Dataset

# 3D models related to the publication: Prenatal growth stages show the development of the ruminant bony labyrinth and petrosal bone.

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**Abstract**

The present 3D dataset contains the 3D models analyzed in Costeur L., Mennecart B., Müller B., Schulz G., 2016. Prenatal growth stages show the development of the ruminant bony labyrinth and petrosal bone. Journal of Anatomy. https://doi.org/10.1111/joa.12549

**Keywords:** bony labyrinth, foetus, ossification timing, phylogeny, Ruminantia

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| Model IDs | Taxon | Description |
|---|---|---|
| M3#124_NMB3038 | *Bos taurus* | Right bony labyrinth (gestational age: 115 days) |
| M3#125_NMB3367 | *Bos taurus* | Right bony labyrinth (gestational age : 165 days) |
| M3#126_NMB3365 | *Bos taurus* | Right bony labyrinth (gestational age : 210 days) |
| M3#127_NMB2855 | *Bos taurus* | Right bony labyrinth (gestational age : 260 days) |
| M3#128_NMB1037 | *Bos taurus* | Left bony labyrinth (adult) |

**Table 1.** List of models

## INTRODUCTION

We present 3D reconstructions of the bony labyrinth of four fetal stages of the cow (Artiodactyla, Ruminantia, Bovidae, *Bos taurus*) and compare them to that of the adult (see Fig. 1 and Table 1). We show the timing of ossification of the bony labyrinth and show that ossification occurs early during the gestation. Full ossification is achieved at least at the beginning of the 6th gestational month. The bony labyrinth takes its final adult morphology at mid-gestation, much like what has been shown in humans in previous studies. This is the first time a non-human placental mammal fetal growth series of the petrosal bone and bony labyrinth is described.

## METHODS

The 3D surfaces were extracted semi-automatically within AVIZO 7.1 (FEI) using the segmentation threshold selection tool. All 3D surface models are provided in .ply format, and can therefore be opened with a wide range of freeware. Furthermore, each surface was orientated, tagged and labelled. All tagged surfaces are provided in .vtk format, and labels in .flg format.

## ACKNOWLEDGEMENTS

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## BIBLIOGRAPHY

Costeur L., Mennecart B., Müller B., Schulz G., 2016. Prenatal growth stages show the development of the ruminant bony labyrinth and petrosal bone. Journal of Anatomy. https://doi.org/10.1111/joa.12549

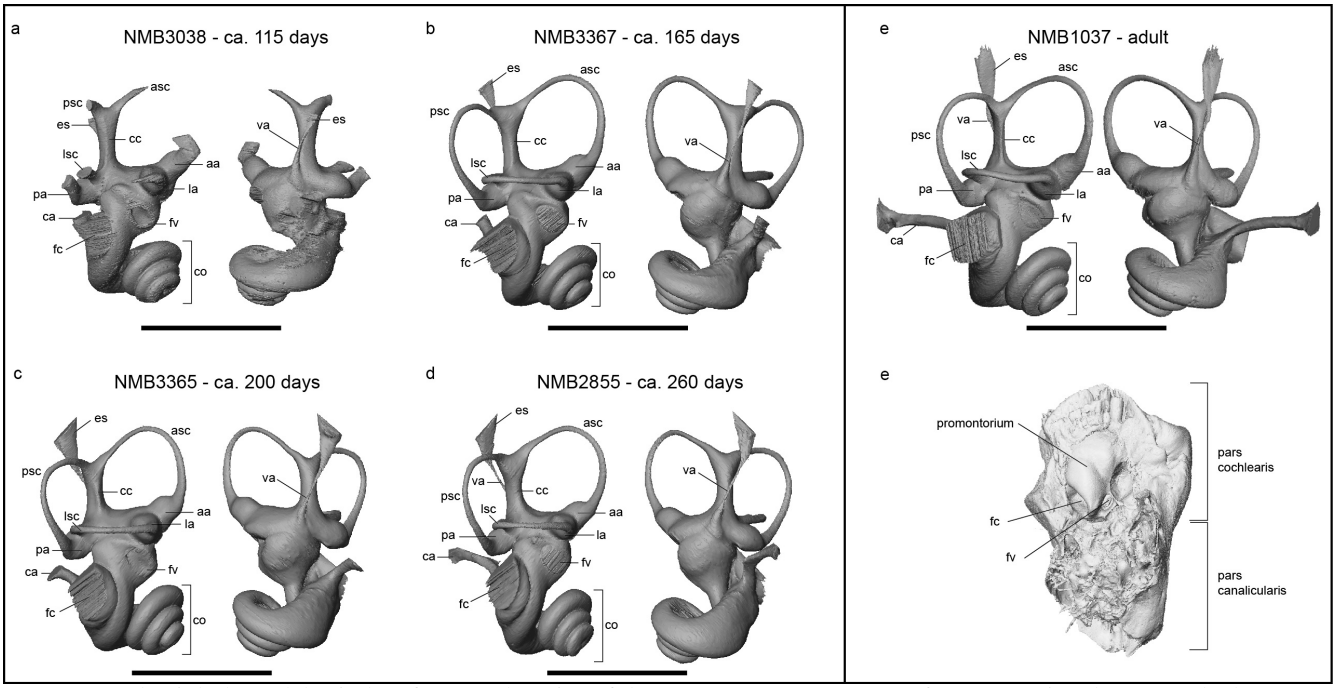


**Figure 1.** a-d, Right bony labyrinths of a growth series of the cow *Bos taurus*. Ages refer to gestational ages. e, the bony labyrinth of the adult cow as a comparison. f, ventral view of the petrosal bone NMB1037 from which the adult bony labyrinth was extracted. Scale bars: 1 cm. adapted from Costeur et al., 2016.


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