Supporting Information

Phenylboronic acid templated gold nanocluster for mucin detection using a smartphone based device and targeted cancer cell theranostics

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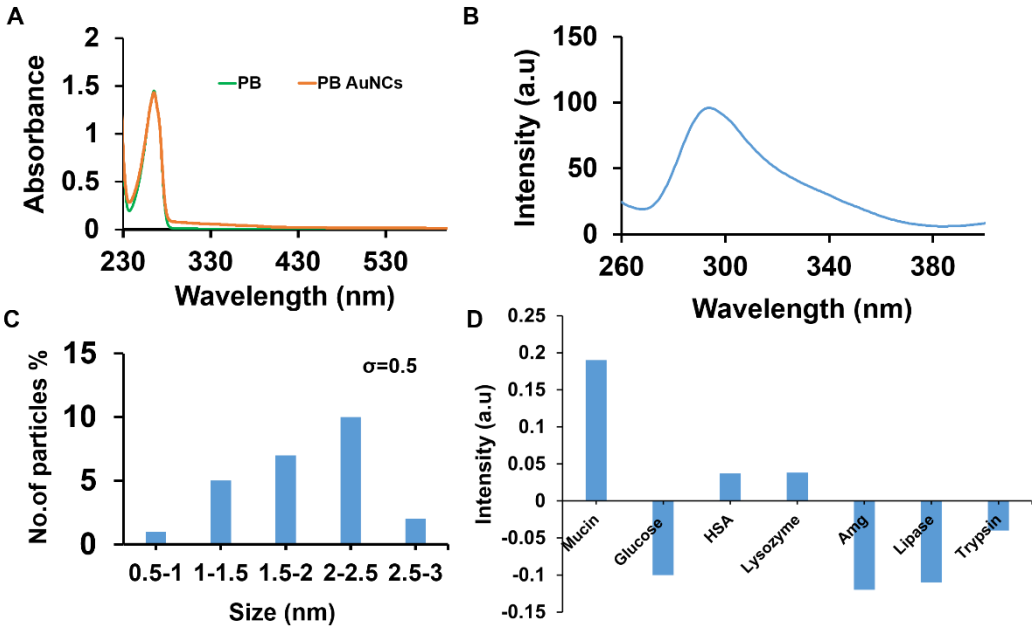


Figure S1. (A) UV-Visible spectrum of PB, PB-Au NCs. (B) Excitation spectrum of PB-Au NCs. (C) Particle size distribution of PB-Au NCs. (D) Comparison of effect of various interfering analytes with respect to mucin towards fluorescence of PB-Au NCs.

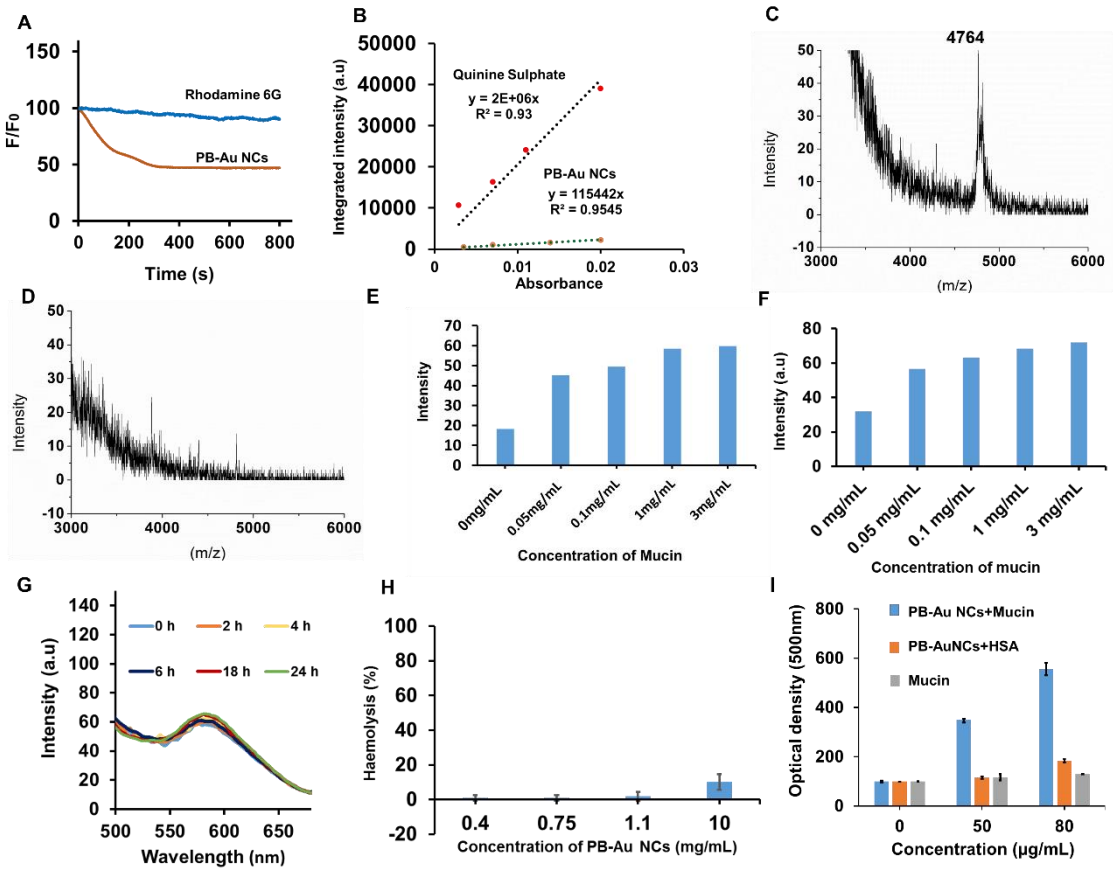


Figure S2. (A-C) Photo stability, quantum yield, MALDI-TOF of PB-Au NCs. (D-F) MALDI-TOF of PB, luminescence intensity of PB-Au NCs in presence of mucin in FBS, luminescence intensity of PB-Au NCs in presence of mucin in human plasma. (G) Stability of PB-Au NCs in human plasma. (H) Hemolysis assay of PB-Au NCs. (I) Change in optical density of PB-Au NCs suspension caused by addition of mucin or HSA.

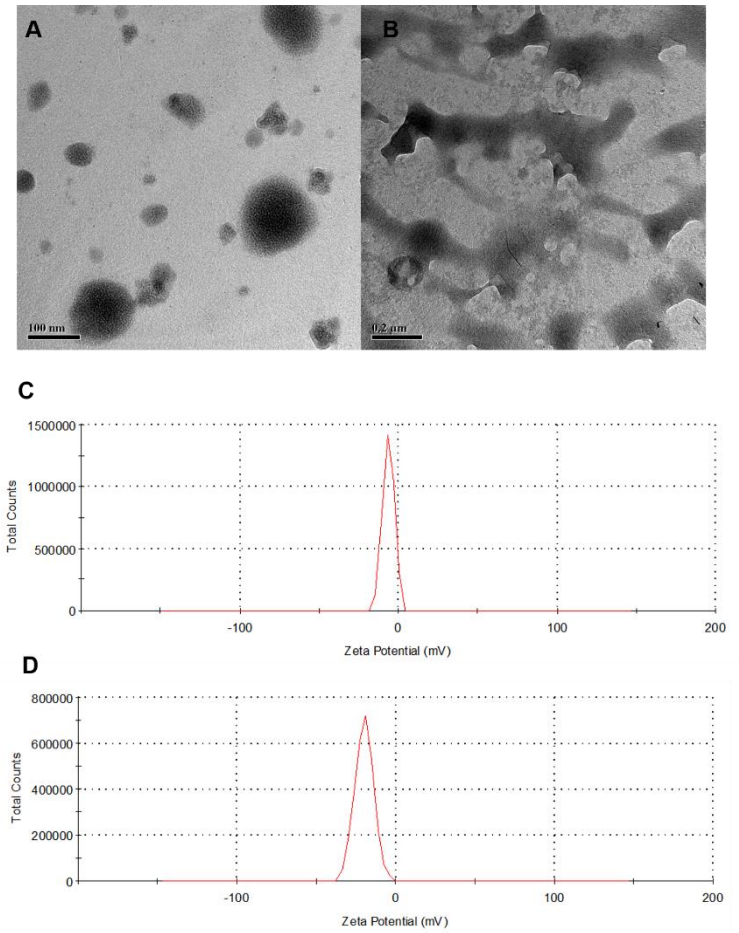
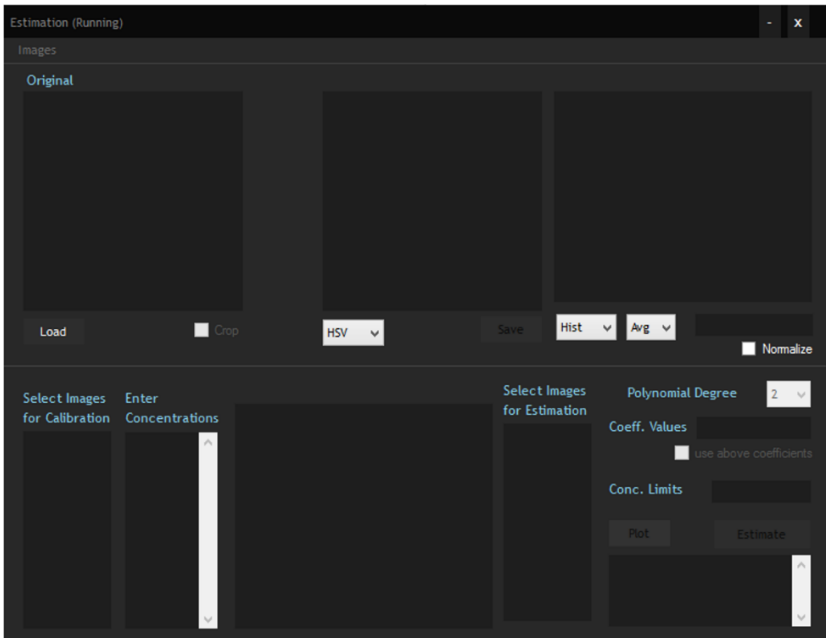


Figure S3. (A, B) TEM of PB-Au NCs before and after addition of mucin (showing aggregation) respectively. (C, D) Zeta potential of PB-Au NCs and mucin respectively.

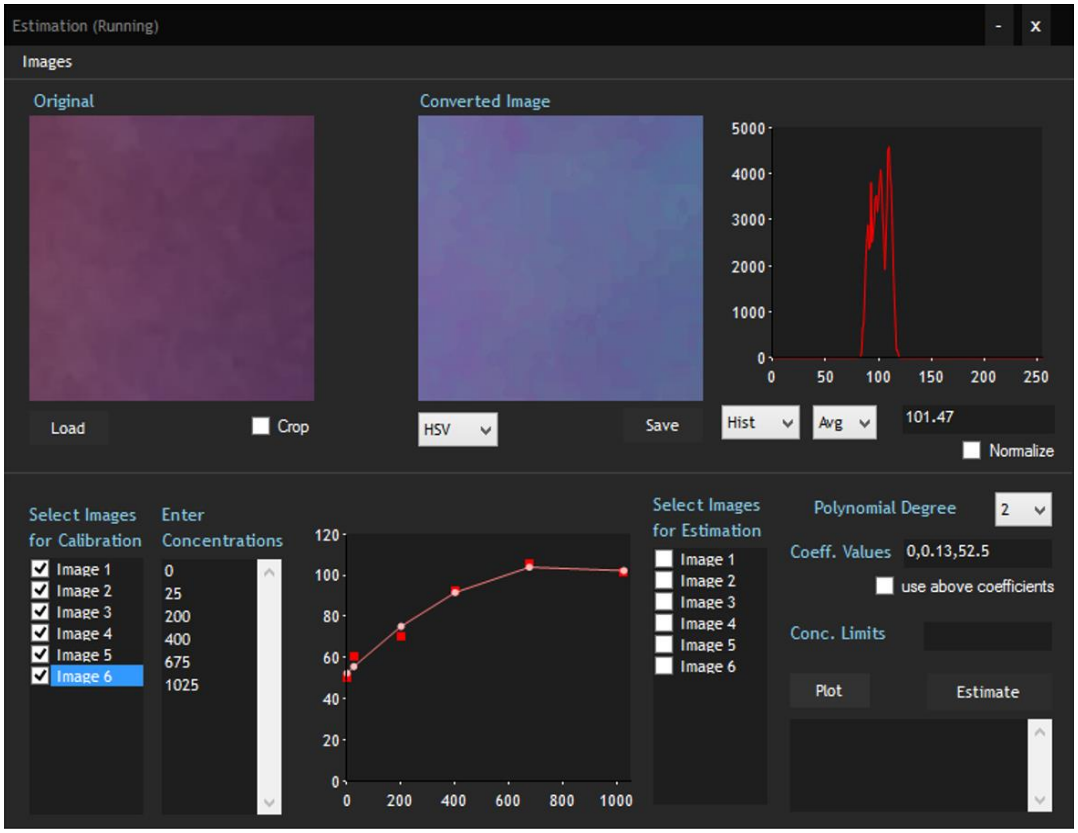
A

Single image view with cropping options, represented in different color spaces with related information

Calibration and estimation of samples from images



B



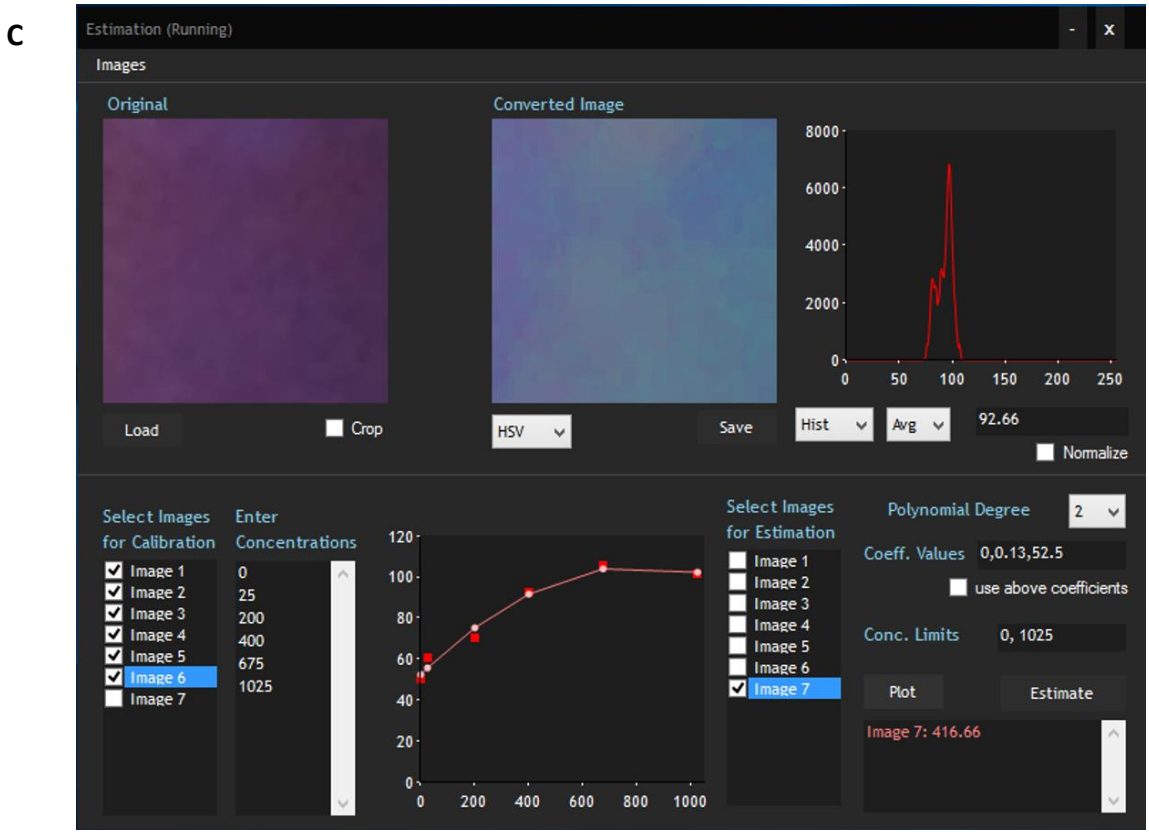


Figure S4. (A-C) Snapshots of the work flow of the custom designed application.

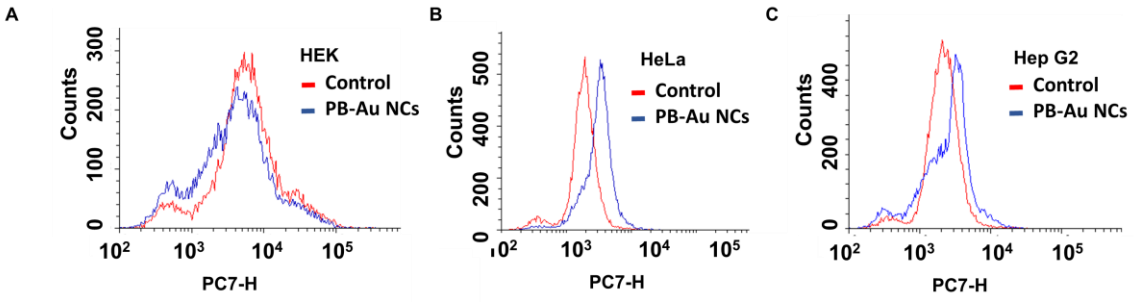


Figure S5. (A-C) Uptake of PB-Au NCs by HEK, HeLa, Hep G2 cells studied using FACS by tracking the fluorescence of PB-Au NCs.

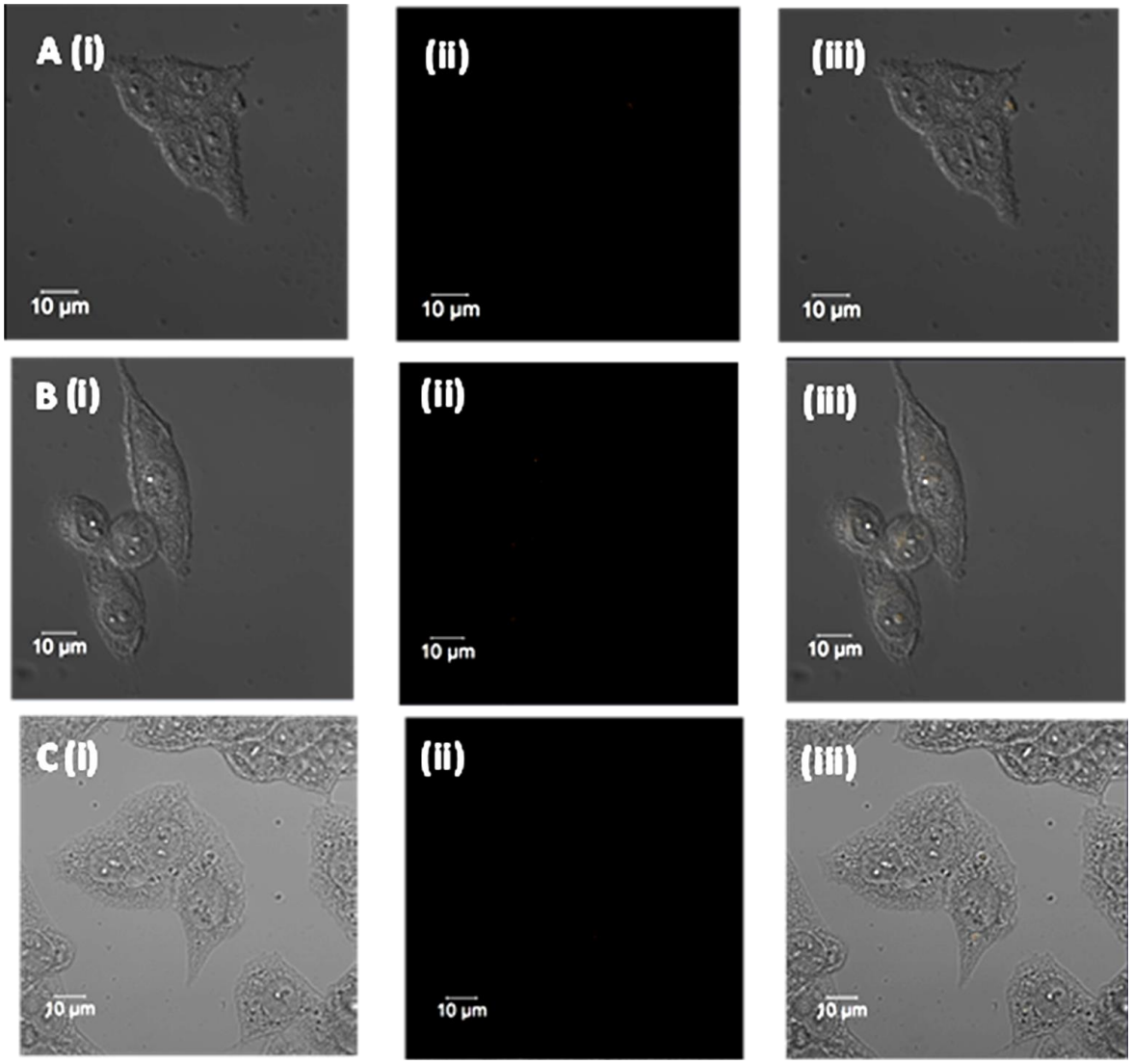


Figure S6. (A) (i-iii) Bright field image, fluorescent image and merged image of control HEK cells. (B) (i-iii) Bright field image, fluorescent image and merged image of control HeLa cells. (C) (i-iii) Bright field image, fluorescent image and merged image of control Hep G2 cells.

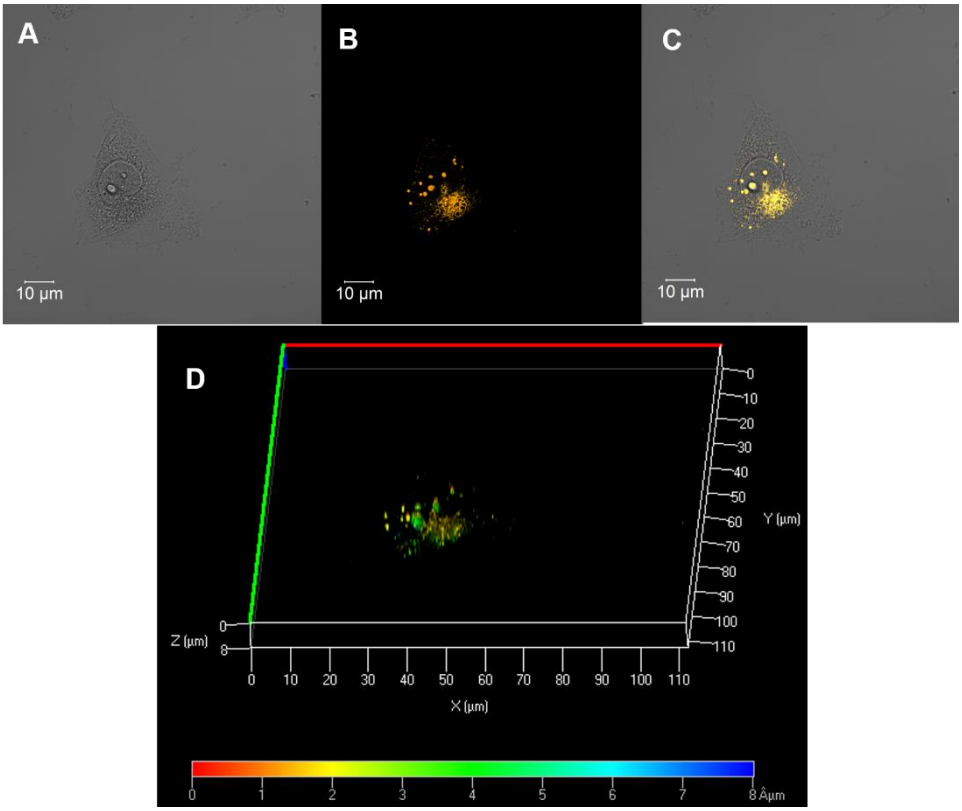


Figure S7. (A-C) Bright field image, fluorescent image and merged image of HeLa cells treated with PB-Au NCs. (D) Depth projection of confocal microscopy image showing internalization of PB-Au NCs inside HeLa cell.

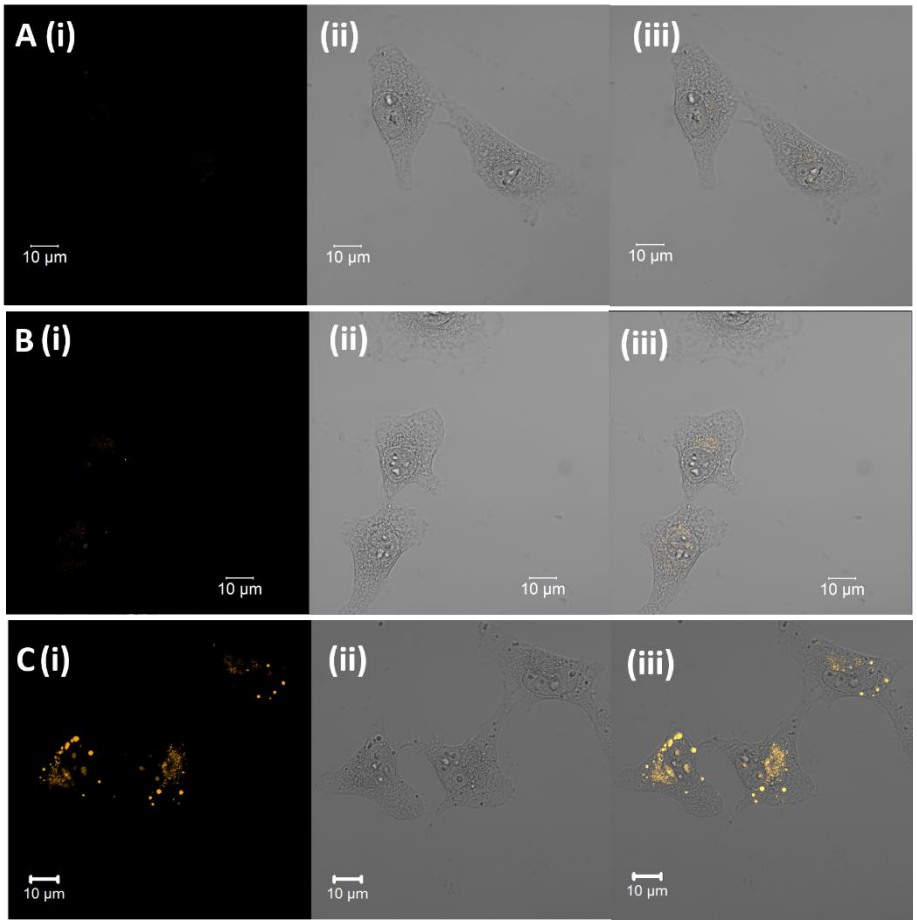


Figure S8. (A) (i-iii) Fluorescent image, bright field image and merged image of control HeLa cells. (B) (i-iii) Fluorescent image, bright field image and merged image of HeLa cells that were first exposed to free PB and then treated with PB-Au NCs. (C) (i-iii) Fluorescent image, bright field image and merged image of HeLa cells treated with PB-Au NCs.

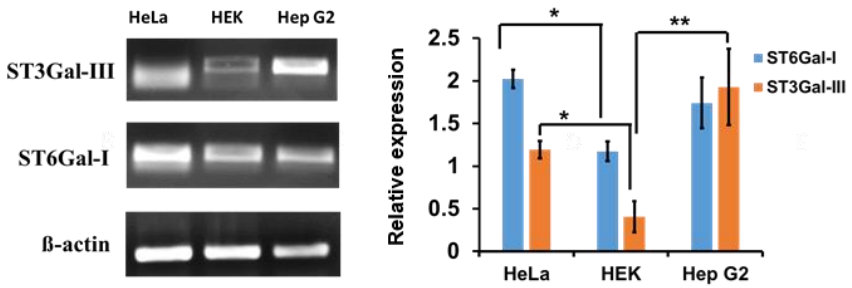


Figure S9. Semi quantitative RT-PCR of genes ST3GAL-III, ST6GAL-I, β-actin expressed in HeLa, HEK, Hep G2 cell lines.

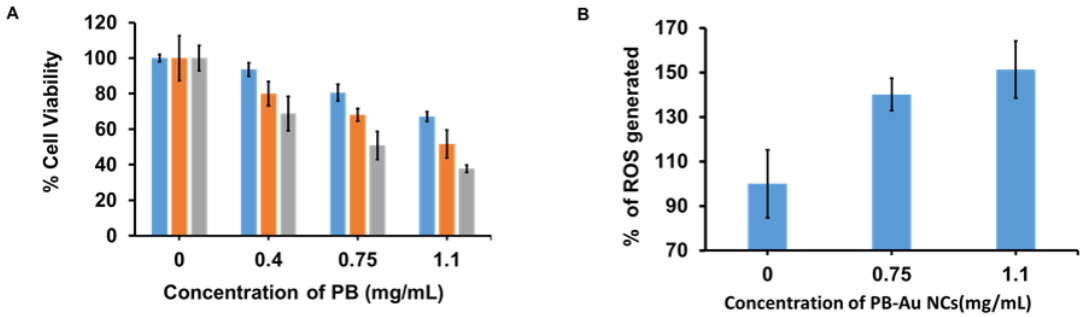


Figure S10. (A) Cell viability assay of HeLa cells treated with free PB. (B) ROS generation profile of DCFH-DA stained HeLa cells treated with PB-Au NCs in comparison to control HeLa cells.

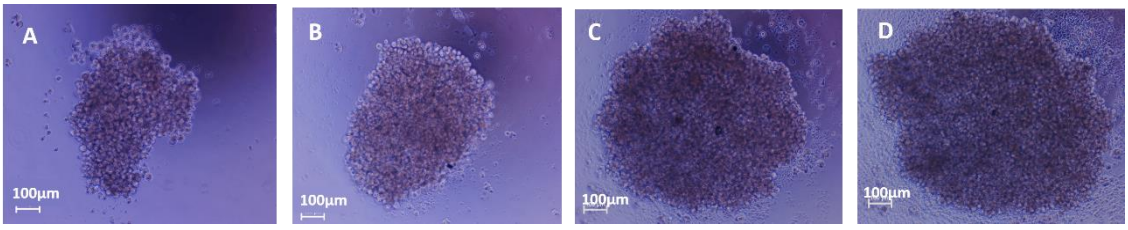


Figure S11. (A-D) Increasing diameter of HeLa spheroids generated by seeding of increasing number of cells (2000 cells/well, 5000 cells/well, 10000 cells/well, 20000 cells/well).

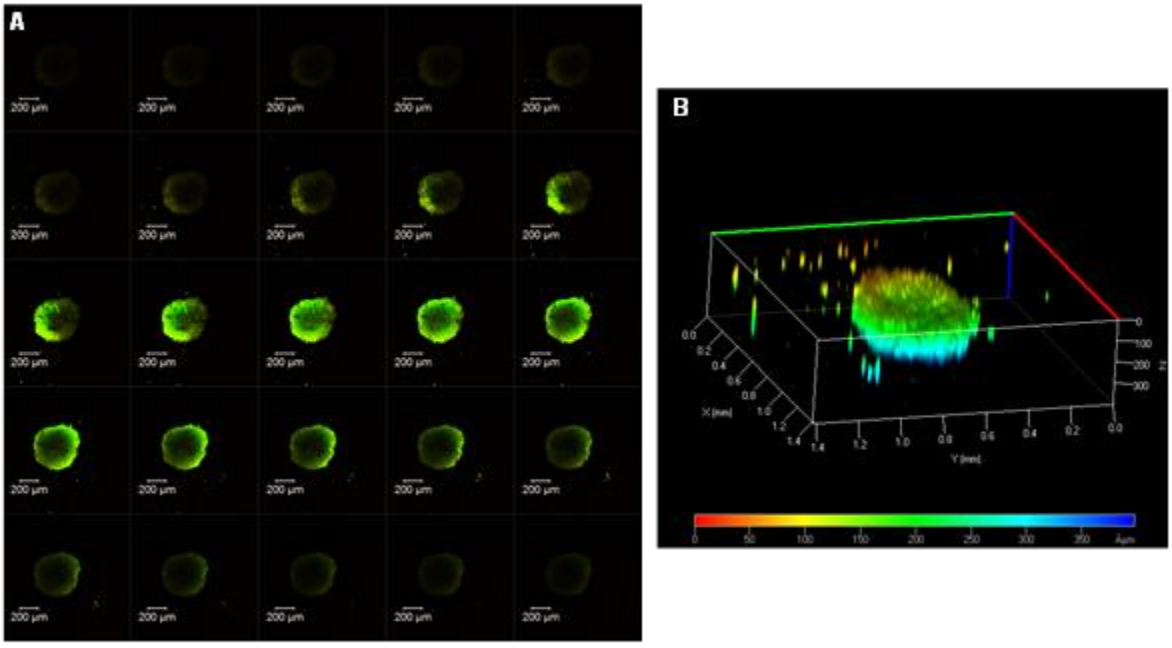


Figure S12. (A) Z-stack of confocal microscopy image of HeLa spheroid stained with acridine orange. (B) Depth projection of confocal microscopy image.

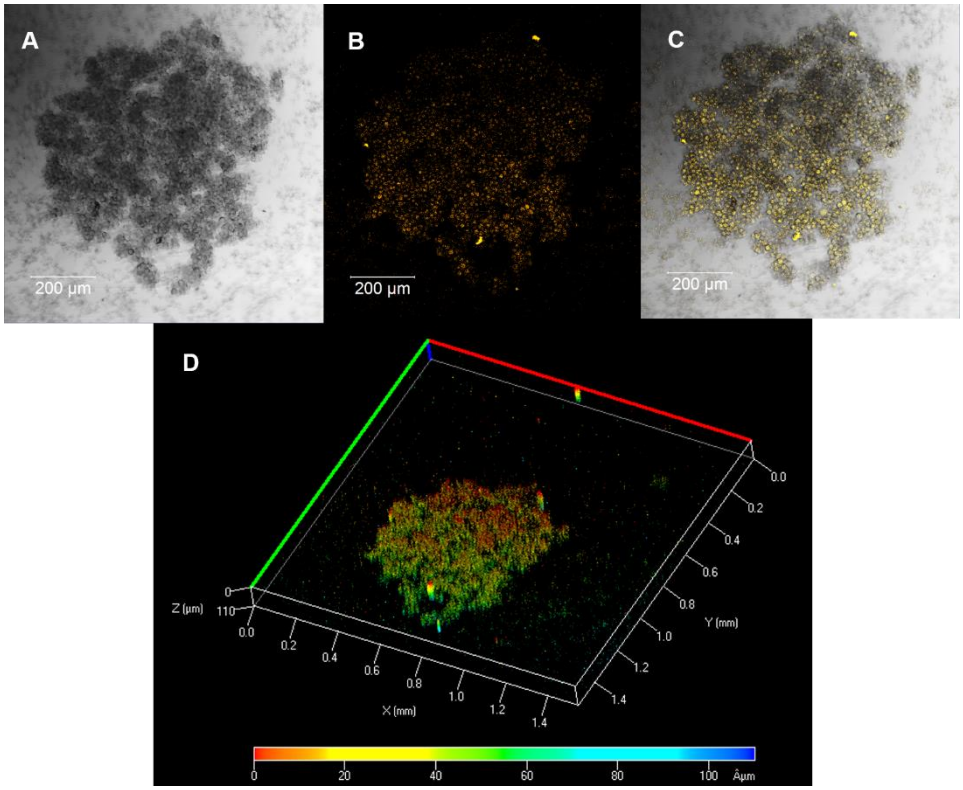


Figure S13. (A-C) Bright field image, fluorescent image, and merged image of HeLa spheroid treated with PB-Au NCs (6 mg/mL for 4 hours). (D) Depth projection of confocal microscopy image of HeLa spheroid treated with PB-Au NCs (6 mg/mL for 4 h).

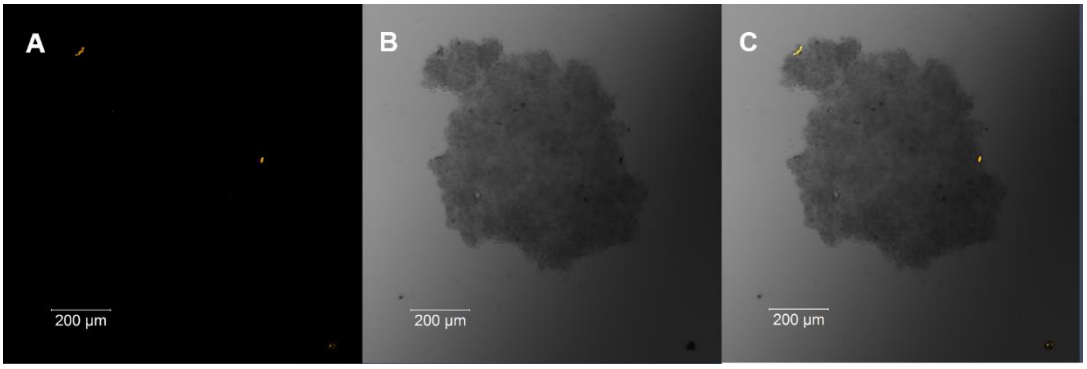


Figure S14. (A-C) Bright field image, fluorescent image, and merged image of control HeLa spheroid.

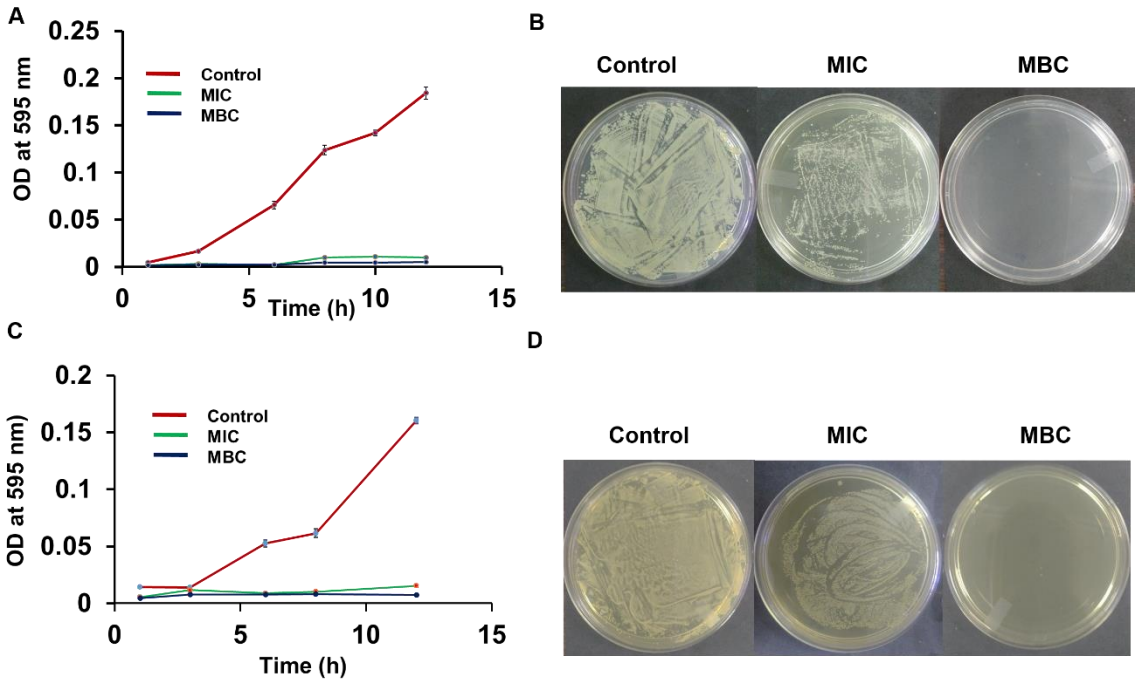


Figure S15. (A) Growth profile of control *E.coli*, *E.coli* after treatment with PB-Au NCs with MIC and MBC doses. (B) Respective plating images of control *E.coli*, *E.coli* after treatment with PB-Au NCs with MIC and MBC doses. (C) Growth profile of control *Staphylococcus aureus*, *Staphylococcus aureus* after treatment with PB-Au NCs with MIC and MBC doses. (D) Respective plating images of control *Staphylococcus aureus*, *Staphylococcus aureus* after treatment with PB-Au NCs with MIC and MBC doses.