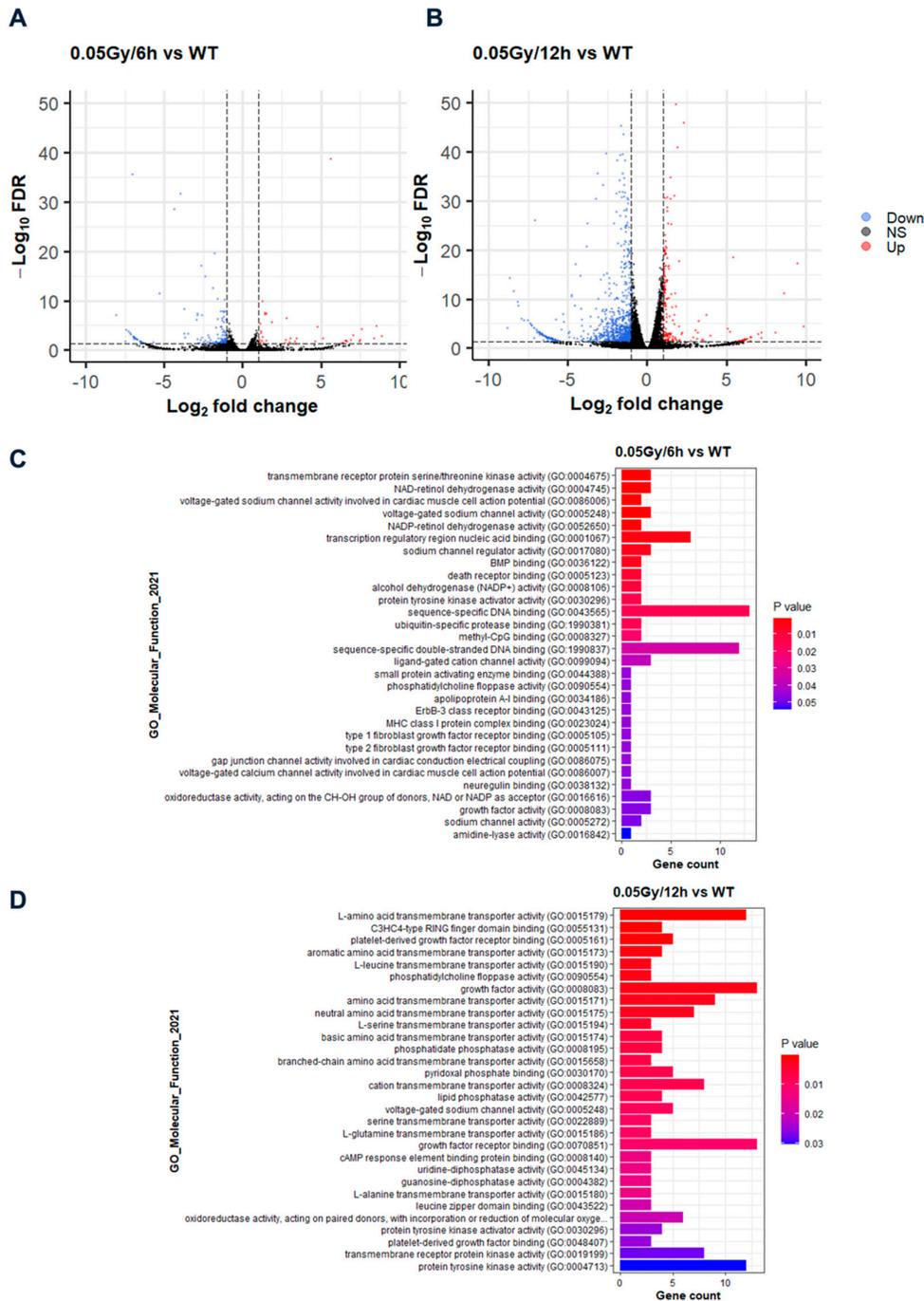


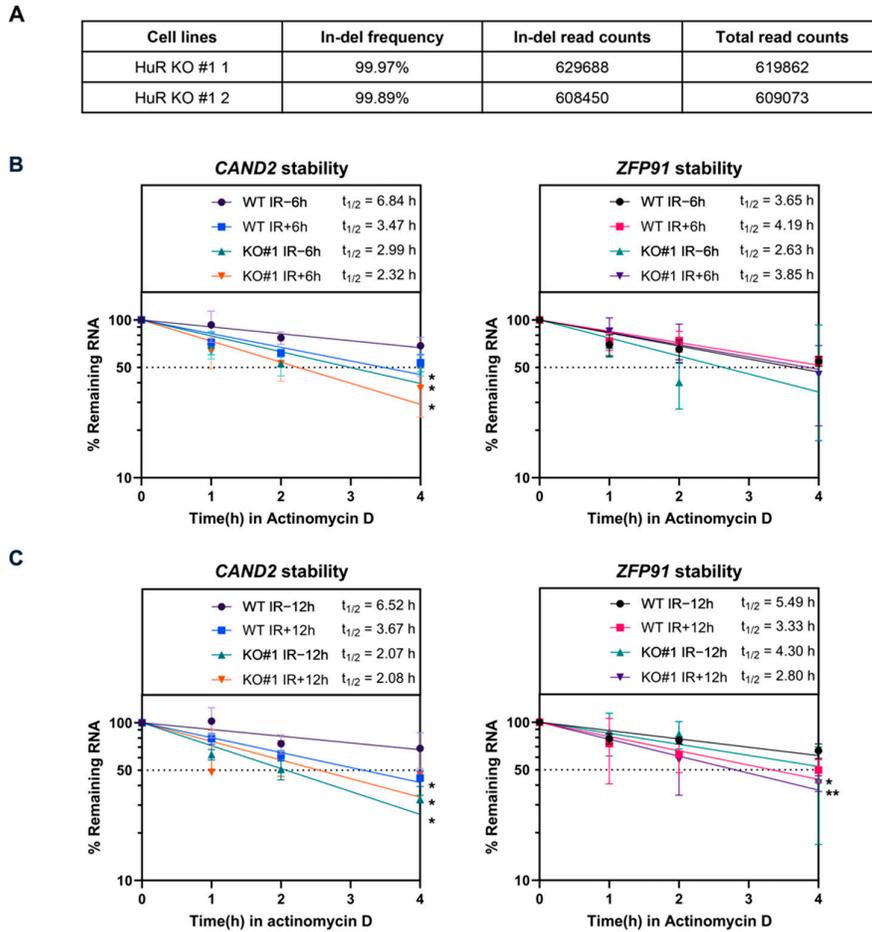
# Supplementary Data

## Supplementary Figures

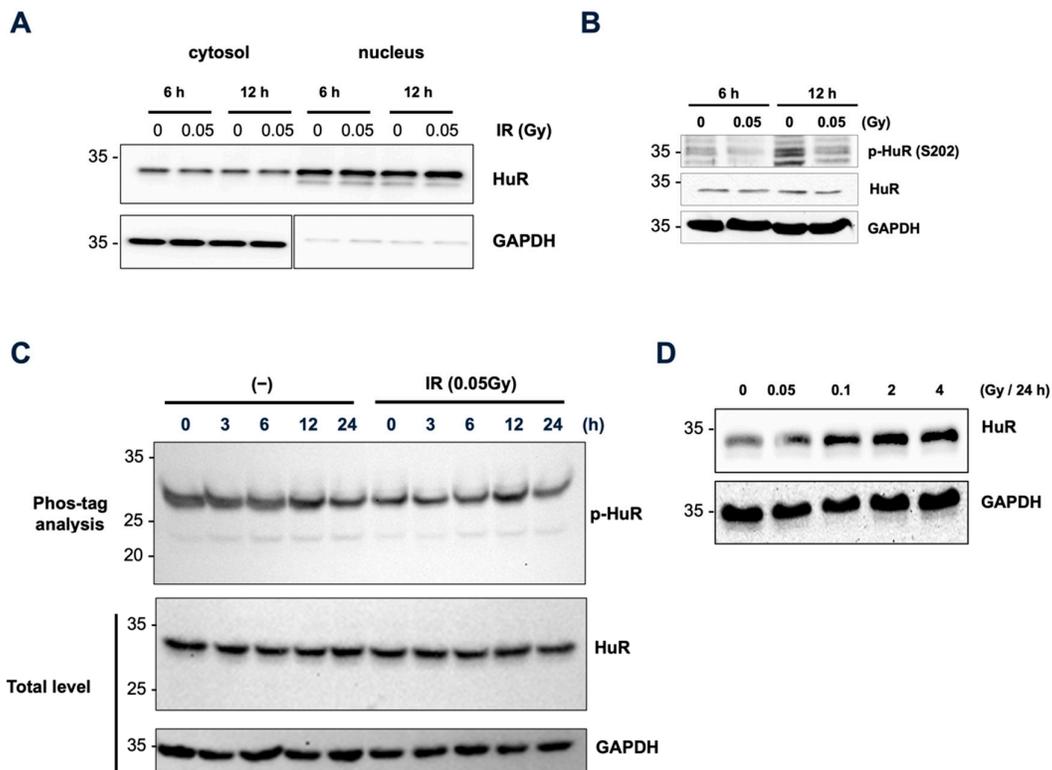


**Figure S1.** LDIR potentially contributes to changes in molecular functions and gene regulation in human cells. **(A-B)** Volcano plot representation of differential expression analysis of genes in 0.05 Gy irradiation for 6 h **(A)** and 12 h **(B)** versus wild type (WT). The

black dots denote non-significant, the blue dots denote downregulated genes ( $FDR < 0.05$ ,  $\log_2 FC < -1$ ), and the red dots denote upregulated genes ( $FDR < 0.05$ ,  $\log_2 FC > 1$ ). (C-D) Molecular function of Gene Ontology (GO) enrichment analysis with differentially expressed genes (DEGs) in 0.05 Gy irradiation for 6 h (C) and 12 h (D).



**Figure S2.** Low-dose ionizing radiation (LDIR) affects the stability of mRNAs targeted by human antigen R (HuR). (A) Indel frequencies in HuR were determined by deep sequencing using the HEK293 CRISPR/Cas9 system. (B, C) Stability of *CAND2* and *ZFP91* mRNAs after 0.05 Gy irradiation for 6 h (B) and 12 h (C) in HuR +/+ and -/- cells. Data represent three independent experiments. \*:  $p < 0.05$ ; \*\*:  $p < 0.01$  from Student's *t*-test.



**Figure S3.** Molecular mechanisms of how low dose ionizing radiation (LDIR) alters the regulation of human antigen R (HuR)-mediated gene expression regulation. **(A)** Western blot analysis of the localization of HuR in cytosol and nucleus upon 0.05 Gy irradiation for 6 or 12 h. **(B)** Western blot analysis of the level of phospho HuR-S202 upon 0.05 Gy irradiation for 6 or 12 h. **(C)** Phos-tag electrophoresis demonstrating HuR phosphorylation in HEK293 cells upon 0.05 Gy irradiation for the indicated time. **(D)** Stability of HuR in HEK293 cells was detected by using western blotting after exposure to radiation for 24 h in HEK293 cells. Original blot images are presented in supplementary figure S4.