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# Effects of undenatured whey protein supplementation on CXCL12- and CCL21-mediated B and T cell chemotaxis in diabetic mice.

Badr G, Mohany M, Metwalli A.

## Abstract:

**BACKGROUND:** Long and persistent uncontrolled diabetes tends to degenerate the immune system and leads to an increased incidence of infection. Whey proteins (WPs) enhance immunity during early life and have a protective role in some immune disorders. In this study, the effects of camel WP on the chemotaxis of B and T cells to CXCL12 and CCL21 in diabetic mice were investigated. **RESULTS:** Flow cytometric analysis of the surface expressions of CXCR4 (CXCL12 receptor) and CCR7 (CCL21 receptor) on B and T cells revealed that the surface expressions of CXCR4 and CCR7 were not significantly altered in diabetic and WP-supplemented diabetic mice compared with control mice. Nevertheless, B and T lymphocytes from diabetic mice were found to be in a stunned state, with a marked and significant (P

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