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## NEUROIMAGING FINDINGS IN BIPOLAR DISORDER - OPPORTUNITIES FOR NETWORK PROJECTS

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The overall aim of the Imaging work package in ENBREC is to develop a common magnetic resonance imaging (MRI) protocol which allows pooling of data acquired from different MRI scanners, that can be used in multi-site studies of bipolar disorders.

Structural MRI studies usually provide global estimates of gray or white matter volume changes, or a small number of regions of interest (ROIs). Recent advances in structural imaging now allow for a more comprehensive evaluation of brain changes by providing continuous maps of cortical thickness and surface area, subcortical volumes, and measures of white matter microstructure throughout the brain. Such high-resolution structural MRI for morphometric analyses is now being used for automatic quantification of brain structures. There are recent reports of cortical abnormalities in bipolar disorder, which will be reviewed.

White matter can now be quantified using diffusion tensor imaging (DTI). This MRI variant for quantifying the integrity of white matter structure throughout the brain measures water diffusion and its directionality. The degree of anisotropy of overall motion in a voxel is expressed as an index of the directionality of diffusion (fractional anisotropy; FA). Lower FA values are thought to reflect factors such as demyelination and axonal injury, and has been used to show white matter abnormalities in bipolar disorder.

A suggestion for protocol for multi-site brain imaging study in bipolar disorder will be presented.