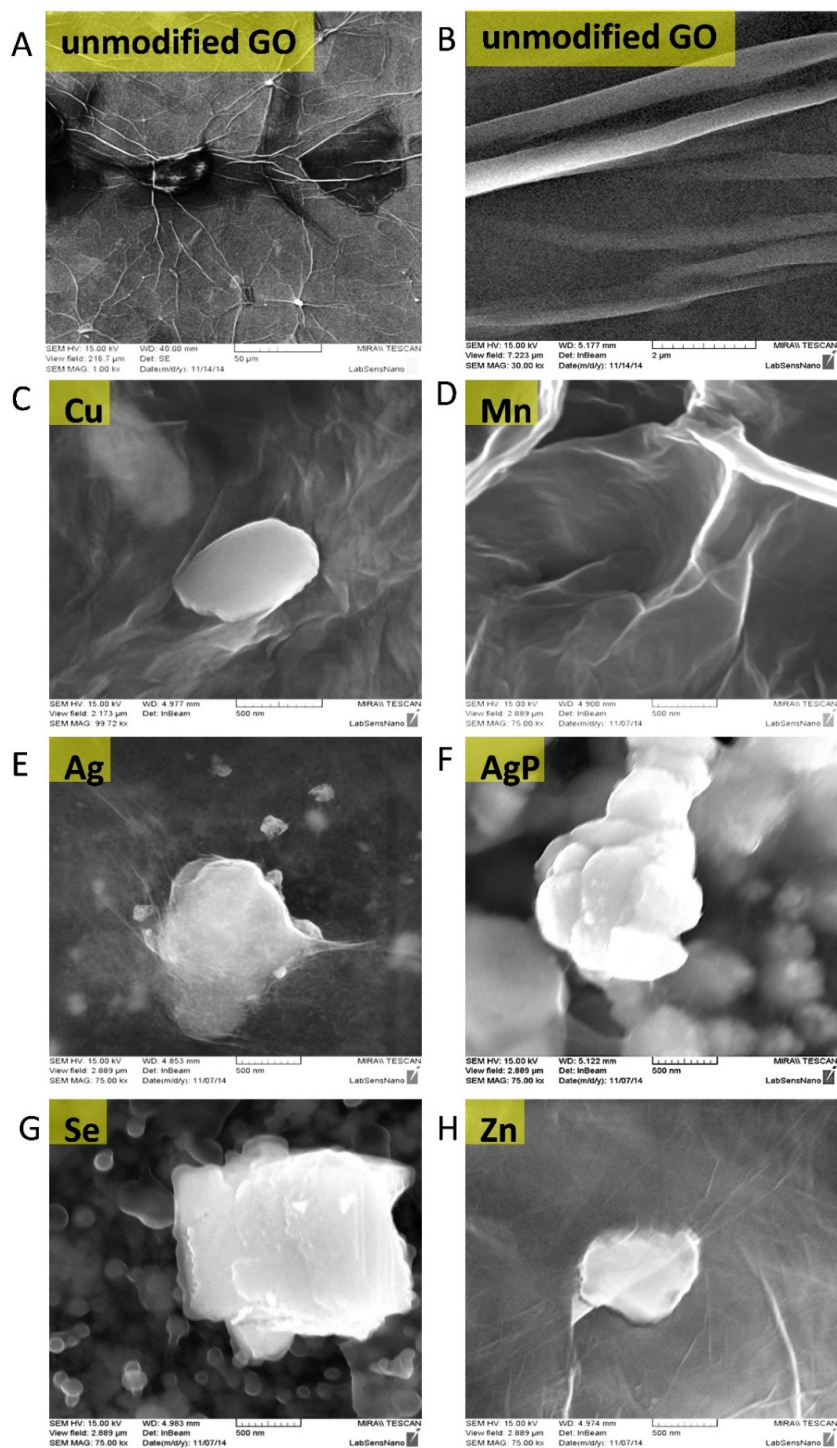


Figure S1. SEM images of GO and GO composites with metal- or metalloid-based nanoparticles obtained from dried dispersions on clean silicon wafers: (A) unmodified GO (magnification 1000 $\times$); (B) unmodified GO (magnification 30000 $\times$); (C) composite of GO with copper-based nanoparticles (magnification 100000 $\times$); (D) composite of GO with manganese-based nanoparticles (magnification 75000 $\times$); (E) composite of GO with silver nanoparticles (magnification 75000 $\times$); (F) composite of GO with silver phosphate nanoparticles (magnification 75000 $\times$); (G) composite of GO with selenium nanoparticles (magnification 75000 $\times$); (H) composite of GO with zinc-based nanoparticles (magnification 75000 $\times$).

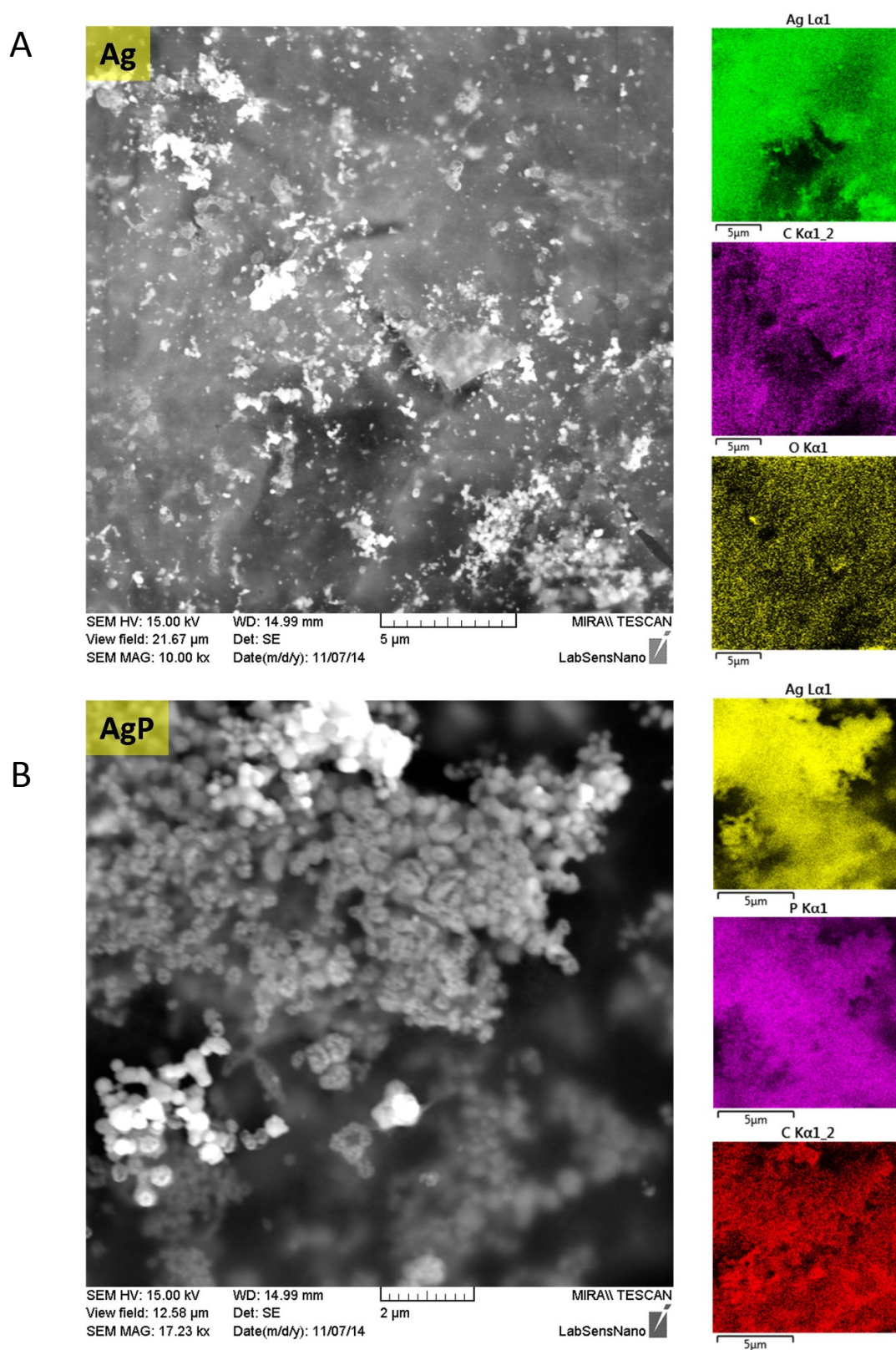


Figure S2. SEM micrographs of GO composites and SEM elemental mapping analyses: (A) composite of GO with silver nanoparticles (magnification 10000 $\times$) and SEM elemental mapping for Ag (green), C (violet) and O (red); (B) composite of GO with silver phosphate nanoparticles (magnification 17000 $\times$) and SEM elemental mapping for Ag (yellow), P (violet) and C (red).

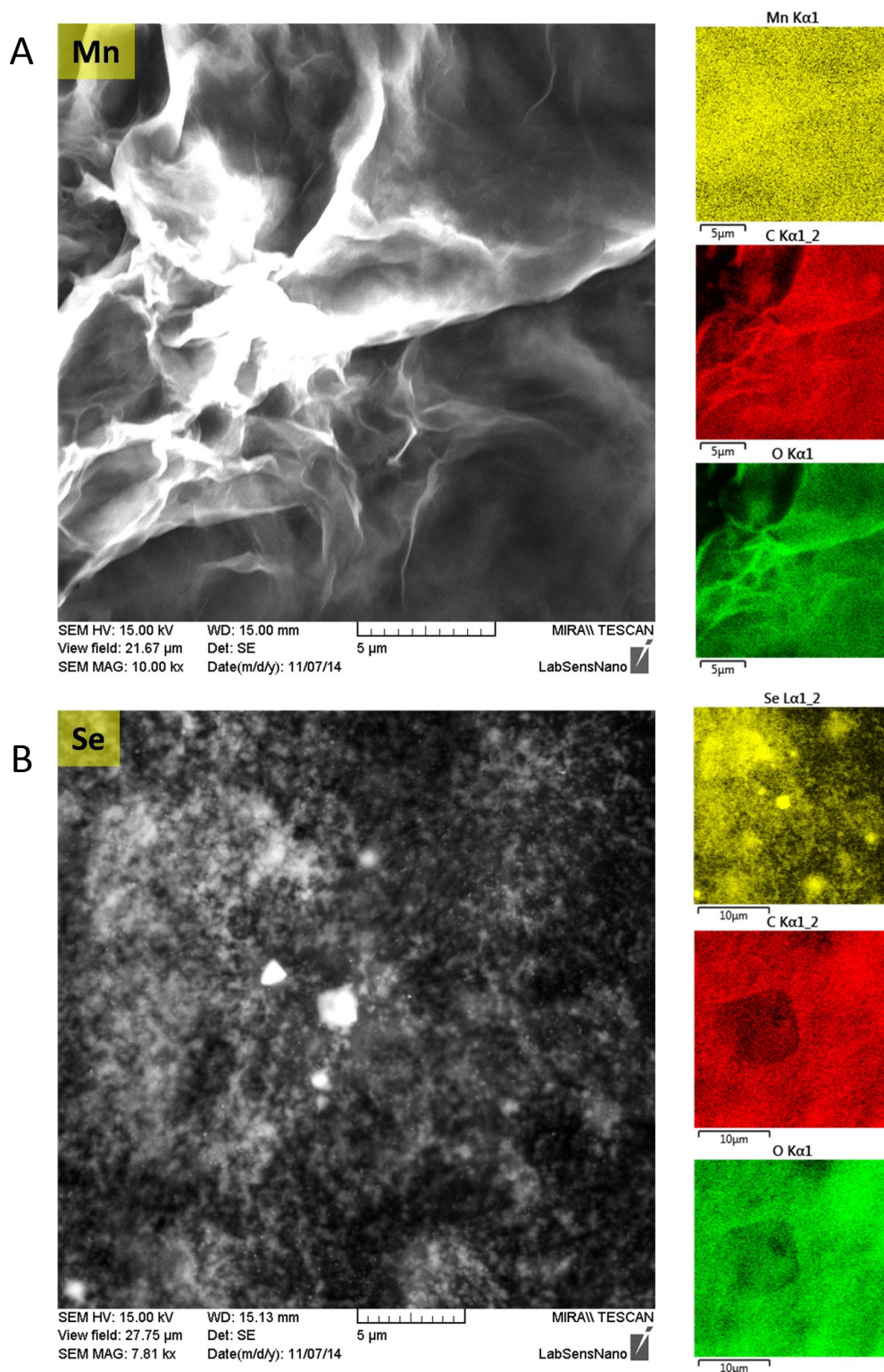


Figure S3. SEM micrographs of GO composites and SEM elemental mapping analyses: (A) composite of GO with manganese-based nanoparticles (magnification 10000 $\times$) and SEM elemental mapping for Mn (yellow), C (red) and O (green); (B) composite of GO with selenium nanoparticles (magnification 7800 $\times$) and SEM elemental mapping for Se (yellow), C (red) and O (green).

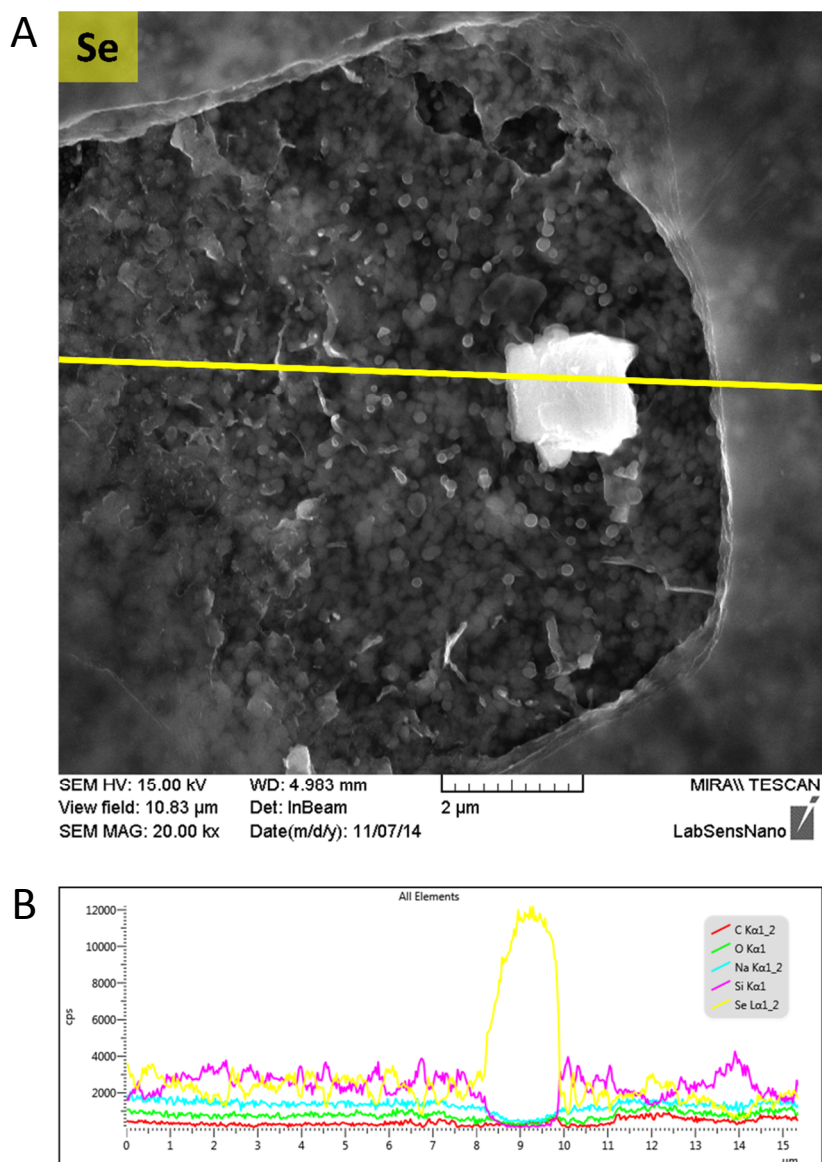


Figure S4. (A) EDS elemental line scan of Se particle performed on GO-Se composite; (B) EDS elemental concentration profiles along the yellow scan line in (A).