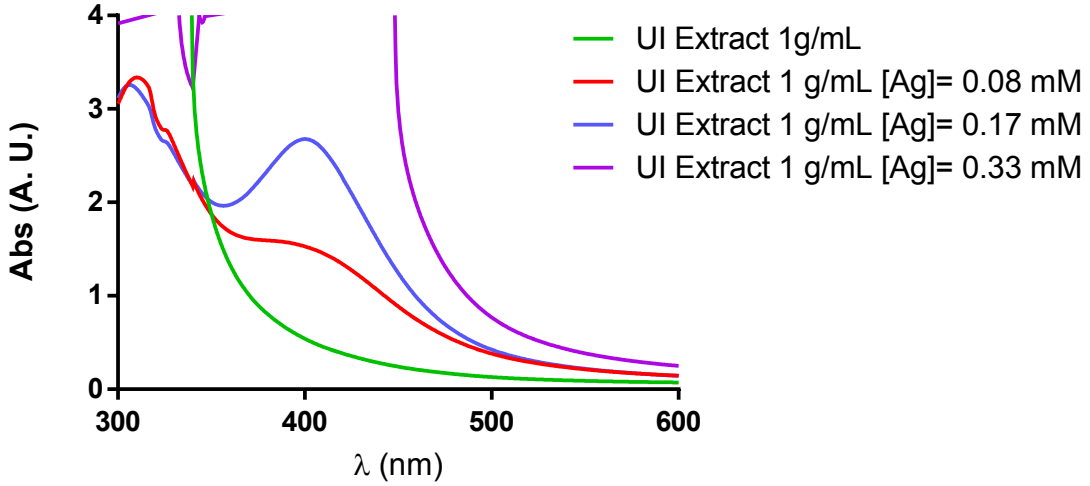


Figure S1 *UV–vis spectrum of Ag@UI and UI extract at different reaction conditions*

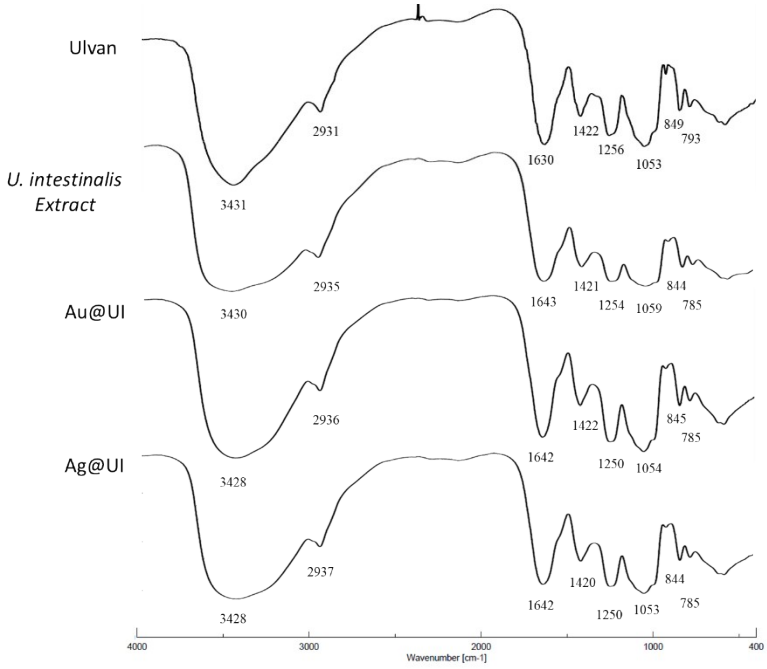


Figure S2 *FTIR spectra of Ulvan, UI extract, Au@UI and Ag@UI*

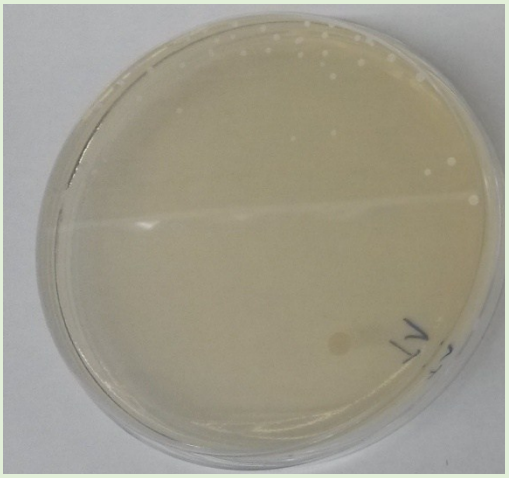
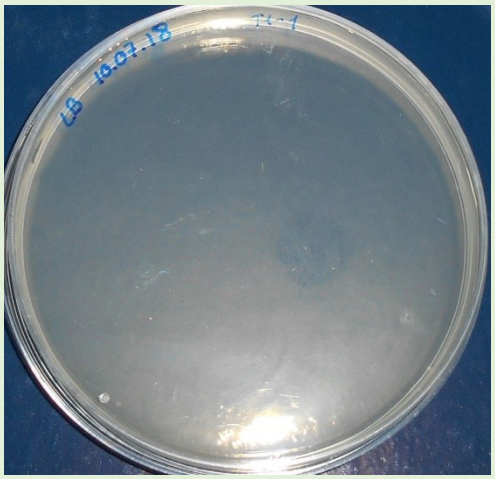
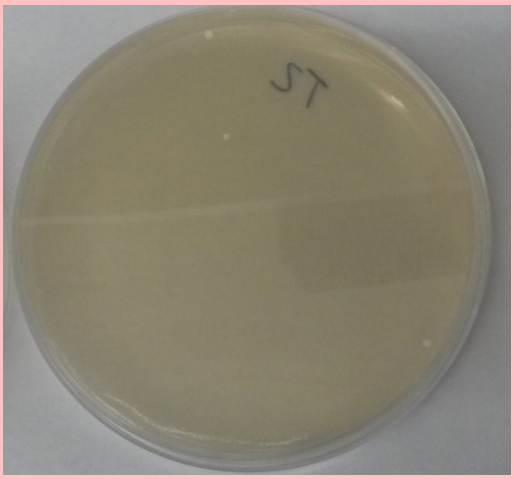
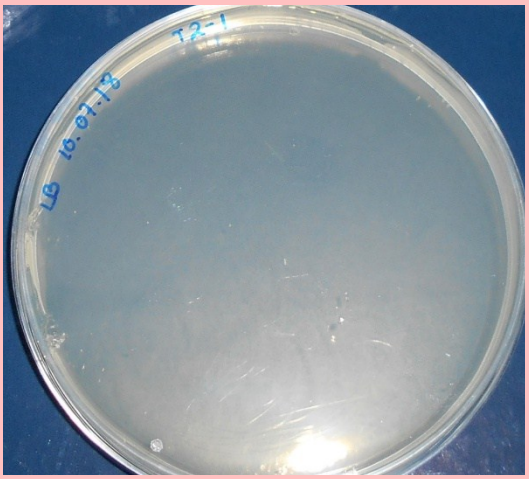
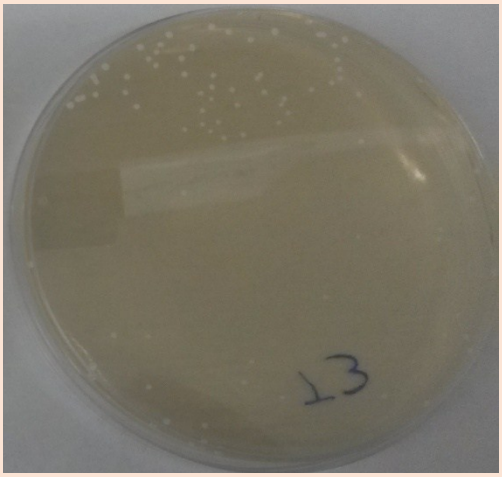
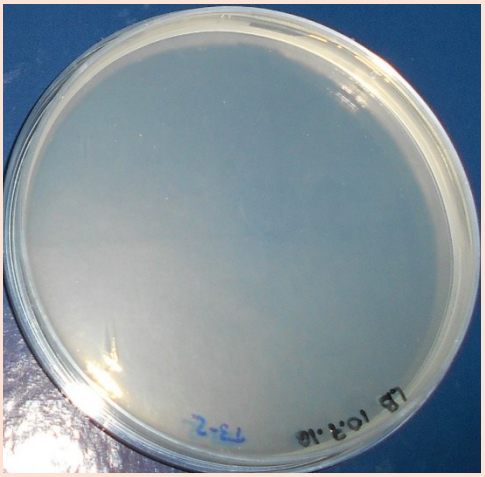
	NON-STERILE	STERILE
UI Extract		
Au@UI		
Ag@UI		

Figure S3. *Bacterial growth in LB agar plates from UI extract, Au@UI or Ag@UI produced in non-sterile conditions (left column) and after sterilization (right column).*

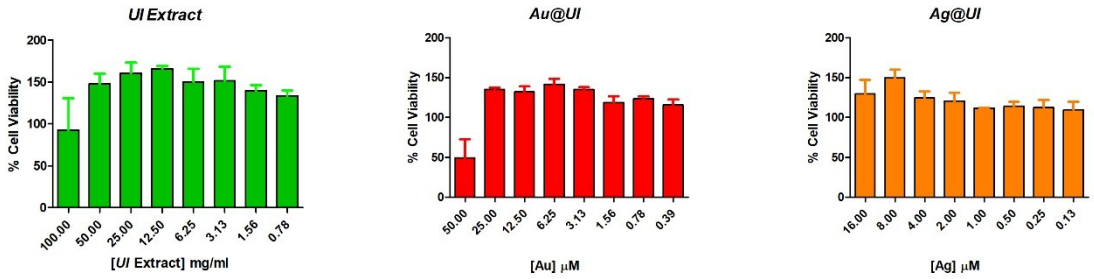


Figure S4. *Cell viability of Raw 264.7 cells by MTS assay. Graphs (mean ± SD) show the effects of the UI extract and the NPs on Raw 264.7 viability at 24 hours. Seven serial dilutions 1:2 from the maximum concentration tested (UI extract: 100 mg/ml; Au@UI: 50 µM [Au]; Ag@UI: 16 µM [Ag]) were also tested. The assay was performed three times, and in triplicate for each sample concentration. Cells were seeded at a density of* 2×10^5 *cells/mL.*

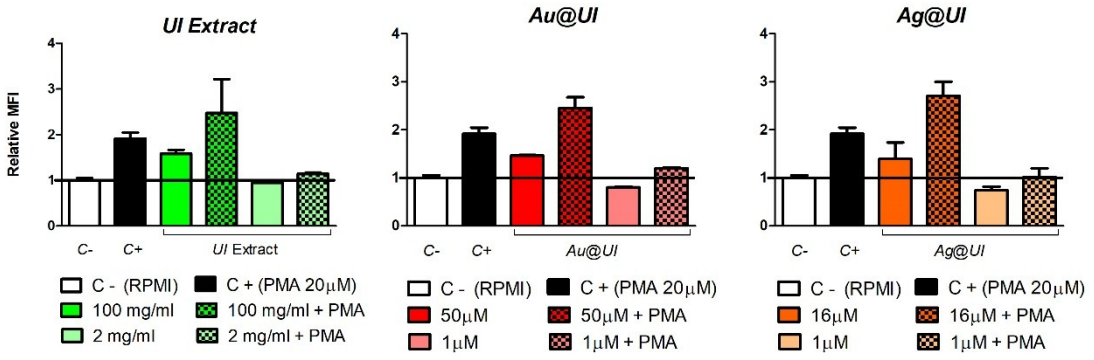


Figure S5. *ROS production in HL-60 cells incubated with the UI extract, Au@UI or Ag@UI alone, or in combination with 20 µM PMA, for 6 hours. The UI extract was tested at 100 and 2 mg/ml, whereas the Au@UI was tested at 50 a 1 µM and the Ag@UI was tested at 16 and 1 µM. As negative and positive control, RMPI or 20 µM PMA, respectively, were used.*

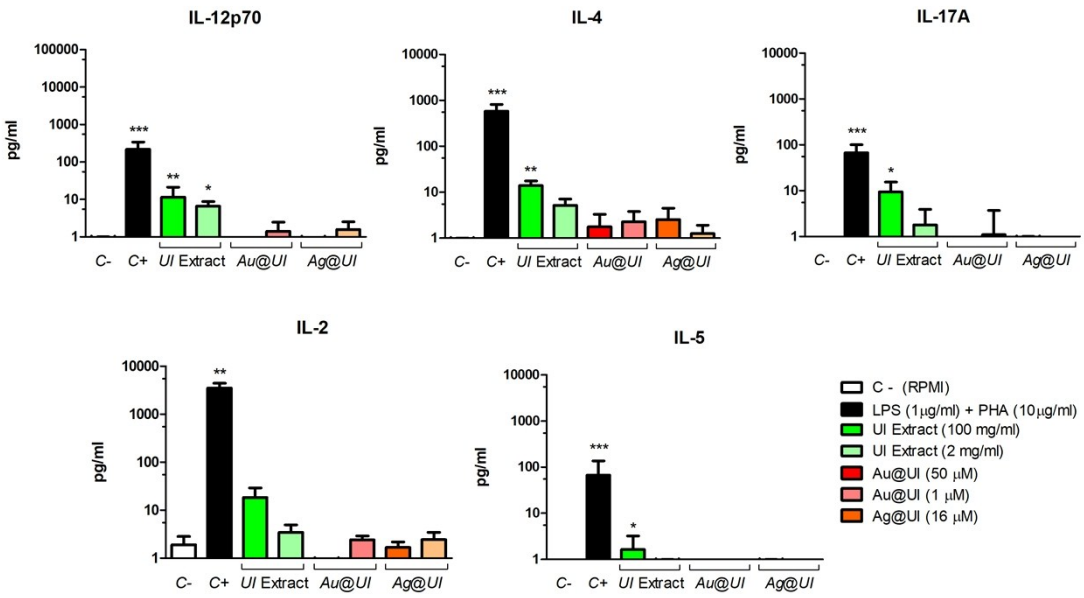


Figure S6. *IL-12p70, IL-4, IL-17A, IL-2 and IL-5 in human peripheral blood mononuclear human cells (hPBMCs) after 24h of incubation with 100 and 2 mg/ml UI extract, 50 and 1 μM Au@UI or 16 and 1 μM Ag@UI. C-: negative control (RMPI).C+: positive control (10 μg/ml PMA + 1 μg/ml LPS). The assay was performed in PBMCs from three donors, and in duplicate for each sample concentration. *P≤ 0.05; ** P≤ 0.01; ***P≤ 0.001.*