Waxholm Space atlas of the Sprague Dawley rat brain

Release notes v1.01

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Why a new release?

The main goal of the v1.01 release is to standardize the orientation of the volumetric datasets according to NIfTI-1 format defaults, and to set the Waxholm Space origin so that coordinates can be read off directly using publicly available software, with a focus on ITK-SNAP and MBAT.

What's new?

- All high resolution (39µm) and low resolution (78µm) datasets, originally in ALS orientation, are transformed to standard RAS orientation.

- As a result, the order and the orientation of the x and y axes have changed, and the WHS origin has new voxel coordinates.

- The WHS origin is now set as the origin of the NIfTI coordinate system in all files.

- Voxel dimensions are included in full precision in the NIfTI header for all images.

- Documentation is added for comparing coordinate system orientation between v1 and v1.01; describing coordinates for the WHS origin, bregma, and lambda; and for calculating coordinates from v1 to v1.01.

- DTI color coding is now standard in both high resolution (39µm) and low resolution (78µm) color FA maps: Red = left-right (LR), Green = anteroposterior (AP), Blue = inferosuperior (IS).

What's unchanged?

The anatomical boundaries in the segmentation, and the corresponding label files (.label, .ilf) are identical to those in version 1. The NIfTI atlas volume is reoriented the same way as the MRI/DTI template. Anatomical MRI and DTI image content is unchanged apart from swapped DTI color channels.

How to migrate from the previous version?

WHS coordinates acquired in version 1 are easily transformed to v1.01 coordinates, see **Coordinates v1 vs 1.01** table for calculating new coordinates. Segmentations created on top of ALS-oriented v1 volumes need to be reoriented to RAS to match the v1.01 volumes.

Will the original data still be available?

Yes, the original datasets will stay available for reference. Nevertheless we suggest using version 1.01 since this is in standard orientation with the WHS origin set, making it easier to navigate Waxholm Space.

Is this a stable version? Is this the final version?

Version 1.01 is stable in the sense that technical issues concerning non-standard volumes are resolved. It is not the final version as segmentations will be evolving.

Acknowledgments