



Supplementary Fig. 1. Molecular characterization of *Non3* mutations.

Primers Ins-non3-F2 and Ins-non3-R, which were used for PCR amplification of the DNA fragments, are shown in purple. The 8 bp of chromosomal DNA duplicated at the insertion sites of the P{EP} transposons are shown in green. The sequences of the 3' and 5' P-element ends are shown in red; in the case of *Non3*^{G4706}, dots indicate the internal sequence of the P{EP} transposon that was not analyzed. Coding sequences are shown in bold capital letters. Translation of the aberrant proteins most probably starts from the ATG codons located at the 5' P-element ends; the extra coding sequence is underlined. All introns are shown in grey.

ttcaacgtcttgagctctgggtgcttcttaaggctgcccgaagaacgataggaactacctataaagacgcaatagtgactccctaa **gtcaactt**aaagccttagcttaccagagtttggacaatagc
tggcattcagcggctcttccatcgg **tatctcgactg**ccggtgcttggcagtttggcttgagatcctcttactgctgaccggttcgaactggccattcc **gcgcg**ccagctgtccaaggctccgggcccagc
aattgccttgattctggccgtt **acgcagc**ataattataacattcccgcagattattacaacggcaagaa acgtaactgttaccggggtgaatgacaactgttgagctagtg **gtggg**gacacatat
acaatggg **aaaaaaaa**ataataataat **tata**ataataattatattatattatatttcaatatttcttaattattttgtcaatg **gttgag**ttgcaaaaaggcttgagtggtgcagaaaatgtattcctcctgat
cttggtgtaggtaatacaactatcgatacggcggcaaatcaatttcacgatacgaCGA **AA**GTGTTTTCACATCCCTAACCCCG **AA**AGCGTTCTTACACGTGCGCGTGAATTCTAGT
TTATTT **ACTCG**GTTTTTATTTCAAACATTTAAAT **ATGTCGCTTTTACGCATCAG**gtaagcattggagatg **agcc**catgaaatgcaaatgaaatcaaaccaactgcgcttcag **G**
AAACCAAAAACCCGCAAGGGAAAGAAGGTGTTGCTGGCCAGGGAGCCGCAACTCATTGAATCCGCCGCACAATGCTGTTTTGGACGGAAGGAAGTGC
GGCGGCAATGTGAAGCTGTGCATGAAGGACCTGCAGGCGCTGAAGAAGCCGCTGTTAAAGTGCTGAACCGCAAAAACGACATTACCCCTTTGACGAC
CCCTCATCTCTGGAGTTgtaagtttggacaaagcaacaactaaaatgtagtgatttaattgtaaacatcatcgaatcaccag **CTTGACCATGAAGAACGATGCTGCTTTGTTAC**
ATTGGTTCCACGTCCAAGAAGCGACCCGATAACATTATACTGGGAGGATCTTCGAGAACGAGGTGCTGGACATGTTTGAAGTGGGCATCAAGCGGTAT
CAGGCGATTTCCGAGTTTAAGAACGAGAAAATCGGAGCCTGCGTCAAGCCCTGCTGGTGTTCATGGTCCGAAATGGGCACAGACCCGAGGAACTGAGG
CGCCTTCGAACCTGTTCATCGACACCTCCAGCGCGAGAAGGTGGATTGATTGGTGCAGGGCATCGAACAGTTCTGAGTTTACGGTTACCGATGA
CATGAACATACTGATGCGTTCACCGATACTGCTGAAGAAATCTGGCCAGAGGACGCCGCGCATAGAGCTTGAAGAGATCGGACCCCTCGGCCACTTC
TCCATTGCGCCGACCAAGATCGCCAGCGA **A**GATCTGTACAACAGGCACGCAAACAGCCCAAGCAGTTGAAGGTGGGCAAGAAGAAGAACATTAGCACA
GACGCCCTGGGCAACCAAGGACGTGTCCATCTGGGCAAGCAGCAAACGGGCTCCATTCAAACGCGTTCGCTCAAGGCGTCTGTAAGACGCCGGAG
GAGAAGAAGGAGAACCGACAGCGCAAGAAGGTTGCA **CTGA**AGGCGGCCGCCGAAGCACTGGCCTCACAAGGAAACAATCCCTTCTAGTTAAATTT
TAGTTGAATAAATTGGTCTGATTAATTagctttaacaagtgtatgattctggagtcgtatcagtgattcctcgcacaatattgcaatgcccgcgctcttgactggccaacgcgtctcc
agcgtttgatcatgtgcaccagactgcagacatccgtctgcac **ag**caaatccttcgatgcagccgctcctcctcctgatggccttcagctcctgttcgctgcgcccggaga **ct**ccaccgcccagcagctct
cggtttcatcttcggttcggtg **tg**cagatatagcttcacatgaccaccactgacactgatccagcaggctccgacgagcgggtgcacactccagtcgccagttccaggttgaccagccgataggcagctat
gttgccgacttgattgagccctccaaaagttcgtttgctggtgacgaactgctcgagaactctatcacatcgctcggagttcggggaatgtctgg **cg**cagtatggcctccatgtcgacggaactgctccc
cactcgggtggtcacgctgatgagcagggatatcagcgc

Supplementary Fig. 2. The *Non3* genomic rescue fragment.

Exon and intron sequences of the *Non3* gene are shown in uppercase and grey lowercase letters, respectively. The *Non3* coding sequence is shown in bold red letters. Nucleotide variations relative to the reference *Drosophila melanogaster* genome (Release 6; Hoskins et al., 2015) are highlighted in yellow.