

**Preliminary Study on Multiple Rat Brain Imaging
at 3T Whole Body MRI System**

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목적 :

Instead of trying to reduce the imaging time for each rat by further increasing the sensitivity of MRI, We propose a multiple animal coil for simultaneous imaging of a large number of rat brain.

대상 및 방법 :

We suggested the optimal structure of the high-field RF coil and test several kinds of surface coils for multiple imaging. However, the proximity of multiple RF coils and separate receivers inevitably lead to complicated couplings and image artifacts, because it was based on the use of separate electrically isolated RF coils and separate receivers. So we choose a design based on a coaxial cavity structure using single channel.

결과 :

The magnetic flux of multiple animal coil is preserved within the cavity and mutually shared among different paired of parallel plates. The SNR of the single coil loaded with the single 0.1mM CuSO₄ phantom is only ~ 6% higher than that of the multiple coil (teragonal) loaded with four phantom. With an easy tuning and matching, one can quickly see four rat brains at the same time.

결론 :

With the proposed coil design we can reduce imaging time for a large number of rat brain images. We expect that it contributes animal experiment with good SNR and resolution.