

SUPPORTING INFORMATION

Enamel and dental anomalies in latent transforming growth factor-beta binding protein 3 (*LTBP3*) mutant mice

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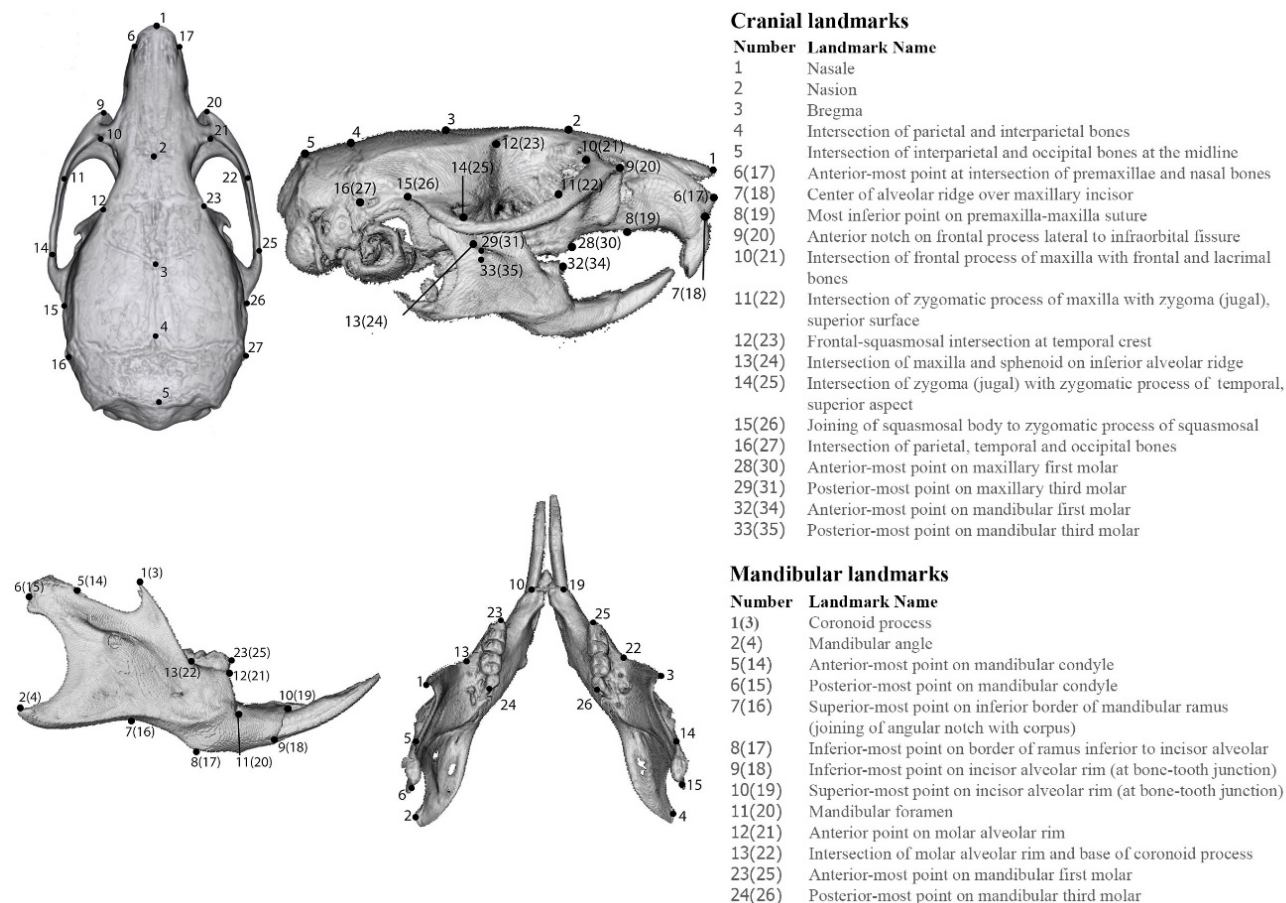


Figure S1. Anatomical landmarks used for morphometric analysis. Thirty-five points have been chosen to characterize the dimensions and the shape of the head. Twenty-six points have been chosen to characterize the mandible. For bilateral landmarks the right-side points are given in parentheses.

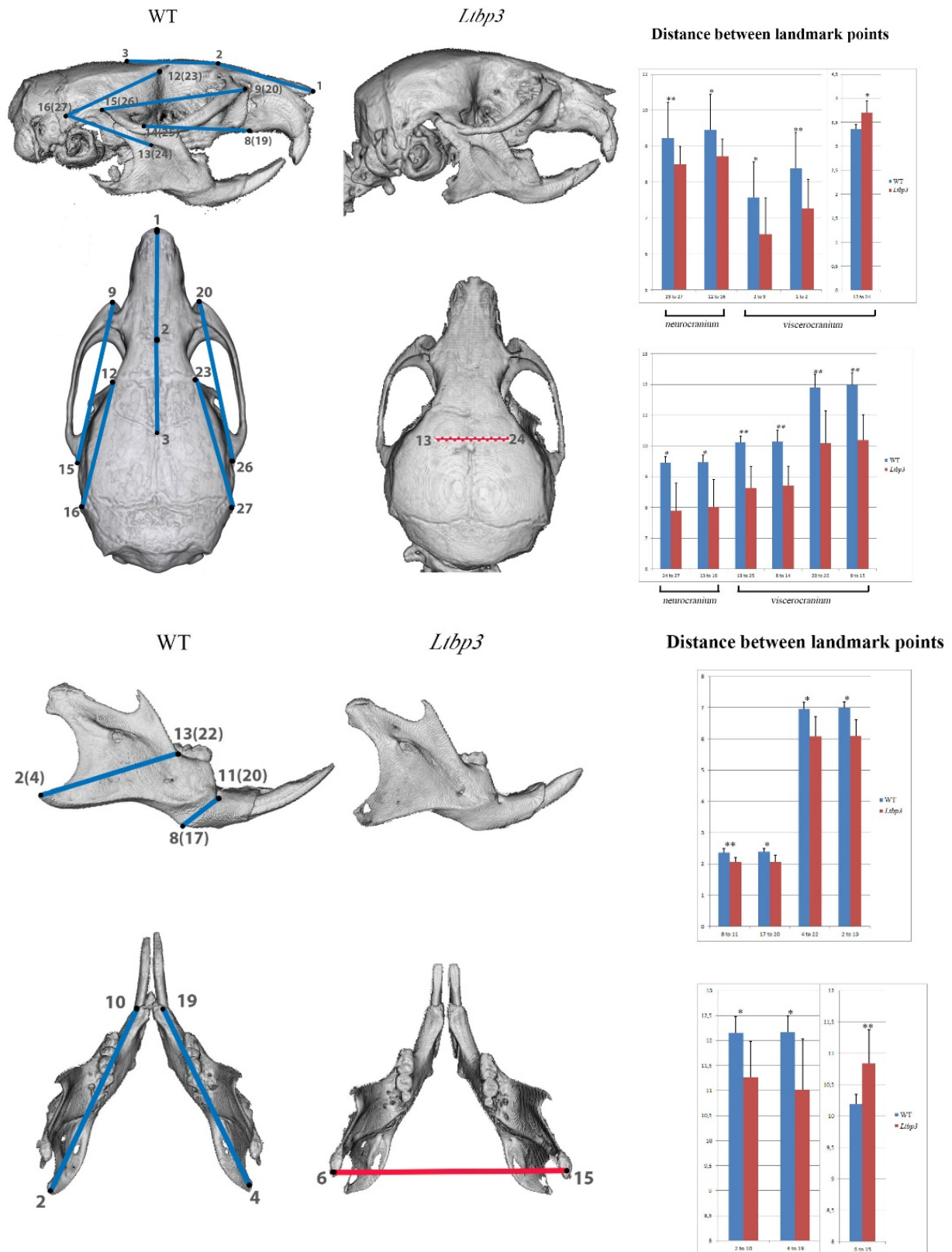


Figure S2. Form difference matrix analysis of skulls and mandibles. *WT* mice are shown in blue compared with *Ltbp3*^{-/-} mice shown in red. Neurocranium and viscerocranium (lengthwise measurements) are shorter in *Ltbp3*^{-/-} mutants. Crosswise measurements, for example taken at the mandibular condyle (between points 6 and 15) show *Ltbp3*^{-/-} mice are

wider. The bar graph shows the re-calculated length distances of the significant differences between each landmark points. * $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$.

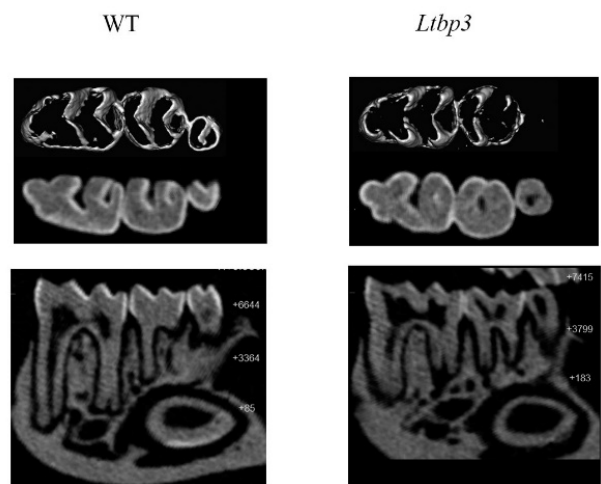
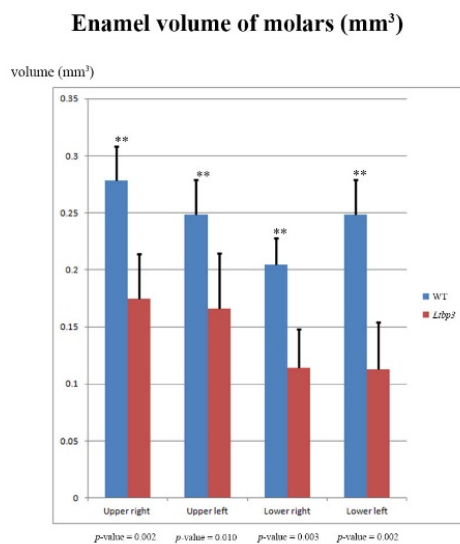
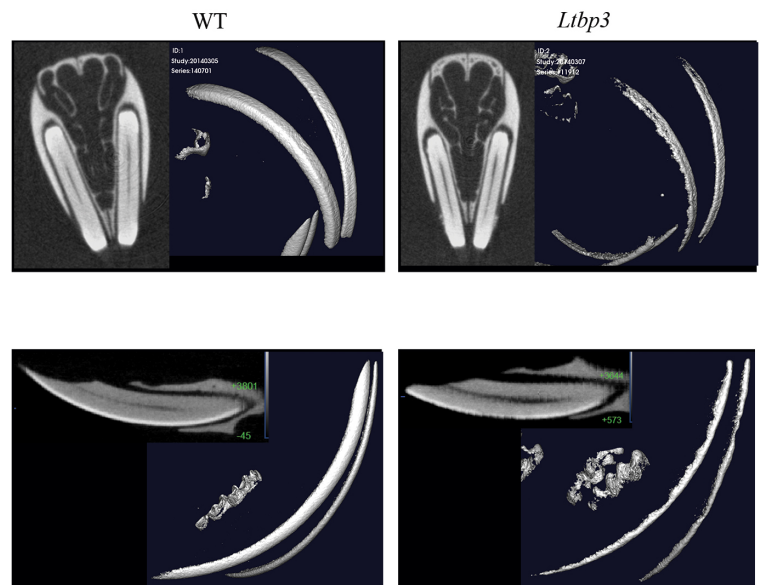
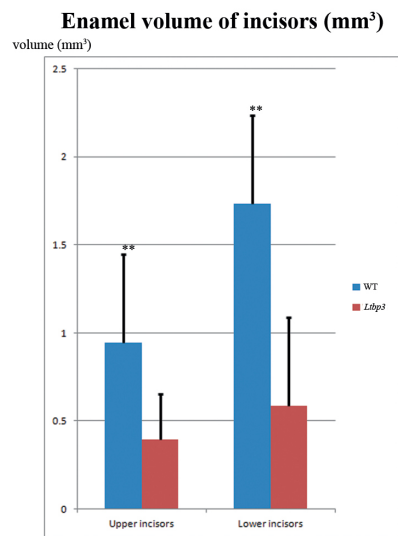


Figure S3. Bar graph of mean enamel volume of *WT* vs. *Ltbp3*^{-/-} mutants. Incisors are shown in upper graphs and molars are shown in lower graphs. The 2D and 3D images of upper and lower incisors showing enamel defects are shown in respective panels. Mutant samples are shown on the far right side. The 2D and 3D images of molars show the overall extent of *Ltbp3*^{-/-} mutant enamel defects. The enamel deficiency is most severe in M3 of the mutant.

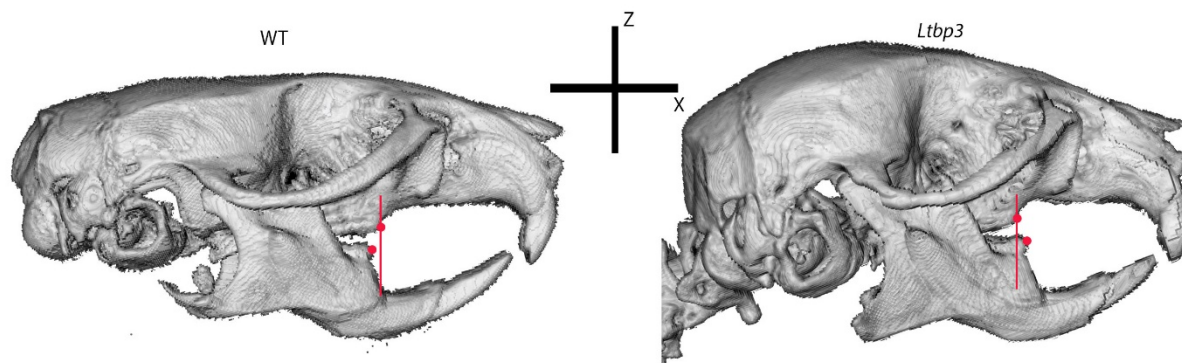


Figure S4. Molar relationship classification: the wild-type mice have molar class I occlusions (a normal occlusion), but *Ltbp3* $-/-$ mutants have a class III molar bite (otherwise known as an anterior bite).