

B-lymphocyte depletion using the anti-CD20 antibody rituximab in chronic fatigue syndrome

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Chronic fatigue syndrome (CFS) may be alleviated by the anti-cancer drug Rituximab, suggesting that the source of the disease could lie in the immune system, according to a new study published Oct. 19 in the online journal *PLoS ONE*. Uncertainty about the cause of CFS, which is characterized by extreme, unexplained exhaustion, among other symptoms, has led to much debate, but the authors of this recent study believe they may have found the answer.

The work, led by Drs. Oystein Fluge and Olav Mella of Haukeland University Hospital in Norway, was initiated when the researchers noticed a patient with both [chronic fatigue syndrome](#) (CFS) and Hodgkin's lymphoma who showed marked recovery from CFS symptoms upon treatment with chemotherapy.

The investigators reasoned that the effect could be mediated through B-lymphocyte depletion, and to further investigate this connection they conducted first a pilot case series, and then a double-blind, placebo-controlled phase II trial with 30 CFS patients, and found that the Rituximab treatment was associated with significant, but generally transient, improvement in CFS symptoms.

Rituximab is a B-lymphocyte depleting agent. It acts as an antibody against a protein found primarily on the surface these cells, which are a component of the immune system. According to the authors, "the delay of clinical responses after the initial and rapid B-cell depletion suggests to us that CFS/ME, which is often preceded by an infection, may be a form of autoimmune disease in which B-cells are important". Thus, this study reveals a potential new direction for CFS research.

Storstein A, Kristoffersen EK, et al. (2011) Benefit from B-Lymphocyte Depletion Using the Anti-CD20 Antibody Rituximab in Chronic Fatigue Syndrome. A Double-Blind and Placebo-Controlled Study. *PLoS ONE* 6(10): e26358.
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