

## In vivo Three Dimensional Canine Hippocampal Anatomy Using the MPRAGE at 7T MRI

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**Purpose:** Two-dimensional MRI data of the canine brain were compiled into three-dimensional model to illustrate three dimensional canine hippocampal anatomy and to evaluate its relationship with surrounding brain structures.

**Material and Methods:** Three normal beagle dogs were scanned on an MR scanner. The sequences included inversion recovery segmented 3D gradient echo sequence (known as MP-RAGE: Magnetization Prepared Rapid Gradient Echo). The MRI data were manually segmented by anatomic tracers and reconstructed in three dimensional model using software tool (3D slicer). From the three-dimensional model, the spatial relations between hippocampus and surrounding structures were evaluated.

**Result:** With the increased spatial resolution and contrast of the 7T MRI, the macroscopic hippocampal structure of the canine brain was easily depicted. The surrounding structures were also clearly delineated, which enabled reconstruction of three-dimensional model. The hippocampus was located from the splenium of the corpus callosum dorsally and to the amygdaloid body in the piriform lobe ventrally showing "C" shaped contour.

**Conclusion:** The three-dimensional canine hippocampal anatomy may serve as better understating of the internal structures of the canine brain. This model will allow quantitative analysis of the hippocampal areas for canine neurodegenerative diseases.

**Key words:** hippocampus, 3D models, MPRAGE, 7T-MRI, dog

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