**Title:** Comprehensive Analysis of Peripheral B Cell Phenotypes in Chronic Fatigue Syndrome

K. Fuller\(^{1,2}\), E. W. Brenu\(^{1,2}\), T. K. Huth\(^{1,2}\), S. L. Hardcastle\(^{1,2}\), S. Johnston\(^{1,2}\), T. Nguyen\(^{1,2}\), D.R. Staines\(^{1,3}\), S. M. Marshall-Gradisnik\(^{1,2}\).

\(^{1}\)National Centre for Neuroimmunology and Emerging Diseases, Griffith University, Parklands, QLD, Australia
\(^{2}\)School of Medical Science, Griffith University, Parklands, QLD, Australia
\(^{3}\)Gold Coast Public Health Unit, Queensland Health, Robina, QLD, Australia

**Objectives:** B cells are key adaptive immune cells which are subdivided into phenotypes, each of which has a specialised effector immune function. Perturbations in the levels of one or more of the subtypes may lead to immune dysregulation. Chronic Fatigue Syndrome/Myalgic Encephalomyelitis (CFS/ME) is a multifactorial illness which has an unknown cause and no current clinical biomarker. Immune dysregulation has come to be associated with CFS/ME however the precise role that B cells play in the illness pathogenesis remains unclear. Hence, this study aims to further elucidate the role of B cells in CFS/ME via the comprehensive analysis of multiple peripheral B cells phenotypes.

**Methods:** Peripheral blood samples were collected from CFS/ME patients and non-fatigued healthy controls (HC). Cells were then incubated with the appropriate B cell antibody panels, prior to red blood cell lysing. Cells were analysed via flow cytometry, with the lymphocyte gate specific for CD19\(^{+}\) B cells.

**Results:** Differential levels of multiple B cell subsets were observed in CFS/ME patients when compared to HCs.

**Conclusion:** Results from the current study further confirm a potential involvement of B cells in CFS/ME. Thus, further studies should be conducted to confirm whether these observed alterations contribute to the symptom profile that is characteristic of CFS/ME.

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