Expression of Early Growth Response Gene-2 and Regulated Cytokines Correlates with Recovery from Guillain–Barré Syndrome

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Guillain–Barré syndrome (GBS) is an immune-mediated peripheral neuropathy. The goal of this research was the identification of biomarkers associated with recovery from GBS. In this study, we compared the transcriptome of PBMCs from a GBS patient and her healthy twin to discover possible correlates of disease progression and recovery. The study was then extended using GBS and spinal cord injury unrelated patients with similar medications and healthy individuals. The early growth response gene-2 (EGR2) was upregulated in GBS patients during disease recovery. The results provided evidence for the implication of EGR2 in GBS and suggested a role for EGR2 in the regulation of IL-17, IL-22, IL-28A, and TNF-β cytokines in GBS patients. These results identified biomarkers associated with GBS recovery and suggested that EGR2 overexpression has a pivotal role in the downregulation of cytokines implicated in the pathophysiology of this acute neuropathy. The Journal of Immunology, 2016, 196: 1102–1107.

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The RNA sequencing data presented in this article have been submitted to the National Center for Biotechnology Information’s Gene Expression Omnibus (http://www.ncbi.nlm.nih.gov/geo/query/acc.cgi?acc=GSE72748) under accession number GSE72748.

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Abbreviations used in this article: AMAN, acute motor axonal neuropathy; AMSAN, acute motor sensory axonal neuropathy; Ct, cycle threshold; GBS, Guillain–Barré syndrome; HCV, hepatitis C virus; PGK1, phosphoglycerate kinase 1; SCI, spinal cord injury.

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