

accelerated functional planning

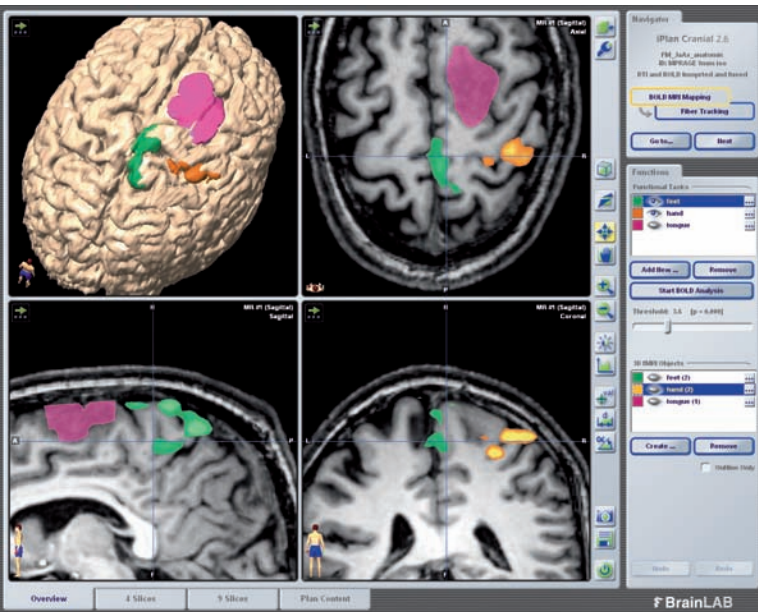
iPlan® BOLD MRI Mapping

New software that makes functional planning easier and faster

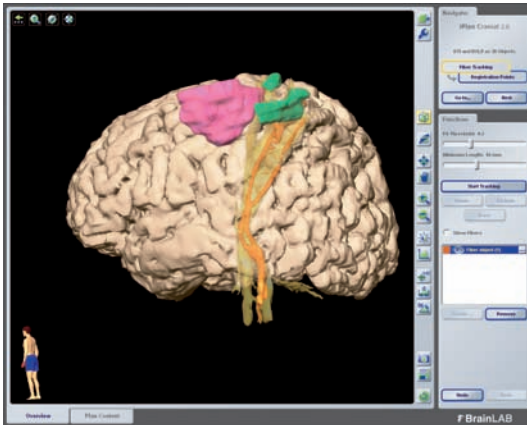
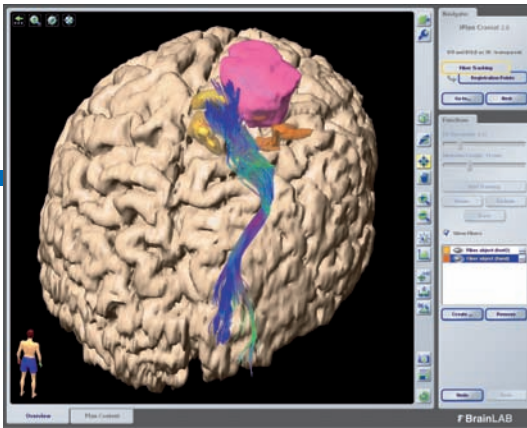
BrainLAB provides a significant leap in neurosurgical planning with the integration of BOLD MRI (Blood Oxygen Level Dependent functional MRI) data directly into the OR and image-guided surgery. This iPlan module allows anatomical images to be enhanced with functional maps showing perceptual, motoric and cognitive areas, leading to more refined surgical approaches and improved patient treatments.

BOLD MRI imaging can be fused with other imaging modalities and overlaid onto other anatomical or functional images. The display and selection of designated functional areas together with other objects like tumors is made easy with an intuitive user interface and advanced image processing.

- Automated import of DICOM BOLD MRI data
- Automatic detection of functional activations
- Interactive selection and display of functional areas and regions of interest
- Flexible definition of different functional paradigms
- Conversion into 3D objects for use in navigation



All images courtesy of Johann Wolfgang Goethe University Hospital, Frankfurt, Germany



BOLD MRI MAPPING & FIBERTRACKING

BrainLAB is the only company to offer an approved combination of BOLD MRI functional imaging with detailed diffusion tensor imaging (DTI) for use in the OR and navigated neurosurgery. The integration of both of these imaging modalities provides information not only about vital functional areas but also the eloquent white matter structures.

The result is a comprehensive functional planning suite, providing completely new insights into surgical anatomy for improved planning that sets the standard for the future of functional neurosurgery.

MORE COMPREHENSIVE PLANNING WITH FUNCTIONAL MRI DATA

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Functional MRI plays an important role in surgical planning for procedures in or near important functioning brain regions. Functional imaging based on BOLD MRI Mapping can reliably localize cortical structures involved in motor, sensory, and language functions. Much research in cognitive neuroscience has focused on mapping out the functional neuroanatomy of other brain systems devoted to memory, attention and object recognition, and these functions will also be mapped in surgical planning in the future.

fMRI images, when fused with high resolution anatomical scans, show the proximity of important functioning cortical regions to surgical targets, improving the ability to avoid functional deficits from surgery. fMRI based image guidance improves the efficiency of cortical stimulation by limiting the stimulation attempts required to identify function. Furthermore, in those cases for which stimulation mapping is not feasible, fMRI provides valuable information regarding localization of critical functions and contributes to reduced morbidity.

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