

## Supporting Information

### Specific Oxide Nanoclusters Enhance Intracellular ROS for Cancer Targeted Therapy

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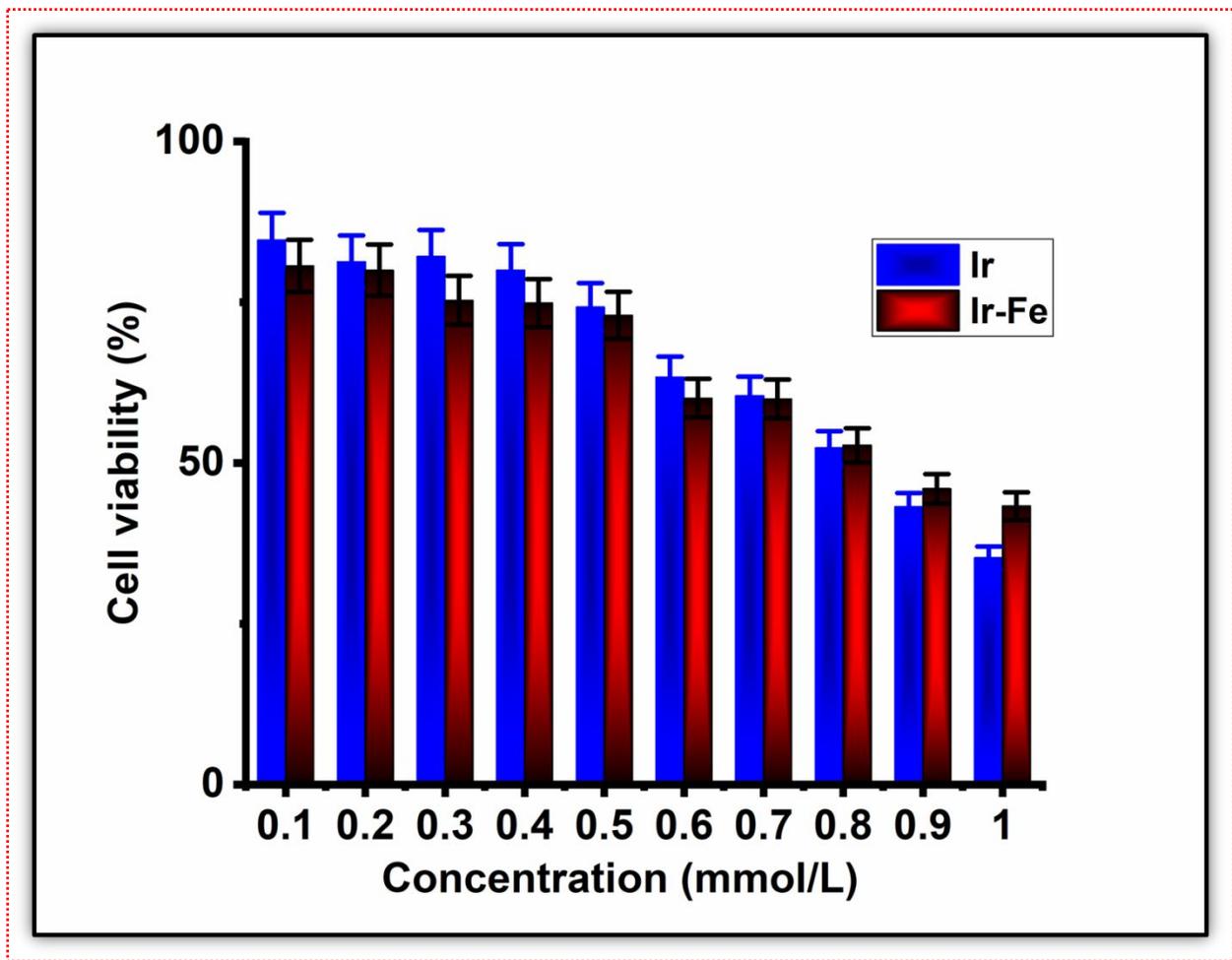
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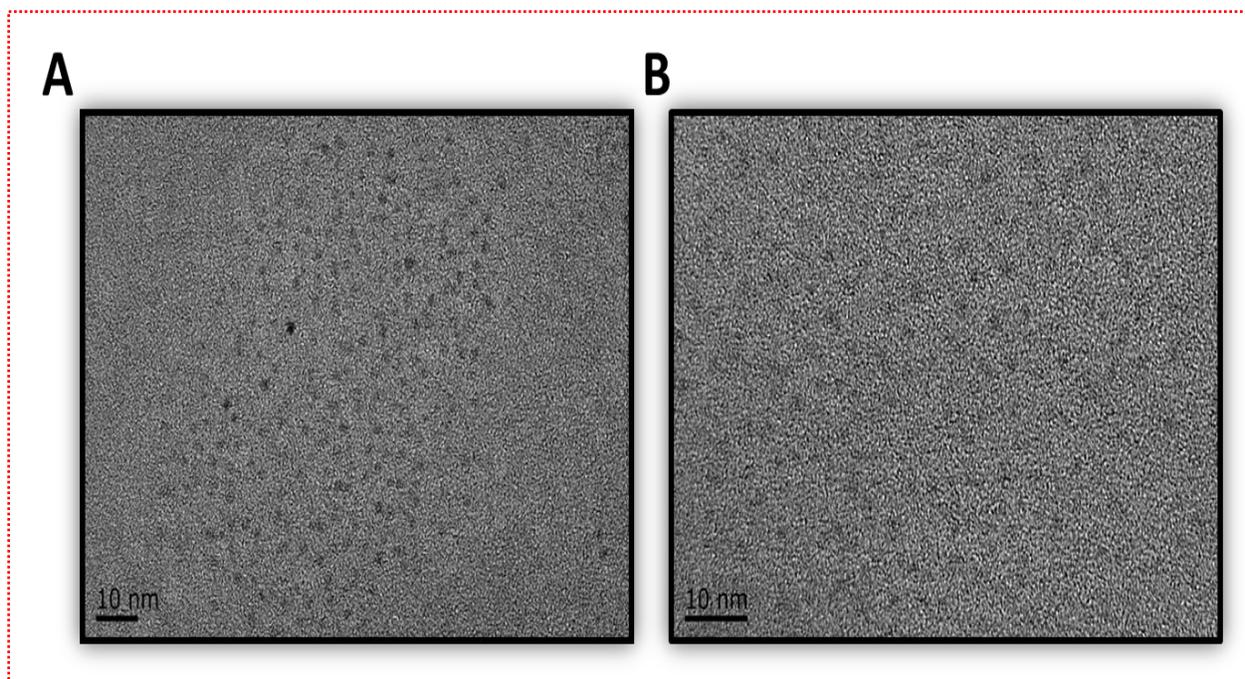
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**Figure S1. MTT assay.** U87 cells were incubated 24h with Ir ions at different concentrations while the Fe ions concentration is constant 0.1mM/L.



**Figure S2.** *In situ* biosynthesized NCs in U87 cells. A) TEM image of IrO<sub>2</sub> NCs, B) TEM image of iron oxide NCs.

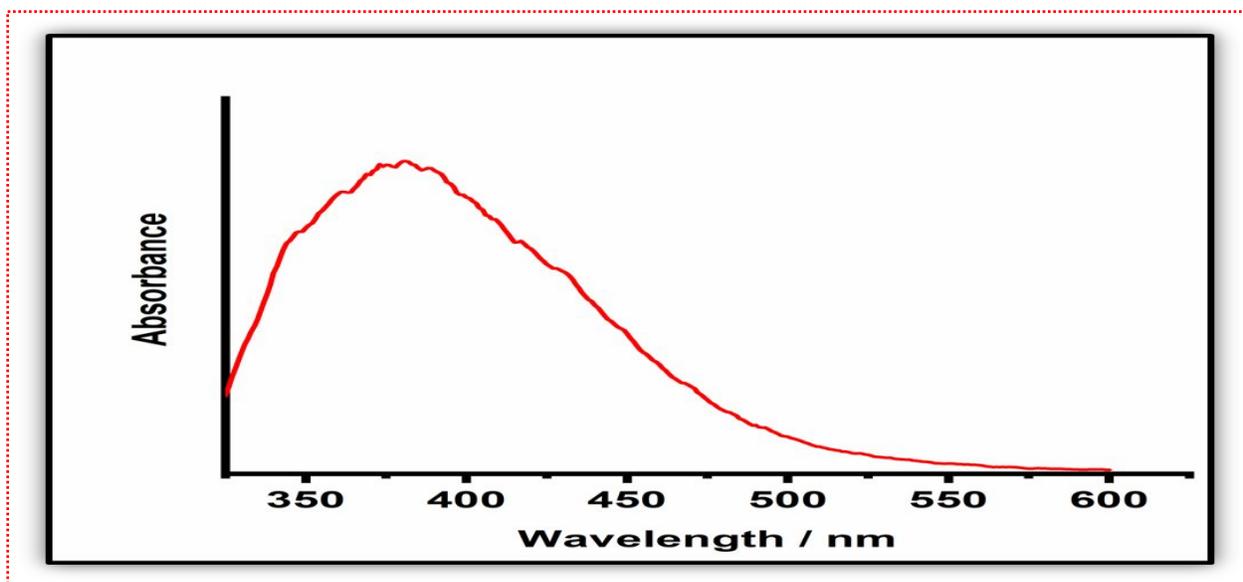
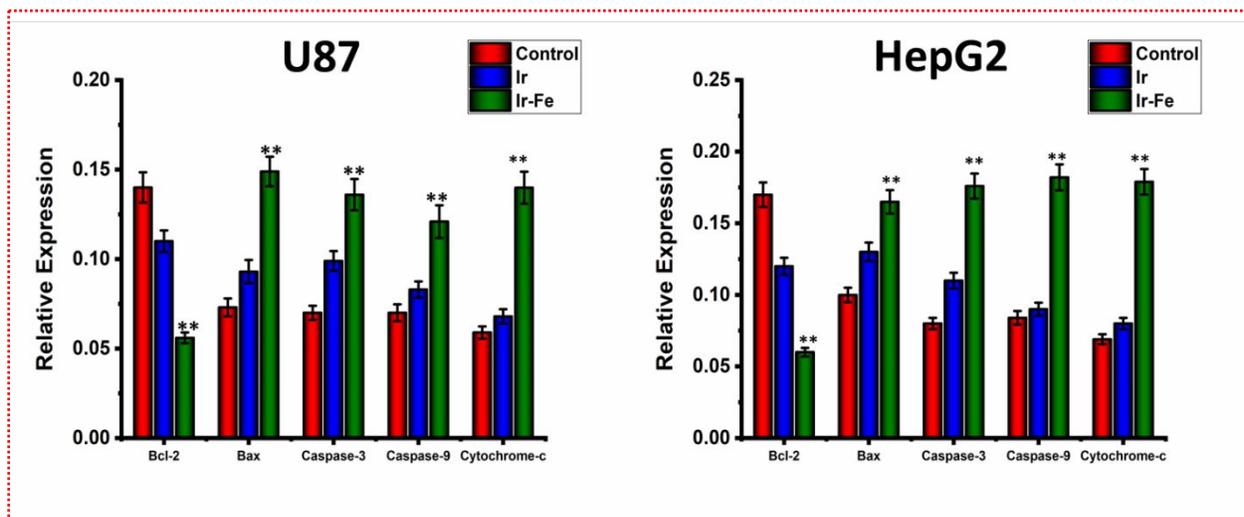


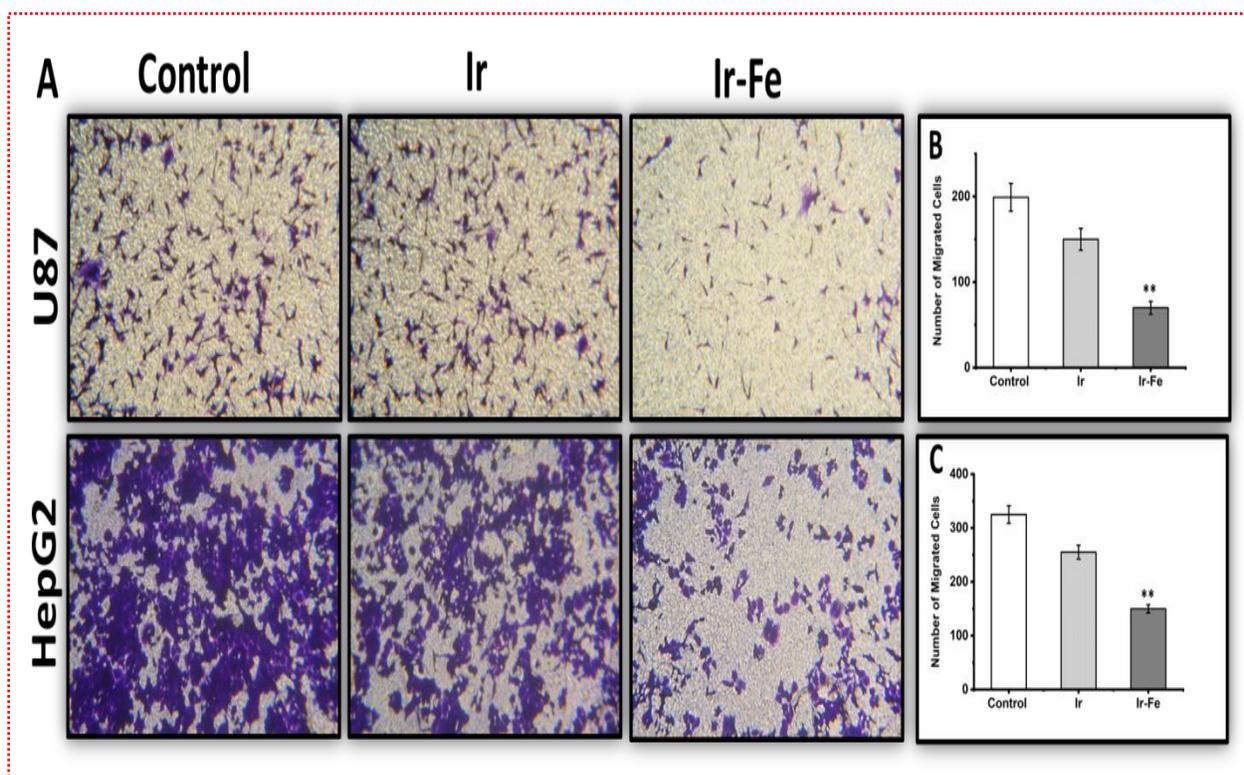
Figure S3. UV-vis absorption. UV-vis absorption spectrum of the *in situ* biosynthesized IrO<sub>2</sub> and iron oxide NCs

**Table S1.** Sequence of primers used in this study.

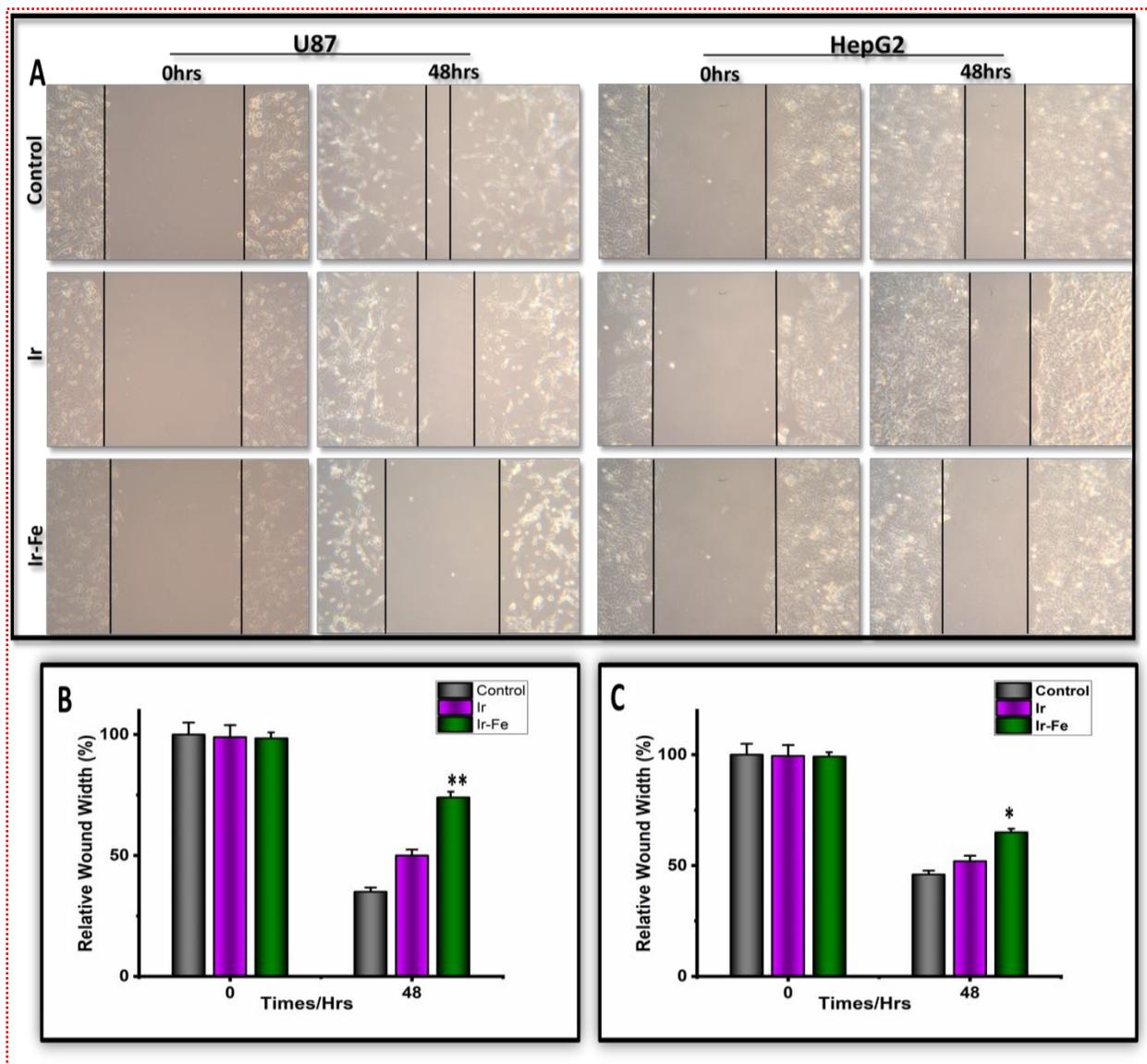
Gene	Primer	Sequence
Bcl-2	F	GTGACTTCCGATCAGGAAGG
	R	CTTCCAGACATTCGGAGACC
Bax	F	AGTAACATGGAGCTGCAGAGG
	R	ATGGTTCTGATCAGTTCCGG
p53	F	TGTCATGGCGACTGTCCAGC
	R	GCTCGACGCTAGGATCTGAC
Cytochrome c	F	GAGCGGGGAGTGTTTCGTTGT
	R	GTCTGCCCTTTCTTCCTTCT
Casp-3	F	CATGGAAGCGAATCAATGGACT
	R	CTGTACCAGACCGAGATGTCA
Casp-9	F	ACTTTCCAGTTTTTGTTCCT
	R	GAAATTAAGCAACCAGGA
GAPDH	F	CCCACTAACATCAAATGGGG
	R	CCTTCCACAATGCAAAGTT



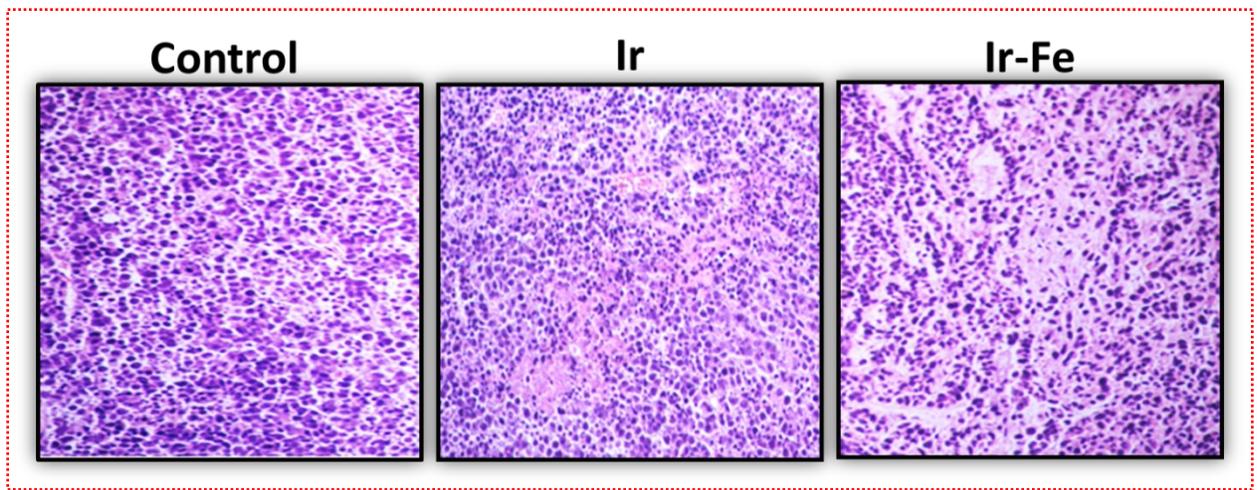
**Figure S4.** Effect of biosynthesized  $\text{IrO}_2$  and iron oxide NCs on the expression of apoptotic genes. Graphs with qRT-PCR analysis data for Bcl2, Bax, Caspase-3, Caspase-9 and Cytochrome c. Expression levels were normalized by GAPDH



**Figure S5. Biosynthesized  $\text{IrO}_2$  and iron oxide NCs can affect cell migration ability of U87 and HepG2 cells.**  
 A) Biosynthesized NCs inhibit migration in U87 and HepG2 cells analyzed by Transwell assay. B-C) Quantification of migrated cells.



**Figure S6. Effect of as-biosynthesized NCs on cell migration.** A) U87 and HepG2 cells after treatment in vitro wound healing assay. Photographs were taken at hour 0, and 48 h, respectively, after the wound was made. B-C) The wound healing assay was expressed as relative wound width.



**Figure S7. H&E Staining.** The tumor tissue stained by hematoxylin and eosin.

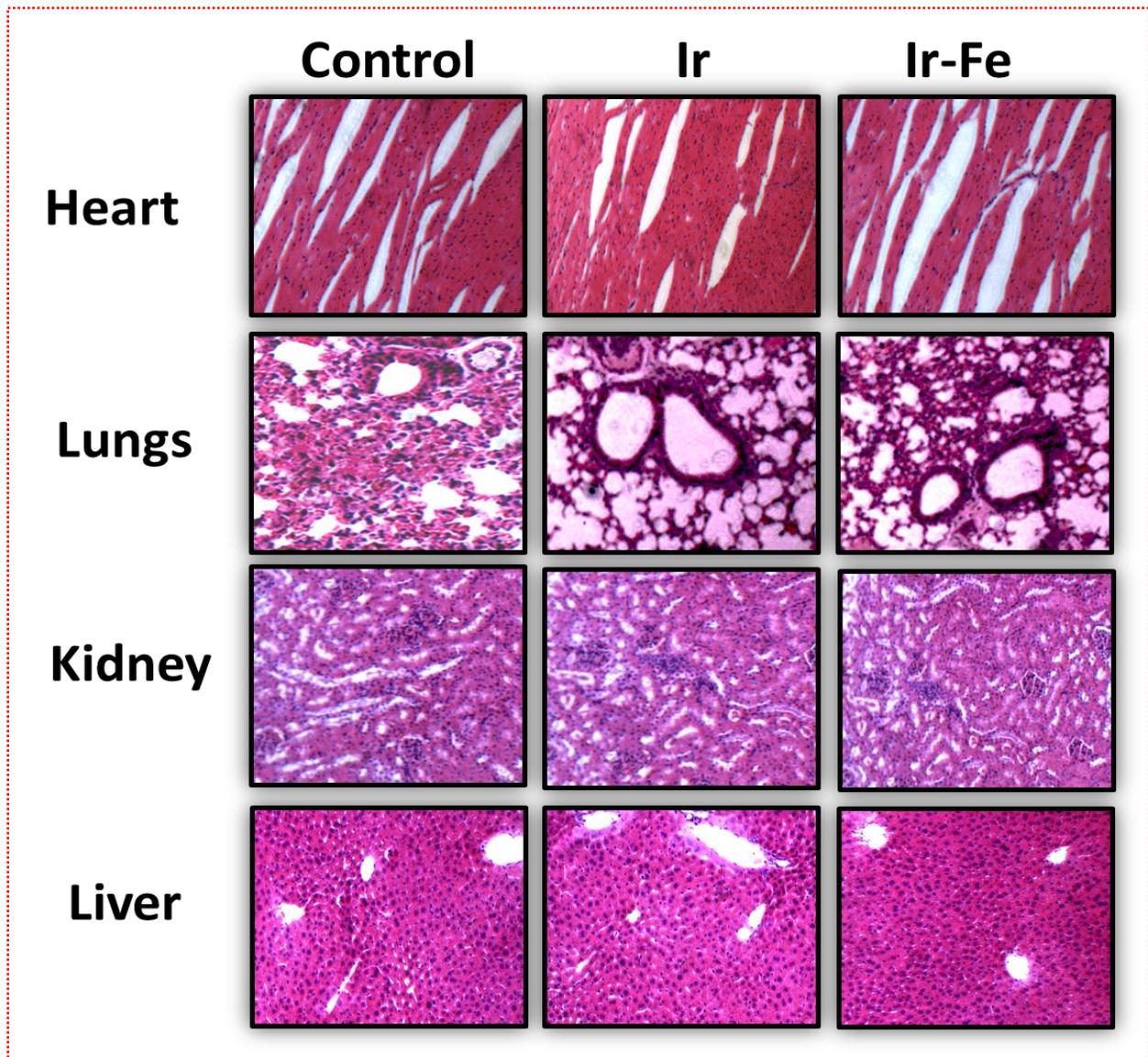


Figure S8. H&E Staining. The vital organs stained by hematoxylin and eosin.