

# **An atlas for human brain myelin content throughout the adult life span**

Adam V. Dvorak<sup>1,2\*</sup>, Taylor Swift-LaPointe<sup>1</sup>, Irene M. Vavasour<sup>1,3</sup>, Lisa Eunyoung Lee<sup>4</sup>, Shawna Abel<sup>4</sup>,  
Bretta Russell-Schulz<sup>3</sup>, Carina Graf<sup>1,2</sup>, Anika Wurl<sup>1</sup>, Hanwen Liu<sup>1,2</sup>, Cornelia Laule<sup>1,2,3,5</sup>, David K.B. Li<sup>3,4</sup>,  
Anthony Traboulsee<sup>4</sup>, Roger Tam<sup>3,6</sup>, Lara A. Boyd<sup>7</sup>, Alex L. MacKay<sup>1,3</sup>, Shannon H. Kolind<sup>1,2,3,4</sup>

<sup>1</sup> Physics and Astronomy, University of British Columbia, Vancouver, BC, Canada

<sup>2</sup> International Collaboration on Repair Discoveries (ICORD), University of British Columbia,  
Vancouver, BC, Canada

<sup>3</sup> Radiology, University of British Columbia, Vancouver, BC, Canada

<sup>4</sup> Medicine (Neurology), University of British Columbia, Vancouver, BC, Canada

<sup>5</sup> Pathology and Laboratory Medicine, University of British Columbia, Vancouver, BC, Canada

<sup>6</sup> Biomedical Engineering, University of British Columbia, Vancouver, BC, Canada

<sup>7</sup> Department of Physical Therapy, University of British Columbia, Vancouver, BC, Canada

\*Corresponding Author: Adam V. Dvorak      Email: adam.dvorak@ubc.ca

Room M10 Purdy Pavilion, 2221 Wesbrook Mall, Vancouver, BC, Canada V6T 2B5

## **Supplementary Material**

### **Descriptions of Attached Video Files**

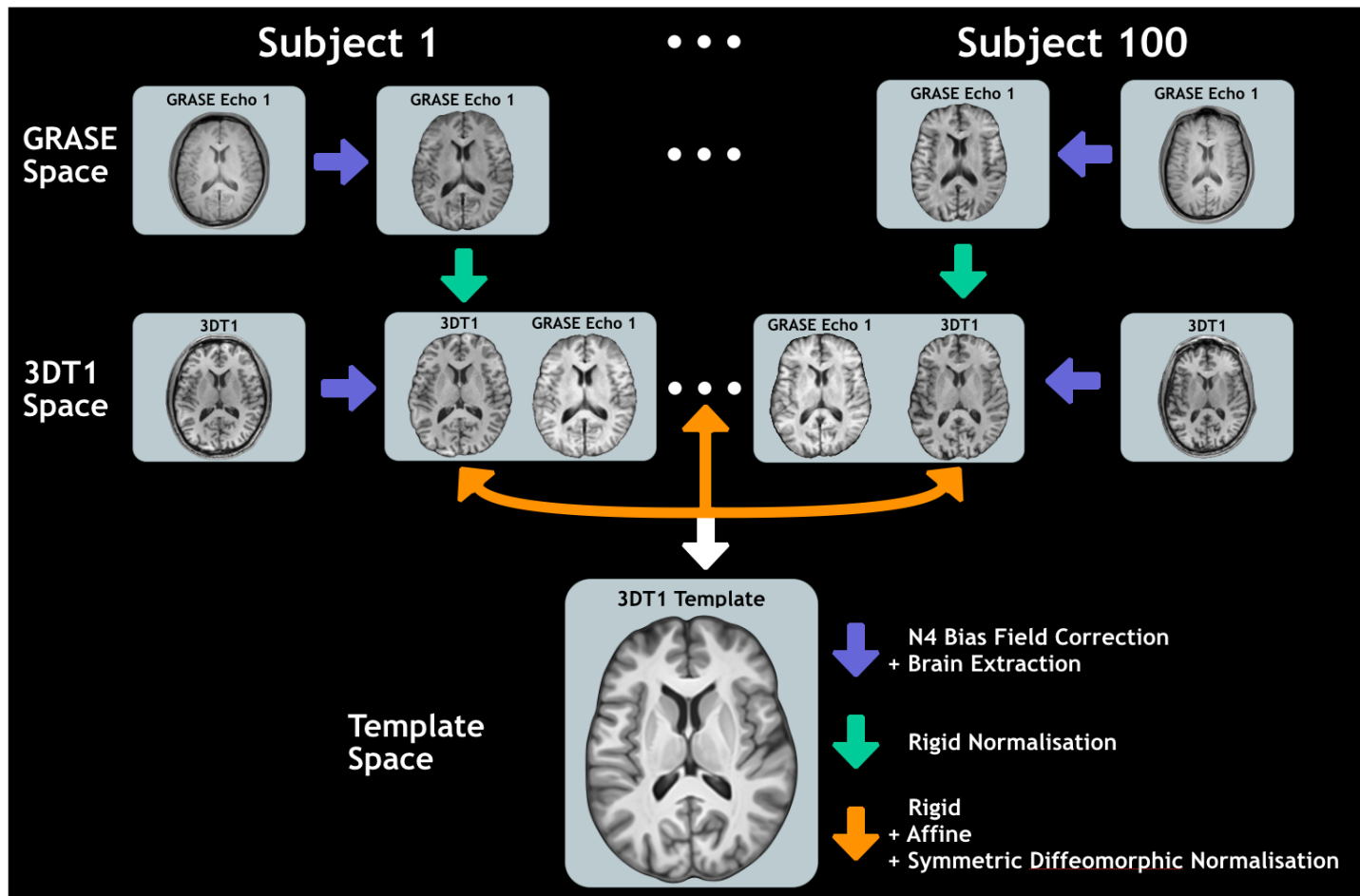
#### **Myelin\_Atlas\_Opaque.mov**

Movie scrolling in the superior direction through axial slices of the mean myelin water fraction brain atlas in a Blue-Green color scale. This provides a visualization for the spatial distribution of myelin water fraction values, where high values in Green correspond to regions with high myelin content. Note that the Blue-Green color scale matches that of Figure 1 in the manuscript.

#### **Template\_Myelin\_Atlas\_Transparent\_Superimposed.mov**

Movie scrolling in the superior direction through axial slices of the anatomical brain template in grayscale, with the mean myelin water fraction brain atlas superimposed transparently in a Blue-Green color scale. This depicts the relationship between anatomical structures, shown by the underlying template, and myelin content, shown by the superimposed myelin atlas. Note that the Blue-Green color scale matches that of Figure 1 in the manuscript.

### **Figures and Captions**



**Supplementary Material Figure 1:** Outline of template creation image processing and normalization for gradient and spin echo (GRASE) myelin water imaging echo 1 and T<sub>1</sub>-weighted anatomical (3DT1) images. Before brain extraction, GRASE echo 1 voxel intensities were squared to accentuate white/gray matter contrast.