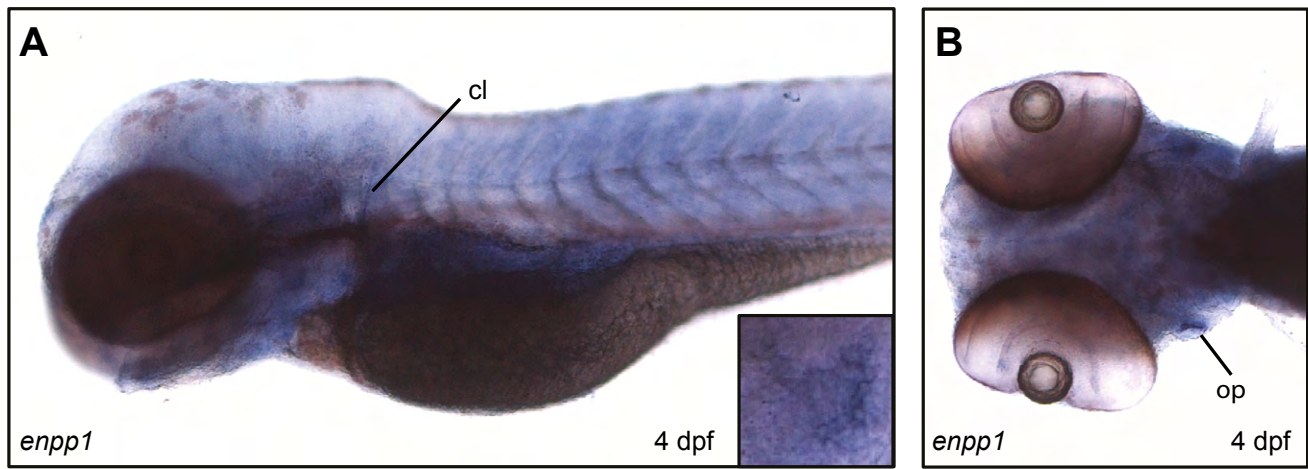
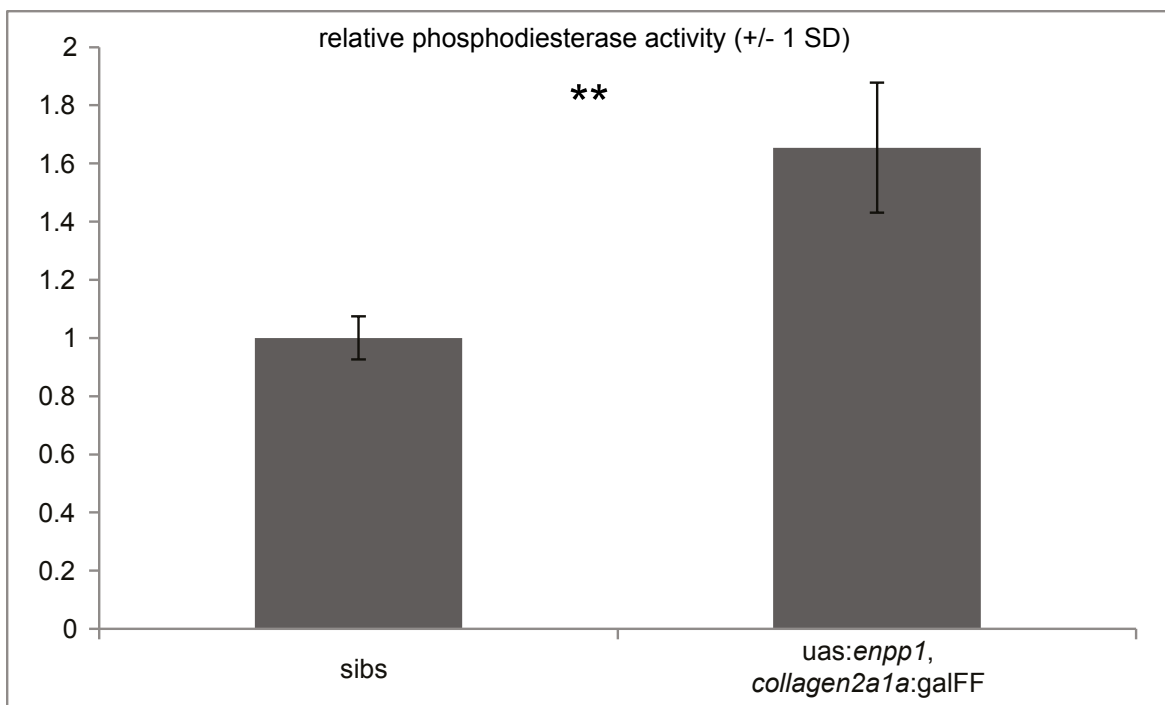


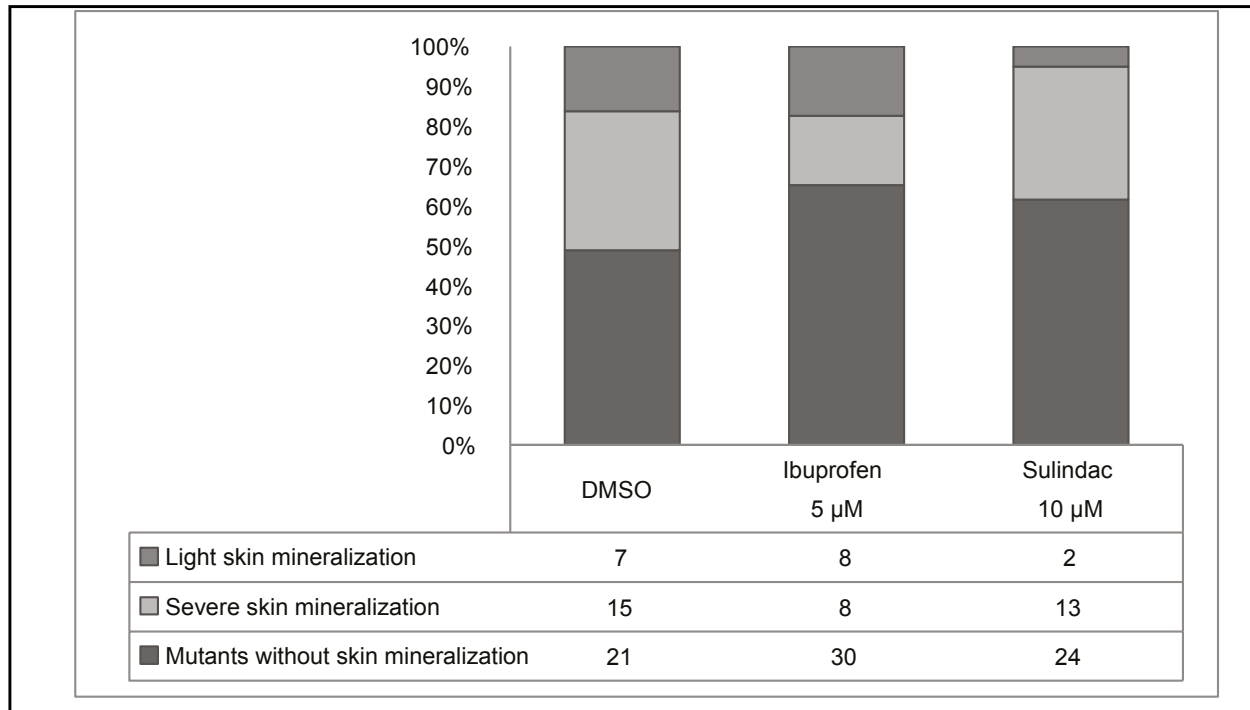
**Supplemental Fig. 1.** Van kossa/van Gieson staining shows segmented mineralization of the notochord sheath in siblings (A), in *dgf* mutants show ectopic calcification of the intervertebral spaces (B). Transverse section through the neuraltube of sibling (C) and mutant with ectopic calcification (D). Alizarin red/Alcian blue stained cleithrum and pectoral fin cartilage of siblings (E) and *dgf* mutant (F) showing ectopic calcification. Overview of Alizarin red/Alcian blue stained sibling (G) and mutant (H). The black arrowheads indicate cranial calcifications, the red arrowheads point at mineralizations of the skin surrounding the yolk sac and heart (H). *dgf* mutants can reach adulthood in rare cases but remain smaller (I). Transverse section of alizarin stained juvenile embryos at the bulbus arteriosus (b. a.), no mineralization is visible in sibling (J), circumferential calcification in the *dgf* mutant (K).



**Supplemental Fig. 2.** Lateral (A) and ventral (B) view of in-situ hybridisation showing the expression pattern of *enpp1* at 4 dpf. Note: expression in bone elements such as cleithrum (cl) (A) and the opercle (op) (B, box in A).



**Supplemental Fig. 3.** Phosphodiesterase activity is elevated in *uas:enpp1, collagen2a1a:galFF* embryos.



**Supplemental Fig. 4. Quantification of skin mineralizations in *dgf* mutants upon treatment with inflammatory inhibitors.** Numbers summarize 4 biological replicates. No significance difference between the groups could be detected using a 3x3 Chi-squared test at  $\alpha=0,05$ .

**Supplementary table 1.** Primers used in *in situ* hybridization and qPCR analyses

Gene	Forward (3'-5')	Reverse (3'-5')
<i>entpd5</i> (qPCR)	ATATGCCTGAAAAGGGTGGGA	TACTTCTTTGACCTCATT CAGCAG
<i>fgf23</i> (qPCR)	CGGGGCTCATA CAGTGTAA TC	TCCAACAGTTTGTGGTGGAA
<i>spp1</i> (qPCR)	TGTGAAGCGCTCAGCAAG	CATCTGCCTCCTCAGTGTCA
<i>npt2a</i> (qPCR)	CAACACAGATTTCCCGTATCC	GCGGGCAGCTTCTCTTTG
<i>ef1a</i> (qPCR)	CTTCTCAGGCTGACTGTGC	CCGCTAGCATTACCCTCC
<i>phex</i> (qPCR)	CCGTCATCACGGTATCACAA	TCTGAGCCATGGGTAAATCC
<i>phospho1</i> (qPCR)	TGAAAACAGGAGCAGCTGTAAA	GGGCTGGAGATCTGCTT
<i>spp1</i> (ish)	GGACCAGGCAGCTACAGAAG	CACTGCCGTCTGTCTGCTAA
<i>enpp1-1</i> (ish)	AAGAAGCGGCACTTTTAGCA	ACCAGAAGGGGCAGAAAAAC
<i>enpp1-2</i> (ish)	ACCTACTGGGCACAGGACAG	CACAGTCCTCTTGAAGCCAAC

qPCR, quantitative PCR; ish, in situ hybridization.