Hyaluronic acid cloaked oleic acid nanoparticle inhibits MAPK signaling with sub-cellular DNA damage in colon cancer

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**Fig. S1**: Characterization of OA-AZD-CDDP-NPs by (a) DLS, (b) zeta potential, (c) FE-SEM and (d) AFM.
**Fig. S2**: Schematic representation of the plausible mechanism of self-assembly of OA-AZD-CDDP-NP.

**Fig. S3**: AFM analysis of HA-OA-NPs to show the diameter and height of the nanoparticles.
**Fig. S4:** (a-b) Concentration versus absorbance calibration graph of AZD6244 and cisplatin at characteristic $\lambda_{\text{max}} = 273$ nm and 706 nm respectively, determined by UV-Vis spectroscopy. (c) Loading of AZD6244 and cisplatin in HA-OA-NPs determined by the calibration graph.
Fig. S5: EDX spectra of HA-OA-NPs to confirm the presence of AZD6244 and cisplatin in the same particle.
**Fig. S6:** Stability of HA-OA-NPs in DMEM cell culture media with 10% FBS at 37 °C over 96h determined by (a) hydrodynamic diameter and (b) polydispersity index (PDI).

**Fig. S7:** Flow cytometry analysis of MCF7, DLD-1 and HCT-116 cells to determine the cell surface expression of CD44 receptors by FITC-labeled anti-human CD44 antibody.
Fig. S8: Flow cytometry analysis of HCT-116 cells pre-treated with chlorpromazine, amiloride and genistein followed by treatment with FITC-HA-OA-NPs.

Fig. S9: Flow cytometry analysis of HCT-116 cells after treatment with FITC-HA-OA-NPs at 4°C and 37°C.
Fig. S10: Quantification of expression of (a) p-ERK1, (b) p-ERK2 and (c) γH2AX from western blot analysis in HCT-116 cells after treatment with HA-OA-NPs for 24h.

Fig. S11: Concentration dependent cell viability of OA-AZD-CDDP-NPs in HCT-116 and DLD-1 colon cancer cells at 24h post-incubation determined by MTT assay.
Fig. S12: Concentration dependent cell viability of (a) HA-OA-AZD-CDDP-NPs and (b) OA-AZD-CDDP-NPs in MCF7 breast cancer cells at 24h post incubation determined by MTT assay.

Table S1: Optimization of size, zeta potential, PDI and dual drug loading in engineering HA-OA-NPs.