Resource Summary Report

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Spatially unbiased atlas template of the cerebellum and brainstem

RRID:SCR_004969
Type: Tool

Proper Citation

Spatially unbiased atlas template of the cerebellum and brainstem (RRID:SCR_004969)

Resource Information

URL: http://www.icn.ucl.ac.uk/motorcontrol/imaging/suit.htm

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Description: High-resolution atlas template of the human cerebellum and brainstem, based on the anatomy of 20 young healthy individuals. The atlas is spatially unbiased, i.e. the location of each structure is equal to the expected location of that structure across individuals in MNI space. At the same time, the new template preserves the anatomical detail of cerebellar structures through a nonlinear atlas-generation algorithm. By using automated nonlinear normalization methods, a more accurate intersubject-alignment than current whole-brain methods can be achieved. The toolbox allows you to: * Automatically isolate cerebellar structures from the cerebral cortex based on an anatomical image * Achieve accurate anatomical normalization of cerebellar structures * Normalize functional imaging data for fMRI group analysis * Normalize focal cerebellar lesions for lesion-symptom mapping * Use Voxel-based morphometry (VBM) to determine patterns of cerebellar degeneration or growth * Use a probabilisitc atlas in SUIT space to assign locations to different cerebellar lobuli in an unbiased and informed way * Automatically define ROIs for specific cerebellar lobuli and summarize function and anatomical data * Improve normalization of the deep cerebellar nuclei using an ROI-driven normalization. The suit-toolbox requires Matlab (Version 6.5 and higher) and SPM. The newest version only supports SPM8, although it likely runs under SPM2 or 5 as well. A standalone version for the suit-toolbox is not planned. Usage of the isolation or normalization functions, however, does not require that the analysis is conducted under SPM.

Abbreviations: SUIT

Synonyms: Spatially unbiased atlas template of the cerebellum brainstem, A spatially unbiased atlas template of the cerebellum brainstem (SUIT), A spatially unbiased atlas template of the cerebellum and brainstem, A spatially unbiased atlas template of the cerebellum and brainstem (SUIT), A spatially unbiased atlas template of the cerebellum brainstem

Resource Type: software resource, data or information resource, atlas, reference atlas

Defining Citation: PMID:20965257, PMID:16904911

Keywords: human, cerebellum, brainstem

Related Condition: Healthy

Funding:

Availability: The template and software are freely available as an Open unspecified license SPM-toolbox.

Resource Name: Spatially unbiased atlas template of the cerebellum and brainstem

Resource ID: SCR_004969

Alternate IDs: nlx_144300

Record Creation Time: 20220129T080227+0000

Record Last Update: 20250517T055658+0000

Ratings and Alerts

No rating or validation information has been found for Spatially unbiased atlas template of the cerebellum and brainstem.

No alerts have been found for Spatially unbiased atlas template of the cerebellum and brainstem.

Data and Source Information

Source: SciCrunch Registry

Usage and Citation Metrics

We found 28 mentions in open access literature.

Listed below are recent publications. The full list is available at dkNET.

Wang Y, et al. (2024) Spatio-molecular profiles shape the human cerebellar hierarchy along the sensorimotor-association axis. Cell reports, 43(2), 113770.

Stalter J, et al. (2023) The impact of aging on morphometric changes in the cerebellum: A voxel-based morphometry study. Frontiers in aging neuroscience, 15, 1078448.

Bruchhage MMK, et al. (2020) Drum training induces long-term plasticity in the cerebellum and connected cortical thickness. Scientific reports, 10(1), 10116.

Ernst TM, et al. (2019) The cerebellum is involved in processing of predictions and prediction errors in a fear conditioning paradigm. eLife, 8.

Yang H, et al. (2019) Cerebellar atrophy and its contribution to motor and cognitive performance in multiple system atrophy. NeuroImage. Clinical, 23, 101891.

Brissenden JA, et al. (2018) Topographic Cortico-cerebellar Networks Revealed by Visual Attention and Working Memory. Current biology : CB, 28(21), 3364.

Depping MS, et al. (2017) Cerebellar volume change in response to electroconvulsive therapy in patients with major depression. Progress in neuro-psychopharmacology & biological psychiatry, 73, 31.

Boisgontier MP, et al. (2017) Individual differences in brainstem and basal ganglia structure predict postural control and balance loss in young and older adults. Neurobiology of aging, 50, 47.

Depping MS, et al. (2016) Abnormal cerebellar volume in acute and remitted major depression. Progress in neuro-psychopharmacology & biological psychiatry, 71, 97.

Ernst TM, et al. (2016) Pronounced reduction of acquisition of conditioned eyeblink responses in young adults with focal cerebellar lesions impedes conclusions on the role of the cerebellum in extinction and savings. Neuropsychologia, 85, 287.

Stoodley CJ, et al. (2016) Location of lesion determines motor vs. cognitive consequences in patients with cerebellar stroke. NeuroImage. Clinical, 12, 765.

Peterburs J, et al. (2015) A cerebellar role in performance monitoring - evidence from EEG and voxel-based morphometry in patients with cerebellar degenerative disease. Neuropsychologia, 68, 139.

Styliadis C, et al. (2015) Distinct cerebellar lobules process arousal, valence and their interaction in parallel following a temporal hierarchy. NeuroImage, 110, 149.

Hirjak D, et al. (2015) Neurological soft signs in recent-onset schizophrenia: Focus on the cerebellum. Progress in neuro-psychopharmacology & biological psychiatry, 60, 18.

Hulst T, et al. (2015) Ageing shows a pattern of cerebellar degeneration analogous, but not equal, to that in patients suffering from cerebellar degenerative disease. NeuroImage, 116, 196.

Kollndorfer K, et al. (2015) Effects of chronic peripheral olfactory loss on functional brain networks. Neuroscience, 310, 589.

Thürling M, et al. (2014) Age effects in storage and extinction of a naturally acquired conditioned eyeblink response. Neurobiology of learning and memory, 109, 104.

Jeong JW, et al. (2014) In vivo detection of reduced Purkinje cell fibers with diffusion MRI tractography in children with autistic spectrum disorders. Frontiers in human neuroscience, 8, 110.

Hughes LE, et al. (2014) The binaural masking level difference: cortical correlates persist despite severe brain stem atrophy in progressive supranuclear palsy. Journal of neurophysiology, 112(12), 3086.

Miši? B, et al. (2014) The functional connectivity landscape of the human brain. PloS one, 9(10), e111007.