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Plasmacytoid dendritic cells in the duodenum of individuals diagnosed with myalgic encephalomyelitis are uniquely immunoreactive to antibodies to human endogenous retroviral proteins

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Abstract

Myalgic encephalomyelitis (ME) is a debilitating illness of unknown etiology characterized by neurocognitive dysfunction, inflammation, immune abnormalities and gastrointestinal distress. An increasing body of evidence suggests that disruptions in the gut may contribute to the induction of neuroinflammation. Therefore, reports of human endogenous retroviral (HERV) expression in association with neuroinflammatory diseases prompted us to investigate the gut of individuals with ME for the presence of HERV proteins. In eight out of 12 individuals with ME, immunoreactivity to HERV proteins was observed in duodenal biopsies. In contrast, no immunoreactivity was detected in any of the eight controls. Immunoreactivity to HERV Gag and Env proteins was uniquely co-localized in hematopoietic cells expressing the C-type lectin receptor CLEC4C (CD303/BDCA2), the costimulatory marker CD86 and the class II major histocompatibility complex HLA-DR, consistent with plasmacytoid dendritic cells (pDCs). Although the significance of HERVs present in the pDCs of individuals with ME has yet to be determined, these data raise the possibility of an involvment of pDCs and HERVs in ME pathology. To our knowledge, this report describes the first direct association between pDCs and HERVs in human disease.

Keywords

HERV, Human endogenous retrovirus, ME, Myalgic encephalomyelitis, Pdc, Plasmacytoid dendritic cell