Fig. S1. (Appendix A) Schematics of the selection and preparation of gold leaf for fabrication as working electrode.

Fig. S2. (Appendix B) Schematic diagram showing the fabrication of screen-printed electrodes on PVC sticker sheet. Note: dimensions are in millimeter.

Fig. S3. (Appendix B) Schematic diagram showing the patterns of printed-carbon counter electrode (CE), silver-silver chloride reference electrode (RE), 3 mm diameter circular hole (H1) and 2 mm × 3 mm rectangular hole (H2) of electrical contact pad.

Fig. S4. (Appendix C) Fabrication of the "hand-drawn gold leaf sensor" showing (a) exploded view of the four layers, (b) hand-drawing of the silver-silver chloride electrode on the PVC layer 3, (c) schematic diagram and (d) photograph of the "hand-drawn gold leaf sensor" produced and tested in this work. Note: dimensions are in millimeters.

Fig. S5. (Appendix E) Cyclic voltammograms of 6 mmol L^{-1} $K_3Fe(CN)_6$ in 0.1 mol L^{-1} KCl obtained from the "planar-disc gold leaf sensor" at various scan rates (10, 20, 40, 50, 100, 150, 200, 300, 400 and 500 mV s^{-1}). The plots of the anodic current and cathodic current against the square root of the scan rate are shown as inset.

Fig. S6. (Appendix E) Performance of the "planar-disc gold leaf sensor" in analyzing samples as droplet (100 µL) showing the cyclic voltammograms of 2-10 mmol L^{-1} $K_3Fe(CN)_6$ in 0.1 mol L^{-1} KCl solution. The calibration lines from the oxidation and the reduction peak potentials are shown as inset.

Fig. S7. (Appendix E) Cyclic voltammograms of 6 mmol L-1 $K_3Fe(CN)_6$ in 0.1 mol L^{-1} KCl (dark lines) obtained from the planar-disc gold leaf sensors in the tests of (a) fabrication reproducibility: 96 CV scans of 32 different sensors (triplicate scans per sensor) and of (b) reusability of the sensor: 200 scan-cycles of a single sensor. Each inset presents the values of Ipa and Ipc obtained from each set of the CV scans. Dotted lines are the background signals for 0.1 mol L^{-1} KCl.

Fig. S8. (Appendix E) Examples of increase in sensitivities after surface modification of gold leaf surface: (a) quantitation of ferricyanide by cyclic voltammetry, (b) determination of ascorbic

acid by square wave voltammetry and (c) Pb(II) and (d) Cu(II) by square wave anodic stripping voltammetry.

Fig. S9. (Appendix E) Effect of electrodeposition time on the property of the "planar-disc gold leaf sensor". The currents are from repetitive scans of cyclic voltammograms using the test ferricyanide solution (6 mmol L^{-1} $K_3Fe(CN)_6$ in 0.1 mol L^{-1} KCl).

Fig. S10. (Appendix E) Voltammograms from SWASV of the extracts from swabs of GSR at bullet holes and periphery of the holes after firing a single lead or copper-jacketed hollow point bullet. The control is the extract of the swab taken from zinc metal sheet target before firing. The background is the voltammogram of the supporting electrolyte.

Fig. S11. (Appendix E) Characterization of the planar gold leaf with hand-drawn carbon and silver-silver chloride electrodes by (a) CV scans in 2-10 mmol $L^{-1}$of $K_3Fe(CN)_6$ solutions in 0.1 mol L^{-1} KCl with the calibration graphs in the inset and (b) the effect of scan rate investigated using 6 mmol $L^{-1}$of $K_3Fe(CN)_6$ solution in 0.1 mol L^{-1} KCl.

Fig. S12. (Appendix E) Plots of the anodic or cathodic peak current against concentration of ferricyanide obtained from the characterizations of the hand-drawn sensor and the screen-printed sensor before and after the gold electrodeposition process on gold leaf surfaces.