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Supporting Information

Differential Effects of Metal Oxide Nanoparticles on Zebrafish Embryos and Developing Larvae

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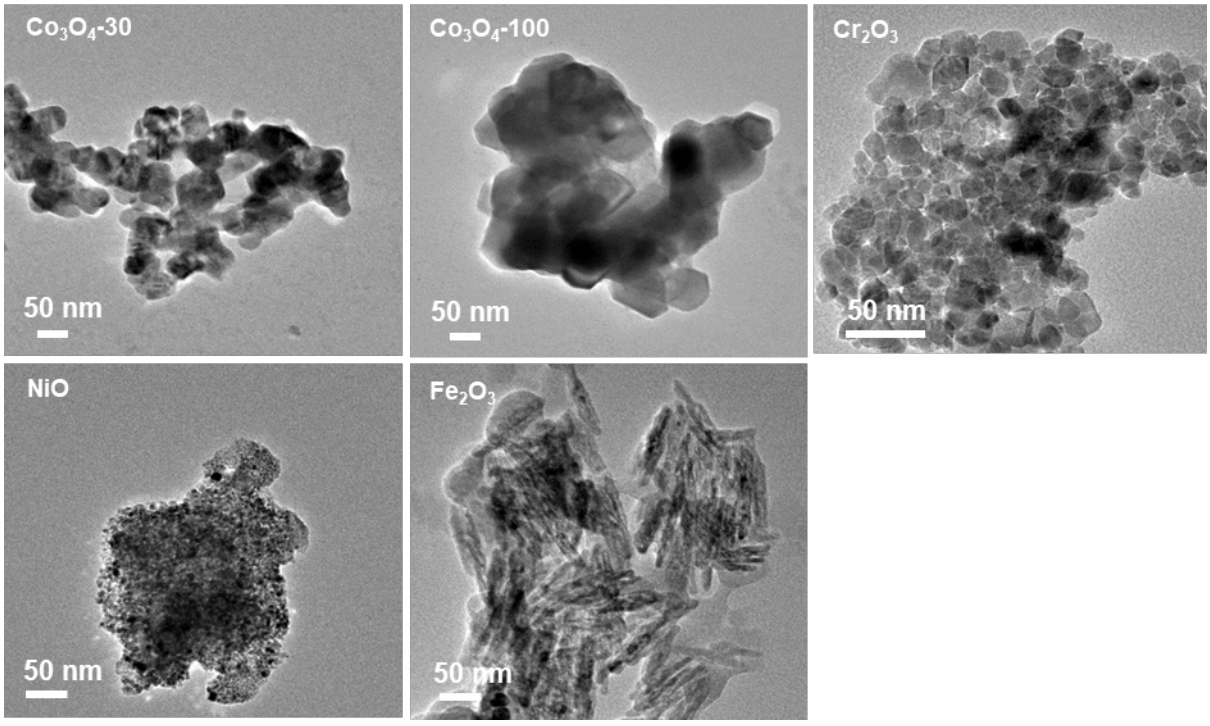

Figure S1. Representative TEM images of metal oxide nanoparticles (scale bar: 50 nm).

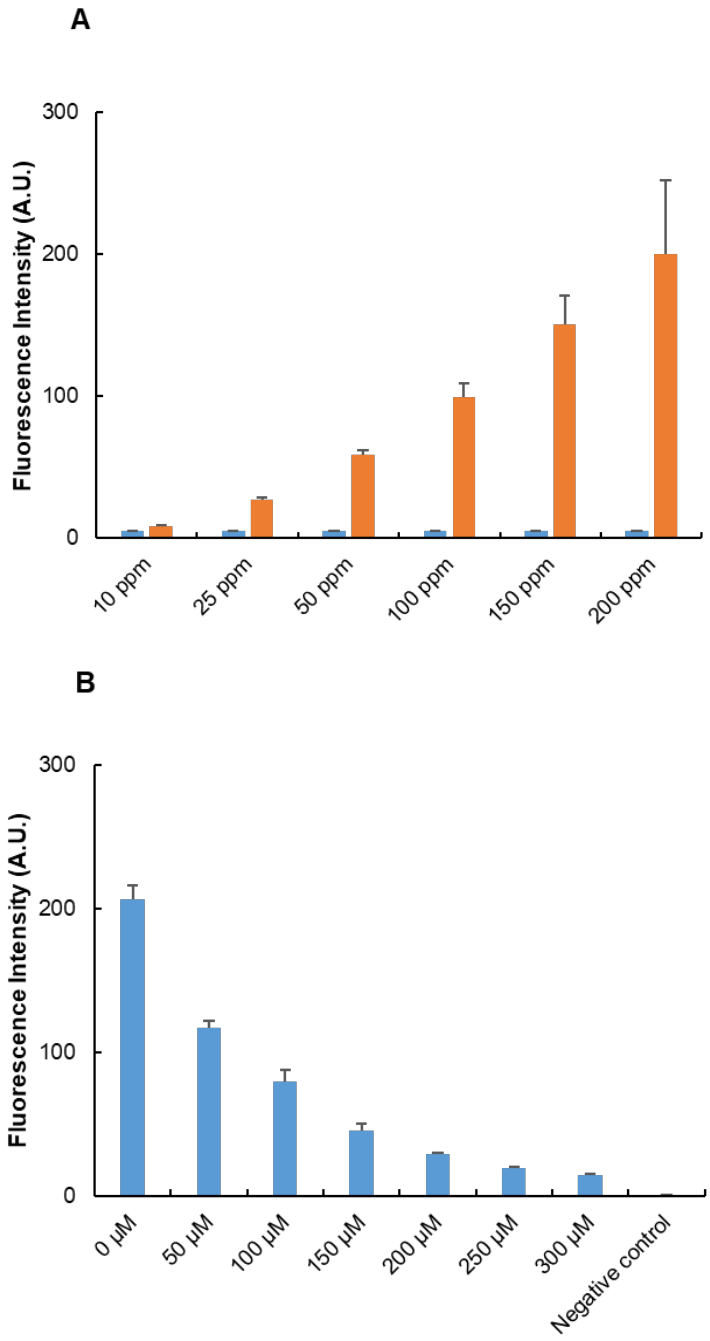

Figure S2. Abiotic ROS generation by NiO nanoparticles. (A) Concentration-dependent abiotic ROS generation by NiO nanoparticles based on DCF assay; (B) The effects of metal ion chelator (DTPA) on the abiotic ROS generation by NiO.

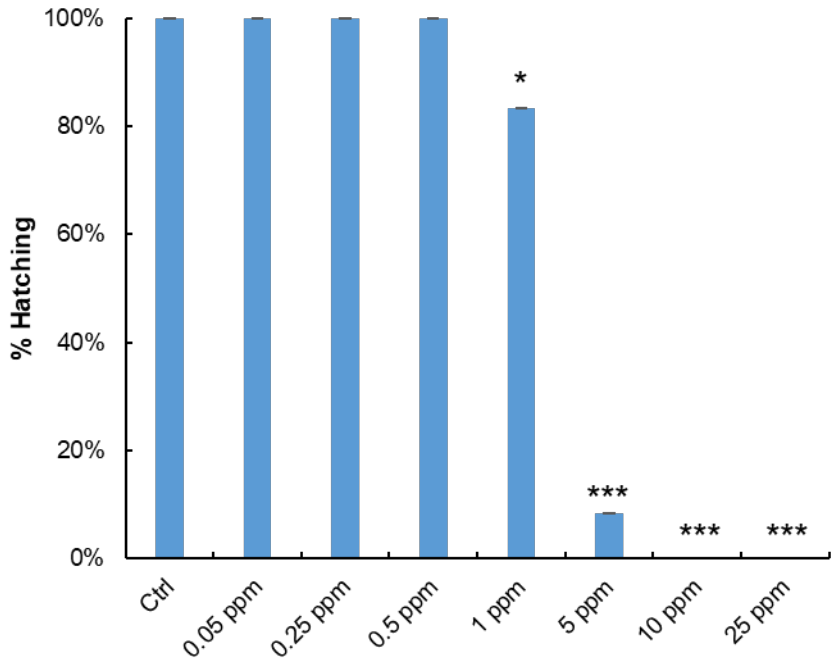

Figure S3. Concentration-dependent hatching interference exerted by NiO nanoparticles *($p \leq 0.001$ ***, $p \leq 0.01$ **, $p \leq 0.05$ *).*

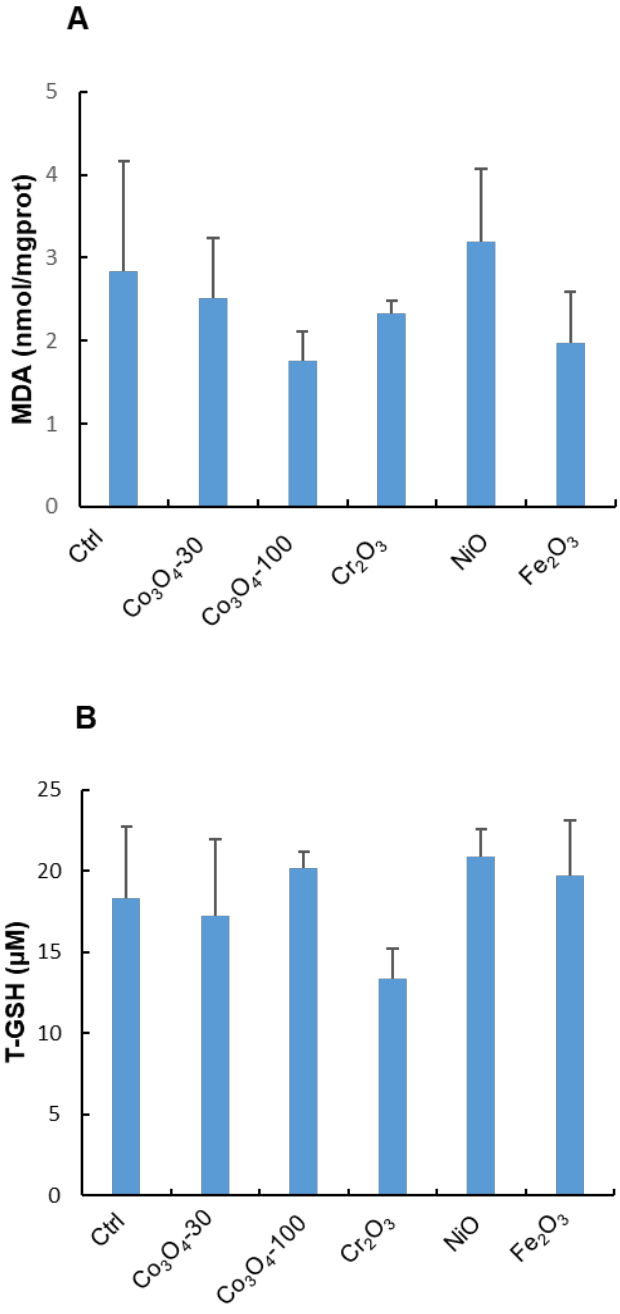

Figure S4. Assessment of biotic ROS generation based on lipid peroxidation and total GSH depletion. No significant difference was observed in MDA contents on embryos (A) and total GSH oxidation on 72 hpf larvae (B) after 24 h exposure of 200 ppm metal oxide nanoparticles.

Pearson correlation analysis			Pearson correlation coefficient	*P value*
Abiotic assays	Abiotic ROS vs. abiotic tGSH		**-0.98**	**7.33E-04**
	Abiotic ROS vs. biotic ROS	Embryo	0.77	0.071
		Larva	**0.99**	**0.003**
Biotic assays	Embryo	ROS vs. tGSH	**-0.88**	**0.000**
		ROS vs. MDA	0.50	0.311
		tGSH vs. MDA	-0.78	0.069
	Larva	ROS vs. tGSH	0.41	0.603
		ROS vs. MDA	0.64	0.170
		tGSH vs. MDA	-0.31	0.543

Table S1. Pearson correlation analysis between abiotic ROS and biotic ROS, ROS and tGSH, ROS and MDA, tGSH and MDA assays.