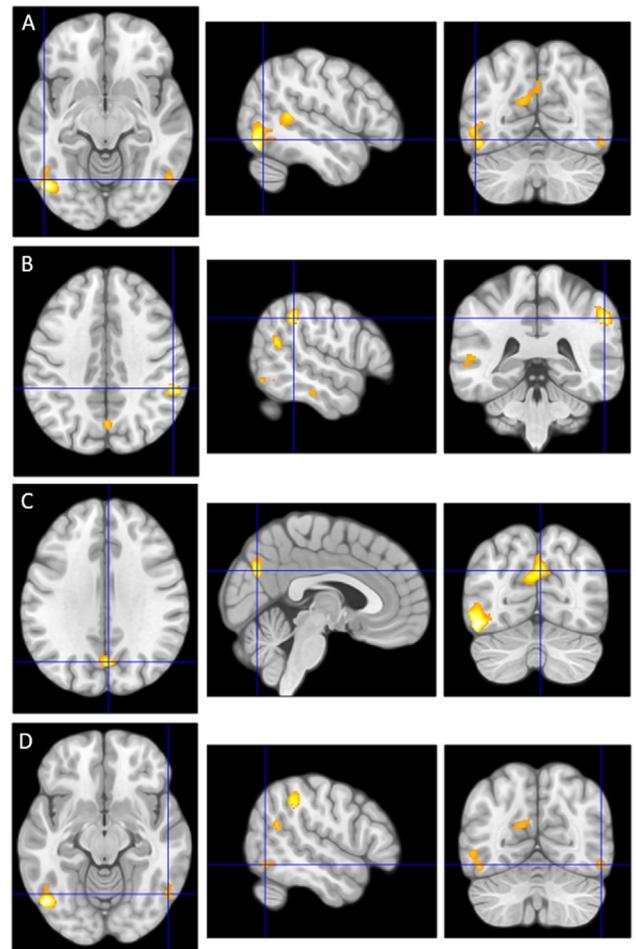
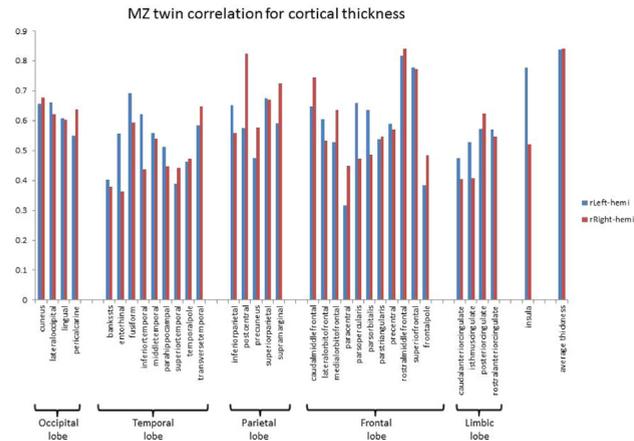


supramarginal, parsopercularis, parsorbitalis, parstriangularis, and superior frontal cortices and temporal pole, were on average .57. Left and right hemisphere showed similar correlations. Correlations assessed in randomly paired subjects were lower ($< .2$) and not significant. **Conclusions:** Cortical thickness correlates between MZ twins. These data suggest that in addition to a strong genetic background for cortical thickness in cognitively healthy elderly also non-genetic factors substantially influence this AD-biomarker. Future studies on the causes of identical twin discordance may provide novel insights into the pathophysiology of AD which may provide clues for AD prevention.



IC-02-05 **CEREBROSPINAL FLUID STREM2 LEVELS ARE ASSOCIATED WITH GRAY MATTER VOLUME INCREASES AND REDUCED DIFFUSIVITY IN EARLY ALZHEIMER'S DISEASE**

Juan D. Gispert¹, Marc Suarez-Calvet^{2,3}, Gemma C. Monte⁴, Alan Tucholka⁵, Carles Falcon⁵, Santiago Rojas⁶, Lorena Rami⁷, Raquel Sanchez-Valle⁸, Albert Llado⁴, Gernot Kleinberger², Christian Haass^{2,3}, Jose Luis Molinuevo^{5,9}, ¹Barcelonabeta Brain Research Center, Barcelona, Spain; ²Ludwig-Maximilians-University Munich, Munich, Germany; ³German Center for Neurodegenerative Diseases (DZNE), Munich, Germany; ⁴Alzheimer's Disease and Other Cognitive Disorders Unit, Hospital Clínic, Institut d'Investigacions Biomèdiques August Pi i Sunyer (IDIBAPS), Barcelona, Spain; ⁵Barcelonabeta Brain Research Center, Barcelona, Spain; ⁶Barcelonabeta Brain Research Center, Pasqual Maragall Foundation, Barcelona, Spain; ⁷Alzheimer's Disease and Other Cognitive Disorders Unit, IDIBAPS, Hospital Clínic, Barcelona, Spain; ⁸Alzheimer's Disease and Other Cognitive Disorders Unit, Neurology Department, Hospital Clínic, IDIBAPS, Barcelona, Spain; ⁹ICN Hospital Clínic Universitari and Pasqual Maragall Foundation, Barcelona, Spain. Contact e-mail: jdgispert@fjmaragall.org

Background: TREM2 is an innate immune transmembrane protein expressed in microglia and involved in the regulation of inflammatory response and phagocytosis. A soluble fragment of the protein (sTREM2) can be quantified in the cerebrospinal fluid (CSF) and has been shown to be abnormally increased in the course of Alzheimer's disease (AD). In this article we studied the neuroanatomical correlates of increased CSF sTREM2 along the clinicopathological continuum of AD. **Methods:** One hundred and fourteen participants (45 control, 19 preclinical AD, 27 mild cognitive impairment [MCI] due to AD and 23 mild AD dementia) underwent CSF sTREM2 determinations and MRI scanning. We studied the association between CSF sTREM2 concentrations, gray matter

volume, and water motion diffusivity and anisotropy across the different groups. **Results:** In MCI patients, a significant positive correlation between CSF sTREM2 values and gray matter volume was found in the bilateral inferior and middle temporal cortices, the precuneus, the supramarginal and angular gyri, after controlling by age, sex and pTau. On the other hand, a negative correlation with mean diffusivity was detected in overlapping regions, among others. **Conclusions:** In early AD, augmented CSF sTREM2 levels correspond with cerebral MRI features typical of brain swelling, namely increased gray matter volume and restricted water diffusivity. These results support for a role of TREM2 in the regulation of the neuroinflammatory response to early neurodegeneration.

