[ポスター発表]　　11月21日（水）16：00－18：00

P01　Kang Cheng[1]、R. Allen Waggoner[1]、田中啓治[1,2]（1 CREST・JST、2 理研脳センター認知機能表現研究チーム）

ヒト第一次視覚野眼優位性コラムの機能的磁気共鳴イメージング（Functional MRI of ocular dominance columns from the human primary visual cortex）

We mapped ocular dominance columns (ODCs) in normal human subjects using high-field (4T) functional magnetic resonance imaging (fMRI) with a segmented echo planar imaging technique and an in-plane resolution of 0.47x0.47 mm^2. The differential responses to left- or right-eye stimulation could be reliably resolved in anatomically well-defined sections of V1. The orientation and width (about 1 mm) of mapped ODC stripes conformed to those previously revealed in postmortem brains stained with cytochrome oxidase. In addition, we showed that mapped ODC patterns could be largely reproduced in different experiments conducted within the same experimental session or over different sessions.

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第一次視覚野、MT 野および第一次運動野における機能的磁気共鳴イメージング BOLD 信号時間経過の比較研究（A comparison study of the fMRI BOLD response in V1, MT and M1）

To gain a more thorough understanding of the subtle features in the BOLD response we have examined responses in, V1, MT (middle temporal area), and M1 (primary motor cortex) with several kinds of stimuli (flickering checkerboard, moving dots, and finger tapping). The resulting time courses have been examined by power spectral analysis, curve fitting, and by direct comparison.

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皮質表面マッピング法を用いたヒト後頭葉機能の 4 テスラ機能的磁気共鳴イメージング研究（Cortical surface-based analysis of human brain function in occipital lobe : a 4 Tesla fMRI study）

It is very important to identify the spatial localization and retinotopy of visual areas when studying about the individual functions of the areas. Early visual areas can be mapped in vivo on the basis of fMRI retinotopy. In this study, functional scans were performed by using a 4T MRI system. It is expected that with a high magnetic field MRI system the S/N ratio will be higher and the resultant retinotopic maps more accurate. The fMRI signal was analyzed and the results were visualized on the cortical sheets.

P04　Farshad Moradi[1]、Lichan C. Liu[1]、K. Cheng[3]、R. Allen Waggoner[3]、田中啓治[2,3]、Andreas A. Ioannides[1]（1 理研脳センター脳機能ダイナミクス研究チーム、2 認知機能表現研究チーム、3 CREST・JST）

脳磁計測と機能的磁気共鳴イメージングを用いたヒト第一次視覚野の小領域視覚刺激に対する活動の局在測定（Localization of brain activity in human primary visual cortex to small visual stimuli by MEG and fMRI）

fMRI and MEG offer respectively precise spatial localization and very high temporal resolution of functional activity. However the spatial localization of MEG has been less certain due to the ill-posed non-uniqueness. This work investigates the spatial localization capability of MEG by comparing fMRI and MEG recordings using the same subjects and small visual stimuli provided to the visual field corresponding to a flat part of the primary visual cortex. Both dipole analysis and magnetic field tomography (MFT) were applied to the MEG data. The results show high spatiotemporal resolution using MEG.