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Effects of JMJD6 and EYA2 on Modulating Radioresistance of Breast Cancer Cells

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ABSTRACT Radiotherapy has been applied for cancer treatment while DNA damage repair (DDR) could increase radioresistance in tumour cells. Therefore, biomarkers that modulated DDR might improve the efficacy of radiotherapy. Mediator of DNA Damage Checkpoint 1 (MDC1) mRNA expressions were assessed by RT-qPCR in MDA-MB-157 cells after irradiation (0, 4, 8, 12, and 16 Gy), showing that it was upregulated in the 4Gy group but suppressed in 16Gy groups. Using CCK-8, viabilities of cells were also inhibited by irradiation dose-dependently. Moreover, flow cytometry was used to evaluate cell apoptosis, showing that overexpression of EYA Transcriptional Coactivator and Phosphatase 2 (EYA2) and Jumonji Domain Containing 6 (JMJD6) suppression both inhibited MDA-MB-157 cell (4Gy) apoptosis and decreased cell viabilities. Hence, JMJD6 and EYA2 might be promising biomarkers for mediating DDR in breast cancer cells.