

## **Supplemental Material:**

**Table-S1:** Description of the different craniofacial landmarks used in the cephalometric analysis of micro-CT scans of WT and *Mgp*<sup>-/-</sup> mice (Figure 2A and B) (49).

<b>Measurement</b>	<b>From</b>	<b>To</b>
<b>Craniofacial</b>		
<b>Cranial length</b>	Internasal	Occipital
<b>Skull height</b>	Tympanic point	Parietal points
<b>Inter-nasal distance</b>	Right nasal lateral point	Left nasal lateral point
<b>Inter-orbitary length</b>	Right infra-orbital point	Left infra-orbital point
<b>Inter-zygomatic distance</b>	Right zygomatic	Left zygomatic
<b>Bi-temporal distance</b>	Right jugal process	Left jugal process
<b>Maxillary</b>		
<b>Maxillary length</b>	Intersection of sutura coronalis and sagittalis	Nasomaxillary
<b>Palatine length</b>	Posterior nasal spine (PNS)	Inter dental point
<b>Anterior cranial height</b>	Nasomaxillary point	Prosthion
<b>Upper incisor height</b>	Upper incisor-alveolar bone	Superior incisor point
<b>Inter-molar maxillary distance</b>	Right 1 <sup>st</sup> molar	Left 1 <sup>st</sup> molar
<b>Mandibular</b>		
<b>Effective mandible length</b>	Lower incisor-alveolar bone	Condilion
<b>Mandible plain</b>	Lower incisor-alveolar bone	Gonion
<b>Mandible axis</b>	Antegonium	Menton
<b>Inferior incisor height</b>	Lower incisor-alveolar bone	Lower edge
<b>Anterior mandible height</b>	Menton	Mandibular alveolar
<b>Ascending ramus length</b>	Antegonium notch	condilion
<b>Posterior mandible height</b>	Gonion	Condilion
<b>Inter-molar mandible distance</b>	Right 1 <sup>st</sup> molar	Left 1 <sup>st</sup> molar

**Table-S2:** Description of the different craniofacial landmarks used in the 2D viscerocranium and basicranium analysis of WT and *Mgp*<sup>-/-</sup> mice (Figure 6) (28).

<b>Landmarks</b>	<b>Anatomic description</b>
<b>1</b>	Most anterior point of nasal bones
<b>2</b>	Most anterior point of the presphenoid
<b>3</b>	Most anterior margin of the ISS
<b>4</b>	Most anterior margin of the SOS
<b>5</b>	Most anterior point of the foramen magnum
<b>6</b>	Most posterior point of the occipital bone

<b>Linear Measurements</b>	<b>From-to</b>
Viscerocranium	1-2
Presphenoid	2-3
Basisphenoid	3-4
Basioccipital	4-5
Posterior cranial high	5-6
Total basicranial length	2-3-4-5
Total skull length	1-2-3-4-5-6