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# **MODERN SCIENCE: INNOVATIONS AND PROSPECTS**



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# **DISTURBANCE OF THE IMMUNITY IN RATS WITH INFLAMMATION OF THE ILEUM**

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## **Introductions**

Inflammatory bowel diseases (IBD) such as ulcerative colitis and Crohn's disease are chronic inflammatory disorders of the gastrointestinal tract and are associated with substantial morbidity including frequent hospitalization and surgery, reductions in quality of life and increased mortality. The pathogenesis of IBD is complex and multifactorial. Statin drugs are widely used worldwide for treatment of hyperlipidemia in addition to cholesterol-lowering effect, statins reduce many of the mediators involved in IBD-specific inflammation including C-reactive protein, interferon gamma, interleukins 6 and 8, and NF-kappa B.

## **Aim**

The aim of this study was to investigate the possibility of simvastatin and recombinant antagonist of receptors of interleukin-1 for pharmacological correction of acute and chronic ileitis in rats with a focus on the expression intensity studies of TLR-2 TLR-4, NF-kB protein with lymphocytes of small intestine.

## **Materials and methods**

Male Wistar rats were housed in standard wire-mesh bottom cages at constant temperature of 25°C. The rats were given water and standard laboratory diet ad libitum with no restriction prior to indomethacin injection. For induction of an ileitis, rats received subcutaneous dose of indomethacin. For histological examination, sections were stained with haematoxylin and eosin. The immunopositive cells was determined using a direct and indirect immunofluorescence technique with using a monoclonal antibody. Images were taken by using a fluorescence microscope PrimoStar (ZEISS, Germany) with a computer-assisted video system AxioCam 5c

(ZEISS, Germany) including the NIH-Image software (NIH Image version 1.46). All statistical analyses were performed using EXCEL MS Office 2010 (Microsoft Corp., USA), STATISTICA 6.0 (Stat-Soft, 2001) software. Results are expressed as mean values  $\pm$  SEM. Differences were considered statistically significant if the p value was  $<0.05$ .

### **Results and discussion**

It has been established that acute and chronic ileitis development was accompanied with the increase in quantity of TLR-2<sup>+</sup> cells and with decrease in quantity of TLR-4<sup>+</sup> i NF-kB<sup>+</sup> lymphocyte in lymphoid structures of ileum. Simvastatin and recombinant antagonist of receptors of interleukin-1 administration to experimental animal resulted in multidirection action on the expression of receptors with lymphocytes of small intestine.

### **Conclusions**

We established that drug administration during the development of experimental pathology was accompanied by changes in the expression of TLR-2, TLR-4, and NF-kB protein.