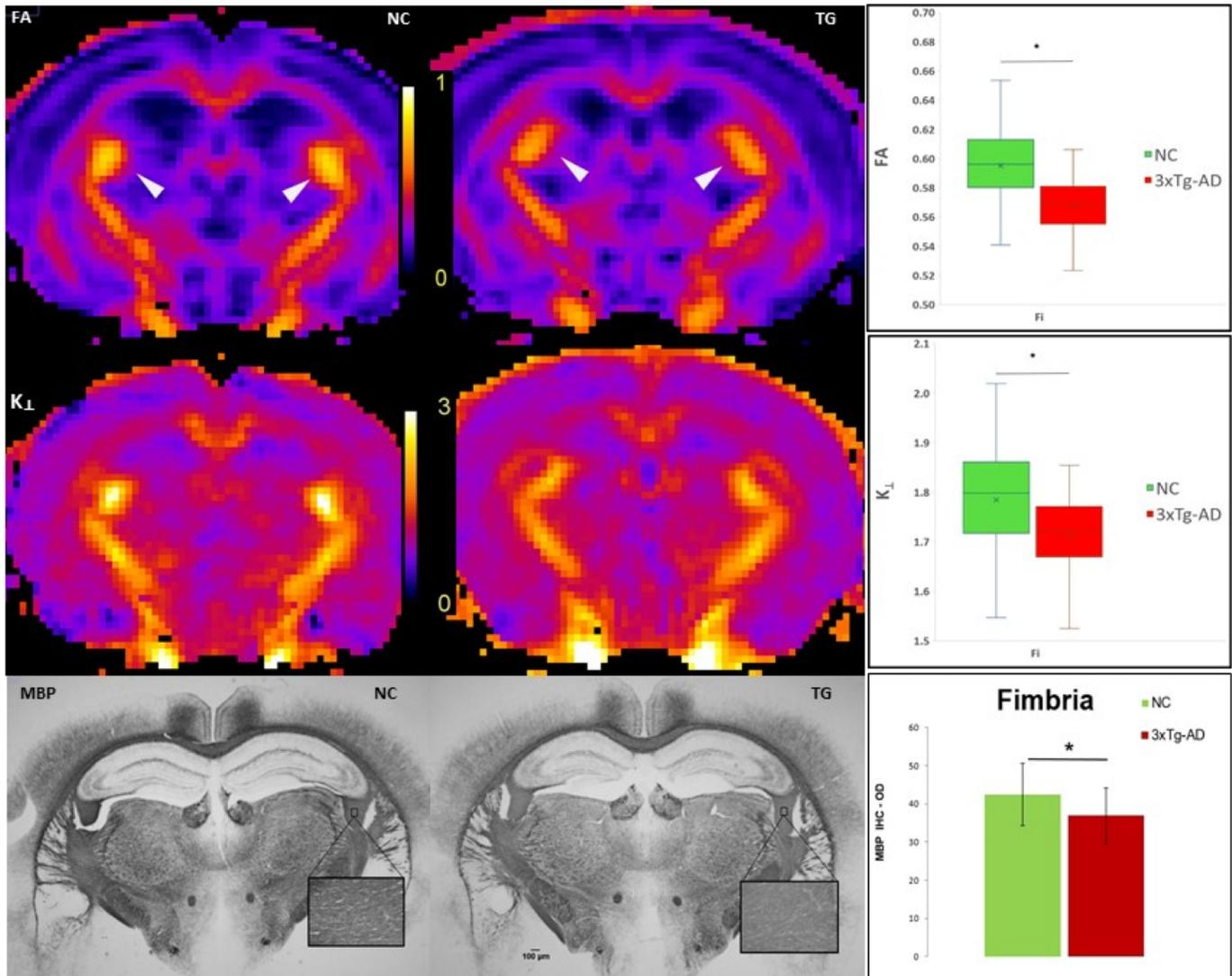


CBI's Image of the Month

March, 2021

Courtesy of Dr. Falangola , Department of Neuroscience



Our project investigated the sensitivity of diffusion MRI (dMRI) to capture brain microstructural alterations in 2-month-old 3xTg-AD mice, which is one of the most studied mouse models of AD. Figures show representative fractional anisotropy (FA) and radial kurtosis (K_{\perp}) maps of a 2 month-old normal control (NC) and 3xTg-AD (TG) mouse. In the fimbria (white arrows), FA and K_{\perp} were found to be significantly lower in TG mice than in NC. Scale bars: FA (0–1); K_{\perp} (0–3). Morphological quantification of myelin basic protein (MBP) immunoreactivity in the fimbria validated the dMRI results showing significantly lower values in the TG mice compared to the NC. Quantitative analysis of the MBP immunoreactivity; values are expressed as optical density (OD) = $\log(\text{max intensity}/\text{mean intensity})$, where max intensity = 255 for the 8-bit images. Our results demonstrate that dMRI is able to detect significant early brain morphological abnormalities in 2-month-old 3xTg-AD mice.