

Supporting information

Figure S1: HIEC cells were pretreated with 8 $\mu\text{g}/\text{mL}$ PDA-NPs or 50 μM dopamine respectively, before 8 Gy IR. Cell viability was measured using the CCK-8 assay, $n=3$. Data were expressed as mean \pm SEM, $*P < 0.05$, $**P < 0.01$.

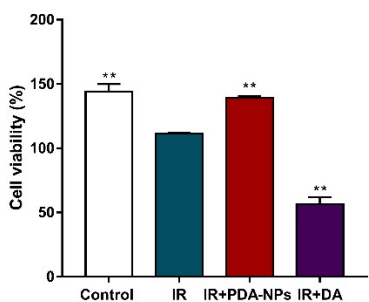


Figure S2: Zeta potential distribution of PDA-NPs.

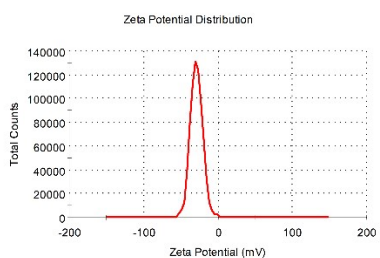


Figure S3: Kaplan-Meier survival analysis of mice after exposure to 15Gy ABI, $n=10$.

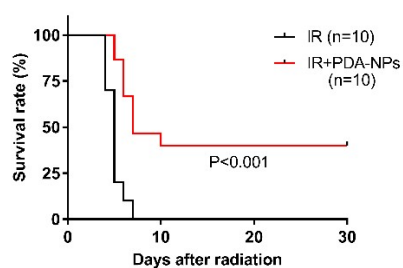


Figure S4: Western blot analysis of the expression of apoptosis and inflammation proteins in 8 Gy irradiated HIEC cells lysates, $n=3$.

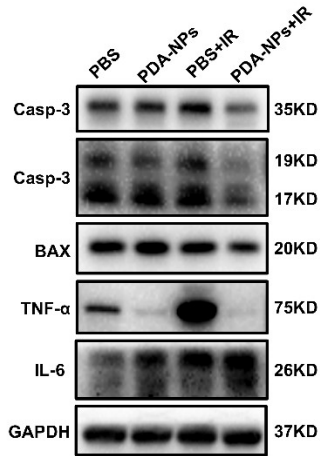


Figure S5: Western blot analysis of the expression of pyroptosis proteins in 8 Gy irradiated HIEC cells lysates, n=3.

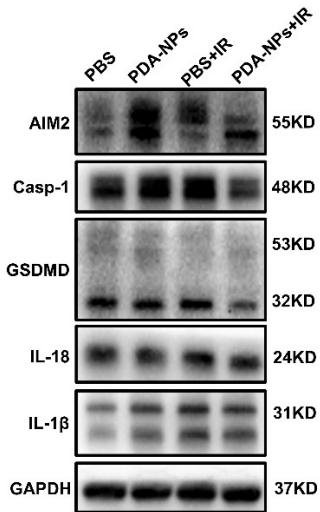


Figure S6: The expression of TNF-α mRNA in 10Gy tissue was detected by qPCR, n=3. Data were expressed as mean ± SEM, * $P < 0.05$, ** $P < 0.01$.

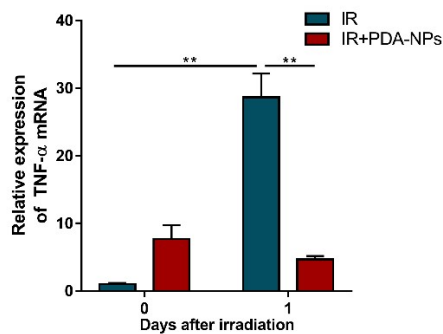


Figure S7: HIEC cell toxicity was monitored using the CCK-8 assay, n=3. Data were expressed as

mean \pm SEM, * P < 0.05, ** P < 0.01.

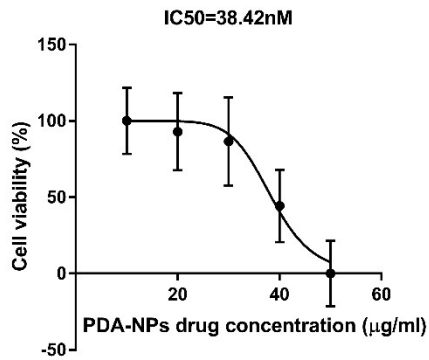


Figure S8: HIEC cells were pre-treated with 8 µg/mL PDA-NPs before 8 Gy IR and Cell viability was measured using the CCK-8 assay, n=3. Data were expressed as mean \pm SEM, * P < 0.05, ** P < 0.01.

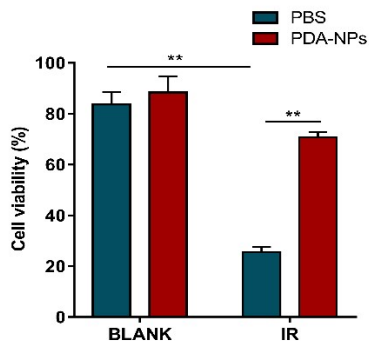


Figure S9: ESR spectrum of $O_2^{\cdot-}$ with 8 µg/mL PDA-NPs in strong acid (pH=2).

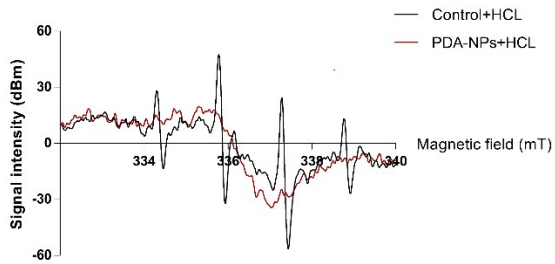


Figure S10: ESR spectrum of DPPH with 8 µg/mL PDA-NPs in strong acid (pH=2).

