

Fig. S1

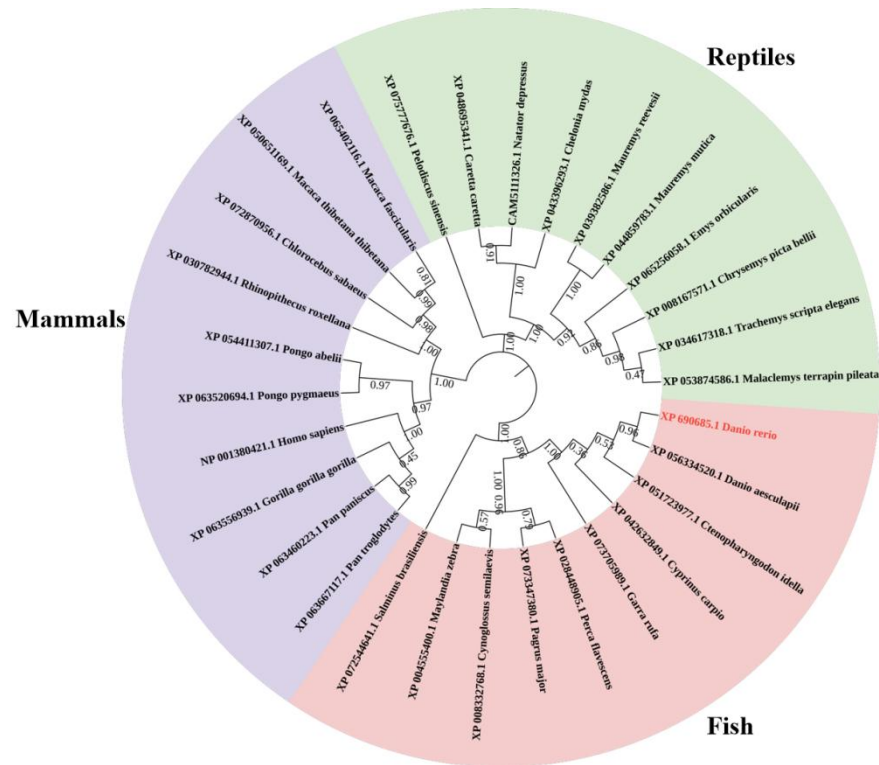
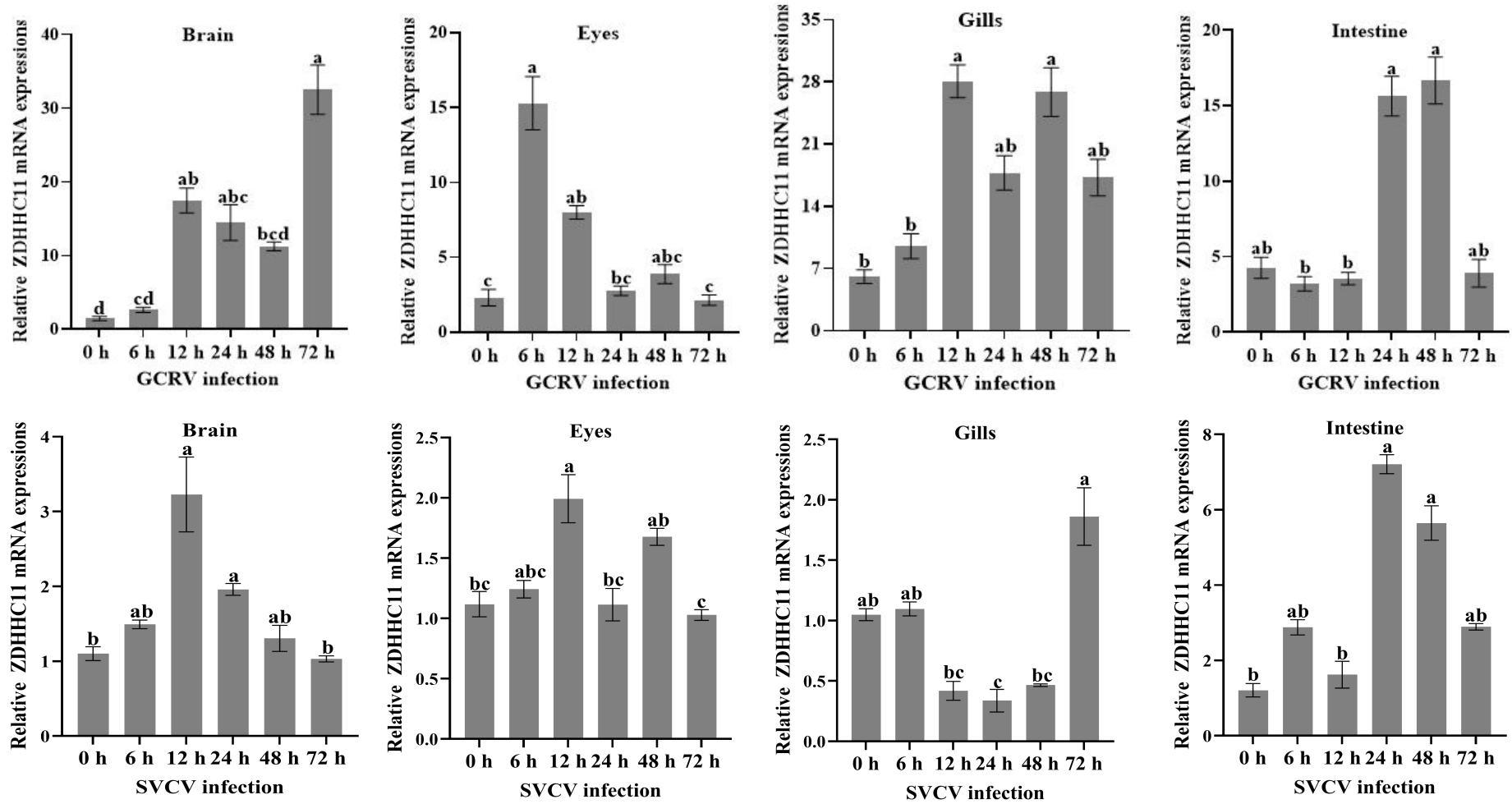


Fig. S1 ZDHHC11 is conserved across fish and mammals.

The phylogenetic tree of ZDHHC11 was constructed using MEGA 11 software, incorporating data from fish, reptiles and mammals.

Fig. S2

A.



B.

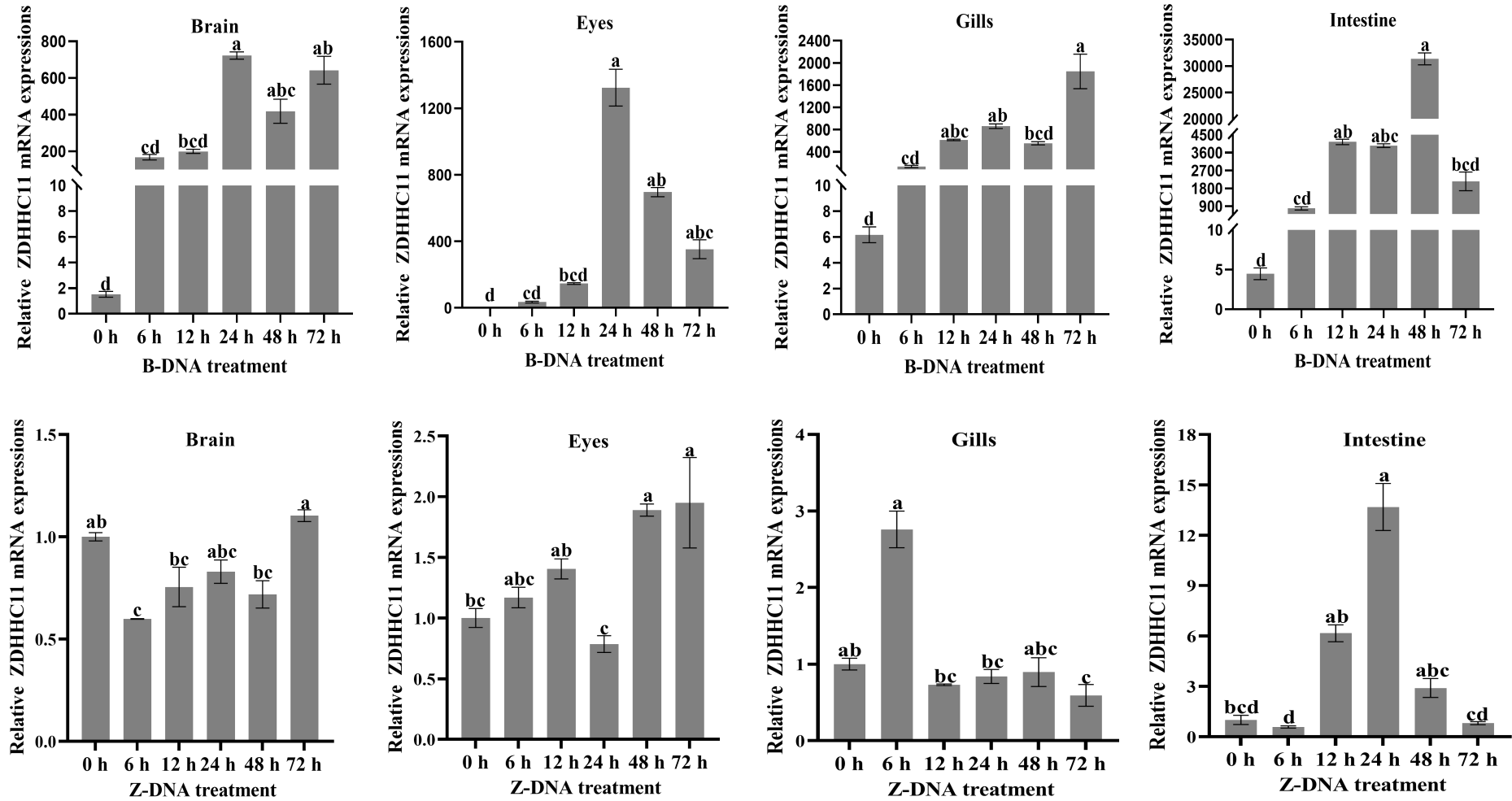


Fig. S2 Zebrafish ZDHHC11 is induced by the stimulation with GCRV, SVCV, B-DNA and Z-DNA

(A and B) Zebrafish were injected intraperitoneally with 100 μ l of either 10^{-7} TCID₅₀ GCRV, 10^{-7} TCID₅₀ SVCV, or 10 μ M B-DNA/Z-DNA. ZDHHC11 mRNA levels were measured at the indicated time points (6, 12, 24, 48 and 72 h) in brain, eyes, gills, intestines, (n=6 zebrafish per group). Statistical analysis was performed using the Kruskal-Wallis test followed by Dunn's multiple comparisons test. Significant differences ($p < 0.05$) are indicated by different letters. Data represent one representative experiment performed with three biological replicates (mean $\pm$ SD) or representative data from at least three independent experiments.

Fig.S3

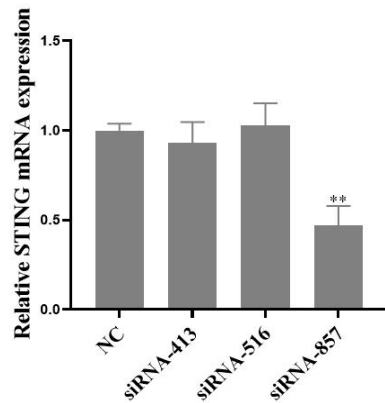


Fig. S3 Validation of STING knockdown efficiency in ZFIN cells

STING interference RNAs were separately transfected into zebrafish cells, and then the RNA was extracted. The knockdown efficiency of STING was verified by qPCR. Statistical significance was determined using Student's t-test ($*p < 0.05$, $**p < 0.01$).

Tabel S1 GenBank ID of the amino acid sequences used in phylogenetic tree.

Species	GeneBank ID
<i>Homo_sapiens</i>	NP_001380421.1
<i>Gorilla_gorilla_gorilla</i>	XP_063556939.1
<i>Pan_troglodytes</i>	XP_063667117.1
<i>Pan_paniscus</i>	XP_063460223.1
<i>Macaca_fascicularis</i>	XP_065402116.1
<i>Rhinopithecus_roxellana</i>	XP_030782944.1
<i>Macaca_thibetana_thibetana</i>	XP_050651169.1
<i>Pongo_pygmaeus</i>	XP_063520694.1
<i>Chlorocebus_sabaeus</i>	XP_072870956.1
<i>Pongo_abelii</i>	XP_054411307.1
<i>Cyprinus_carpio</i>	XP_042632849.1
<i>Ctenopharyngodon_idella</i>	XP_051723977.1
<i>Perca_flavescens</i>	XP_028448905.1
<i>Cynoglossus_semilaevis</i>	XP_008332768.1
<i>Maylandia_zebra</i>	XP_004555400.1
<i>Danio_rerio</i>	XP_690685.1
<i>Garra_rufa</i>	XP_073705989.1
<i>Pagrus_major</i>	XP_073347380.1
<i>Salminus_brasiliensis</i>	XP_072544641.1

<i>Danio_aesculapii</i>	XP_056334520.1
<i>Pelodiscus_sinensis</i>	XP_075777676.1
<i>Trachemys_scripta_elegans</i>	XP_034617318.1
<i>Chrysemys_picta_bellii</i>	XP_008167571.1
<i>Chelonia_mydas</i>	XP_043396293.1
<i>Malaclemys_terrapi_n_pileata</i>	XP_053874586.1
<i>Mauremys_reevesii</i>	XP_039382586.1
<i>Mauremys_mutica</i>	XP_044859783.1
<i>Caretta_caretta</i>	XP_048695341.1
<i>Emys_orbicularis</i>	XP_065256058.1
<i>Natator_depressus</i>	CAM5111326.1

Table S2 Sequences and applications of the primers used in this study.

Primer name	Primer sequence F (5'-3')	Primer sequence R (5'-3')	Application
ZDHHC11-RT	CTCAGGGAATCAGC ACTTAC	CTTCTTCCATCTCAGCA CAG	Real-time PCR
Mxa-RT	TGGAGAAGTTGAGTT ACACG	CTATGACGGCGATGGCA GG	
Mxb-RT	AATGGTGATCCGCTA TCTGC	TCTGGCGGCTCAGTAA GTTT	
Mxc-RT	GAGGCTTCACTTGGC AACTC	TTGTTCCAATAAGGCCA AGC	
IFN-I-RT	GAGCACATGAACTC GGTGAA	TGCGTATCTTGCCACAC ATT	
SVCV-N-RT	TGAGGTGAGTGCTG AGGATG	CCATCAGCAAAGTCCG GTAT	
SVCV-P-RT	TTGGACCTGGGATAG TGA	CTTGCTTGTTTTGTGGG	
β -actin-RT	AGCCATCCTTCTTGG GTATG	GGTGGGGCGATGATCTT GAT	
pcDNA3.1-ZDHHC11	TCGAGCTCAAGCTTC GAATTCTATGACGAA TTTGAAGTGGTTTGG	TTATCTAGATCCGGTGG ATCCTCATGGCATCTTC TGTTTAAAGTGT	Eukaryotic expression vector construction
ZDHHC11-Flag	AAGGATGACGATGA CAAGCTTATGACGAA TTTGAAGTGGTTTGG	ATCAGATCTATCGATGA ATTCTCATGGCATCTTCT GTTTAAAGTGT	
ZDHHC11-GFP	CGGAATTCTATGACG		

	AATTTGAACTGCTTT GG	
ZDHHC11-TM0-GFP	CAGATTTACAGAACA AGATCAACCA	GGGGTACCTCATGGCAT CTTCTGTTTAAAGTGTA
ZDHHC11-TM1-GFP	CCGGTGGAGATCTCA GAAATCTG	
ZDHHC11-TM2-GFP	GGTGGCGTTTCCTTT TCTCA	
ZDHHC11-TM3-GFP	GACTCTGACAGCTTC AGGGAGAGA	
ZDHHC11-TM4-GFP	CTAATAATCAGTAGT CTCCACTGGTTCA	
pcDNA3.1-STING	CGGAATTCATGTGTG GTGTGATCGGAG	CGGCGGCCGCTCTATAA AATAATGACTGAAAAA CCAAGAA
STING-Flag	AAAGACGATGACGA CAAGCTTATGTCTGT GATGGGAGAAGACG C	ACTGGTACCGATATCAG ATCTTTAGTTTGTTC TTGCGCTAGAT
STING-GFP	TCGAGCTCAAGCTTC GAATTCCTATGTCTG TGATGGGAGAAGAC GC	
STING-TM0-GFP	TCGAGCTCAAGCTTC GAATTCCTTTTAGAG GTGAACGTCAGAGA	TTATCTAGATCCGGTGG ATCCTTAGTTTGTTC TTGCGCTAGAT

	ATACTC	
STING-TM1-GFP	TCGAGCTCAAGCTTC	
	GAATTCCTTCCAGTC	
	GAGATTTCGGAAATA	
	TG	
STING-TM2-GFP	TCGAGCTCAAGCTTC	
	GAATTCCTTGGAGTT	
	TCCTTTTCCGTGGA	
STING-TM3-GFP	TCGAGCTCAAGCTTC	
	GAATTCCTGACTCAG	
	ACAAGTTCAGTGAA	
	AGAGC	
IRF3-Flag	AAGGATGACGATGA	ATCAGATCTATCGATGA
	CAAGCTTATGACTCA	ATTCTTAGCAGAGCTCC
	AGCAAAACCGCTG	ATCATTTGCT
IRF3-GFP	TACAAGTCCGGA	CGACTGCAGAATTCGA
	CTCAGATCTATGACTCAA	AGCTTTTAGCAGAGCTC
	GCAAAACCGCTG	CATCATTTGCT
pcDNA3.1-IRF3	CTAGCGTTTAAACTT	AGTGGATCCGAGCTCG
	AAGCTTATGACTCAA	GTACCTTAGCAGAGCTC
	GCAAAACCGCTG	CATCATTTGCT
pcDNA3.1-TBK1	CTTGGTACCGAGCTC	TGCTGGATATCTGCAGA
	GGATCCATGCAGAGT	ATTCTCACATCCGCTCC
	ACGGCCAATTACC	ACTGTCC
TBK1-GFP	AATTCTGCAGTCGAC	TTATCTAGATCCGGTGG
	GGTACCATGCAGAGT	ATCCTCACATCCGCTCC

pcDNA3.1-IRF7	ACGGCCAATTACC	ACTGTCC	
	TAGTCCAGTGTGGTG	AACGGGCCCTCTAGAC	
	GAATTCATGCAGAGC	TCGAGTTATTCCACTGA	
IRF7-GFP	ACAAATGCCAAA	AGGCAGACCC	
	AGTCCGGACTCAGAT	GTACCGTCGACTGCAG	
	CTCGAGATGCAGAG	AATTCTTATTCCACTGA	
DHHC11-GFP	CACAAATGCCAAA	AGGCAGACCC	
	CATCCACATGAAACG	GTCGTTTCATGTGGATG	
	ACAGTCACCGAATCC	TTTGCTGTTGTCTGAAT	
NC	CAA		
siRNA-173	UUCUCCGAACGUGUCACGUTT	Negative Control	
siRNA-502	GGCCUUUGGCAUUUACGUUTT	siRNA-ZDHHC11	
siRNA-833	GGAAGAAACUACUGGUUCUTT		
siRNA-833	GGAAACGACAGUACCGAATT		
siRNA-413	CAGUCGAGAUUUCGGAAAUTT	siRNA-STING	
siRNA-516	AGAGGUGAACGUCAGAGAATT		
siRNA-857	UCAGCCAAAUUCUGGACAATT		
STD-Mo	CCTCTTACCTCAGTTACAATTTATA	Konckdown	
ZDHHC11-Mo	ATTCGTCATTGAACGGTTTCCAGCA		
(TA) ₁₀	CTGATACTACATTGAATTCTATATATATATATATATA	B-DNA	
	TAGAATTCAATGTAGTATCAGA		
(GC) ₁₀	CTGATACTACATTGAATTCGCGCGCGCGCGCGCG	Z-DNA	
	CGCGCGAATTCAATGTAGTATCAGA		

Table S3 The information of antibodies used in this study

Antibody name	product number	Manufacturers (country)
GAPDH	ET1601-4	HUABio (China)
IRF7	AF2140	Beyotime (China)
ZDHHHC11	Bs-18472P	Bioss (China)
TBK1	DF7026	Affinity Biosciences (USA)
p-TBK1	AF8190	
GFP	M20004L	Abmart (China)
Flag	F1804	Sigma (USA)
IRF3	AF5210	Beyotime (China)
p-IRF3	AF1594	Beyotime (China)
p-Ser/Thy/Tyr	AB_2533941	Thermo Fisher (USA)