

# Supplementary Materials: Double-Sided Nano-ZnO: Superior Antibacterial Properties and Induced Hepatotoxicity in Zebrafish Embryos

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**Table S1.** Statistics of zebrafish malformations treated with different concentrations of nano-ZnO.

Deformed parts	control	31.25 nmol/mL	62.5 nmol/mL	125 nmol/mL
Yolk sac	4/57	6/32	8/21	4/4
Heart	0/57	0/32	0/21	3/4
Deformity rate	4/57	6/32	8/21	4/4

**Table S2.** Development of zebrafish swim bladder treated with different concentrations of nano-ZnO.

Concentration	control	31.25 nmol/mL	62.5 nmol/mL	125 nmol/mL
Normal development rate	57/57	2/32	0/21	0/4

**Table S3.** Oligonucleotide primers.

Genes	Primer Sequences	Genes	Primer Sequences
<i>ef1<math>\alpha</math>-f</i>	CCTGGGAGTGAAACAGCTGATC	<i>bid-f</i>	GTCCACCAGCGACCTACA
<i>ef1<math>\alpha</math>-r</i>	CCGATCTTCTTGATGTATGCGCTG	<i>bid-r</i>	GCACCACTGTCCCATAAAA
<i>bax-f</i>	GGAGGCGATACGGGCAGTG	<i>bcl-2-f</i>	TCGTCAGACCCTCATTT
<i>bax-r</i>	TTGCGAATCACCAATGCTGTG	<i>bcl-2-r</i>	CATCCCAACCTCCATTTT
<i>il-1b-f</i>	TGGACTTCGCAGCACAAAATG	<i>srebp-1-f</i>	CATCCACATGGCTCTGAGTG
<i>il-1b-r</i>	GTTCACTTCACGCTCTTGATG	<i>srebp-1-r</i>	CTCATCCACAAAAGAAGCGGT
<i>tnf-<math>\alpha</math>-f</i>	GCTGGATCTTCAAAGTCGGGTGTA	<i>fabp10a-f</i>	GTGGGAGAATCGGTCAG
<i>tnf-<math>\alpha</math>-r</i>	TGTGAGTCTCAGCACACTTCCATC	<i>fabp10a-r</i>	TCAGGAGAACTACGAGGAG
<i>nf-<math>\kappa</math>b-f</i>	AAGATGAGAACGGAGACACGC	<i>rbp4-f</i>	AGGTGCCGTCCTCATCC
<i>nf-<math>\kappa</math>b-r</i>	TACCAGCAATCGCAAACAACG	<i>rbp4-r</i>	CAACTTCGCCGTCCAAC
<i>bip-f</i>	AGCTGTACAAGAAGAAGAC	<i>chop-f</i>	GGACACGTAGAGAAGGGGAC
<i>bip-r</i>	GAAAGTTACCTCGATCTGTGGG	<i>chop-r</i>	TCTCGGTGGGAGACATTAC
<i>gstp1-f</i>	CGACTGAAAGCCACCTGTGTC	<i>perk-f</i>	GACGAATGCTCCACTGTCCT
<i>gstp1-r</i>	CTGTCGTTTTTGCCATATGCAGC	<i>perk-r</i>	GTGTTGGACTTGACGATGCG
<i>nqo1-f</i>	TTTGCAGAATCCCGAGCACT	<i>bip-f</i>	AAGAGGCCGAAGAGAAGGAC
<i>nqo1-r</i>	TCTTCTGCGATCAAGCTGAAAG	<i>bip-r</i>	AGCAGCAGAGCCTCGAAATA
<i>nrf2a-f</i>	TGGACGAACACTAACACGGG	<i>mcl-1b-f</i>	CCAGAACTGAAAGCGCATA
<i>nrf2a-r</i>	CCTGCTGCATTGCGAAAGTT	<i>mcl-1b-r</i>	ACTCCACAAAGCCATCCC
<i>nrf2b-f</i>	GGCAGAGGGAGGAGGAGACCAT	<i>wnt2bb-f</i>	TATTGGAGCCCTTGGTGC
<i>nrf2b-r</i>	AAACAGCAGGGCAGACAACAAGG	<i>wnt2bb-r</i>	GCGGTGATGACGAAACTGA
<i>ef2<math>\alpha</math>-f</i>	GGACAGATGGAAGTTTGGGATG	<i>mypt1-f</i>	AGCCTGCTGTCCCGGTATTG
<i>ef2<math>\alpha</math>-r</i>	CGGTTTGTGCGTAGAGCC	<i>mypt1-r</i>	GAGTGAGGTACGATCTGCG