

**LACTOFERRIN RESTORATION OF LYMPHOCYTE AND
MACROPHAGE CONTENT IN CYCLOPHOSPHAMIDE-TREATED
MICE**

JOLANTA ARTYM and MICHAŁ ZIMECKI

Department of Experimental Therapy, Institute of Immunology and
Experimental Therapy, Polish Academy of Sciences, Weigla 12,
53-114 Wrocław, Poland

Lactoferrin (LF) is a 80 kDa protein contained in the secretory fluids of mammals and the secondary granules of neutrophils. It also belongs to the family of proteins involved in iron metabolism. It is known for its immunoregulatory and protective properties against a variety of pathogens. We previously established that LF can promote the maturation of T and B cells from their precursors. The aim of this study was to find out whether LF could reconstitute a substantially reduced content of T and B cells and peritoneal macrophages in mice injected with a sublethal dose of cyclophosphamide (CY), a known cytotoxic drug.

Three month old CBA mice were given CY at a dose of 400 mg/kg body weight, intraperitoneally. Bovine lactoferrin was administrated *per os*, 1 mg/mouse/dose, on alternate days, beginning 24 h after CY injection. The total number of doses was 7. After 21 days, we determined the total spleen cellularity, and the content of CD3⁺, CD4⁺, Ig⁺ cells and peritoneal macrophages. The content of T and B cells was determined using the panning technique.

The contents of CD3⁺ and CD4⁺ cells (T cells) and Ig⁺ (B cells) were 45%, 65%, and 40% of the control values (for untreated mice) 3 weeks after the CY injection. As a result of LF treatment, the content of the respective cells types significantly increased, attaining 67.7%, 104.7%, and 62.4% of the control values. The total number of splenocytes returned to almost the control level (78.8%) following LF treatment. The number of peritoneal macrophages, reduced to 36.8% of the control value after CY treatment, increased to 67.6% following LF treatment. Treatment with LF alone did not significantly change the cell composition. We conclude that oral treatment with lactoferrin may be beneficial in restoring cellularity and a proper cell type composition in experimental animals subjected to cytotoxic drug treatment.