

#### CRISPR gRNA oligos

zebrafish *gli3*\_gRNA\_exon5\_F

5'- AATTAATACGACTCACTATAGG**TTACTGGATGATGAAAAGC**GTTTTAGAGCTAGAAATAGC -3'

zebrafish *gli2b*\_gRNA\_F

5'- AATTAATACGACTCACTATAG**TTCCGATGGCCGGCCATC**GTTTTAGAGCTAGAAATAGC -3'

common\_gRNA\_R

5'- AAAAGCACCGACTCGGTGCCACTTTTTCAAGTTGATAACGGACTAGCCTTATT TTAAC  
TGCTATTTCTAGCTCTAAAAC -3'

#### T7 assay PCR primers

zebrafish *gli3*\_exon5\_cont\_F

5'- TGTCTTTCTGTCAGGTTGTAAAAA -3'

zebrafish *gli3*\_exon5\_cont\_R

5'- CTCCTTTACCCGTCGGTTTT -3'

PCR product: 527 bp

zebrafish *gli2b*\_cont\_F

5'- CAACAACAAAATAATTCAAGCACT-3'

zebrafish *gli2b*\_cont\_R

5'- CTGCCTGCCTGTTTAAAGACT-3'

PCR product: 804 bp

#### Genotyping primers

zebrafish *gli3*\_exon5\_genotyping\_F

5'- CTGCAGAAACCATGGACAAA -3'

zebrafish *gli3*\_exon5\_genotyping\_R

5'- CCTTCAATGGGGACAGACTC -3'

PCR product: 112 bp

zebrafish *gli2b*\_genotyping\_F

5'- GACCGCAACGGATCAATTA-3'

zebrafish *gli2b*\_genotyping\_R

5'- GTGAAGCTTCTGGCCAGTGT-3'

PCR product: 932 bp

#### Gene and enhancer cloning primers

Elephantshark\_*CNE14*\_F

5'-GCTTACGACACCTACCAATG -3'

Elephantshark\_*CNE14*\_R

5'- CACCATCTCCGGAACACTACAC -3'

Zebrafish *acvr1*\_F

5'--3'

Zebrafish *acvr1*\_R

5'- TCACGTCTTCCTGCA -3'

Skate\_*acvr1*\_F

5'-TGCTGGAAGAGCACATTTTG -3'

Skate *acvr1*\_R

5'- ATGGGCCACTACTGTCCTTG-3'