Resource Summary Report

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IBASPM: Individual Brain Atlases using Statistical Parametric Mapping Software

RRID:SCR_007110
Type: Tool

Proper Citation

IBASPM: Individual Brain Atlases using Statistical Parametric Mapping Software (RRID:SCR_007110)

Resource Information

URL: http://www.thomaskoenig.ch/Lester/ibaspm.htm

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Description: The aim of this work is to present a toolbox for structure segmentation of structural MRI images. All programs were developed in MATLAB based on a widely used fMRI, MRI software package, SPM99, SPM2, SPM5 (Wellcome Department of Cognitive Neurology, London, UK). Other previous works have developed a similar strategy for obtaining the segmentation of individual MRI image into different anatomical structures using a standardized Atlas. Have to be mentioned the one introduced by Montreal Neurological Institute (MNI) that merges the information coming from ANIMAL (algorithm that deforms one image (nonlinear registration) to match previously labelled) and INSECT (Cerebral Tissue Classification) programs for obtaining a suitable gross cortical structure segmentation (Collins et al, 1999). Here both, nonlinear registration and gray matter segmentation processes have been performed through SPM99, SPM2, SPM5 subroutines. Three principal elements for the labeling process are used: gray matter segmentation, normalization transform matrix (that maps voxels from individual space to standardized one) and MaxPro MNI Atlas. All three are combined to yield a good performance in segmenting gross cortical structures. The programs here can be used in general for any standardized Atlas and any MRI image modality. System Requirements: 1. The IBASPM graphical user interface (GUI) runs only under MATLAB 7.0 or higher. The non-graphical version runs under MATLAB 6.5 or higher. 2. Statistical Parametrical Mapping Software SPM2, SPM5 Main Functions: * Atlasing: Main function (This file contains spm_select script from SPM5 toolbox and uigetdir script from MATLAB 7.0). * Auto_Labeling : Computes individual atlas. * Create_SPAMs : Constructs Statistical Probability Anatomy Maps (SPAMs). * Create_MaxProb : Creates

Maximum Probability Atlas (MaxPro) using the SPAMs previously computed. * All_Brain_Vol : Computes whole brain volume masking the brain using the segmentation files (if the segmentation files does not exist it segments). * Struct_Vol : Computes the volume for different structures based on individual Atlas previously obtained by the atlasing process. * Vols_Stats : Computes mean and standard deviation for each structure in a group of individual atlases.

Abbreviations: IBASPM

Synonyms: Individual Brain Atlases using Statistical Parametric Mapping Software (IBASPM), Individual Brain Atlases using Statistical Parametric Mapping Software

Resource Type: software resource, software toolkit

Keywords: segmentation, structural mri, image, label, brain, structure, volume, visualization, atlasing, anatomical structure, probability, statistics, mean, standard deviation, atlas

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Ratings and Alerts

No rating or validation information has been found for IBASPM: Individual Brain Atlases using Statistical Parametric Mapping Software.

No alerts have been found for IBASPM: Individual Brain Atlases using Statistical Parametric Mapping Software.

Data and Source Information

Source: SciCrunch Registry

Usage and Citation Metrics

We found 42 mentions in open access literature.

Listed below are recent publications. The full list is available at FDI Lab - SciCrunch.org.

Petronek MS, et al. (2024) Magnetic Resonance Imaging of Iron Metabolism with T2* Mapping Predicts an Enhanced Clinical Response to Pharmacologic Ascorbate in Patients with GBM. Clinical cancer research : an official journal of the American Association for Cancer Research, 30(2), 283.

Di Tella S, et al. (2023) Resting-state functional connectivity is modulated by cognitive reserve in early Parkinson's disease. Frontiers in psychology, 14, 1207988.

Liu H, et al. (2022) Diffusion kurtosis imaging and diffusion tensor imaging parameters applied to white matter and gray matter of patients with anti-N-methyl-D-aspartate receptor encephalitis. Frontiers in neuroscience, 16, 1030230.

Pettemeridou E, et al. (2021) Regional Brain Volume, Brain Reserve and MMSE Performance in Healthy Aging From the NEUROAGE Cohort: Contributions of Sex, Education, and Depression Symptoms. Frontiers in aging neuroscience, 13, 711301.

Jeon SY, et al. (2020) Midlife Lifestyle Activities Moderate APOE ?4 Effect on in vivo Alzheimer's Disease Pathologies. Frontiers in aging neuroscience, 12, 42.

Wang PS, et al. (2020) Supratentorial and Infratentorial Lesions in Spinocerebellar Ataxia Type 3. Frontiers in neurology, 11, 124.

Antons S, et al. (2019) Strategies of selective changing: Preparatory neural processes seem to be responsible for differences in complex inhibition. PloS one, 14(4), e0214652.

Schaefer M, et al. (2018) Incidental haptic sensations influence judgment of crimes. Scientific reports, 8(1), 6039.

Amiri H, et al. (2018) Urgent challenges in quantification and interpretation of brain grey matter atrophy in individual MS patients using MRI. NeuroImage. Clinical, 19, 466.

Yoon DH, et al. (2018) Physical Frailty and Amyloid-? Deposits in the Brains of Older Adults with Cognitive Frailty. Journal of clinical medicine, 7(7).

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Wu YT, et al. (2018) Impaired Efficiency and Resilience of Structural Network in Spinocerebellar Ataxia Type 3. Frontiers in neuroscience, 12, 935.

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Korponay C, et al. (2017) Neurobiological correlates of impulsivity in healthy adults: Lower prefrontal gray matter volume and spontaneous eye-blink rate but greater resting-state functional connectivity in basal ganglia-thalamo-cortical circuitry. NeuroImage, 157, 288.

Grant MK, et al. (2017) Structural brain abnormalities in 12 persons with aniridia. F1000Research, 6, 255.

Oberhuber M, et al. (2016) Four Functionally Distinct Regions in the Left Supramarginal Gyrus Support Word Processing. Cerebral cortex (New York, N.Y. : 1991), 26(11), 4212.

Chang YT, et al. (2016) Hippocampal Amyloid Burden with Downstream Fusiform Gyrus Atrophy Correlate with Face Matching Task Scores in Early Stage Alzheimer's Disease. Frontiers in aging neuroscience, 8, 145.

Chang YT, et al. (2016) Prefrontal Lobe Brain Reserve Capacity with Resistance to Higher Global Amyloid Load and White Matter Hyperintensity Burden in Mild Stage Alzheimer's Disease. PloS one, 11(2), e0149056.

Michael AM, et al. (2016) Influence of Group on Individual Subject Maps in SPM Voxel Based Morphometry. Frontiers in neuroscience, 10, 522.