

Effect of adalimumab on the expression profile of genes encoding histamin receptors in keratinocyte.

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Background:

The histaminergic system is associated with the inflammation that occurs during psoriasis. Anti-TNF drugs are used in the treatment of psoriasis.

Aim:

The aim of the study was to evaluate changes in the expression of genes encoding HRH1-4 receptors in human skin keratinocytes (HaCaT line), which were treated with bacterial lipopolysaccharide, and then with adalimumab, compared to the control culture.

Material and methods:

HaCaT was exposed to 1 ng / ml LPS to induce inflammation, then incubated with adalimumab (8 µg / ml) for 2, 8 and 24 hours. In the next step, they were compared with untreated cells. Microarray and RTqPCR techniques were used to determine differences in the expression pattern of genes associated with the histaminergic system.

Results:

With the histaminergic system are related 65 mRNAs of 22277 mRNAs. The concentration of *HRH1-3* are significantly lower under the conditions of induced -LPS inflammation compared to the control and increases with the addition of the drug ($p < 0.05$). The highest concentration of *HRH1* and *HRH3* in keratinocyte cultures exposed to adalimumab was observed after 8 hours of incubation. *HRH2* expression is also high with adalimumab ($p < 0.05$).

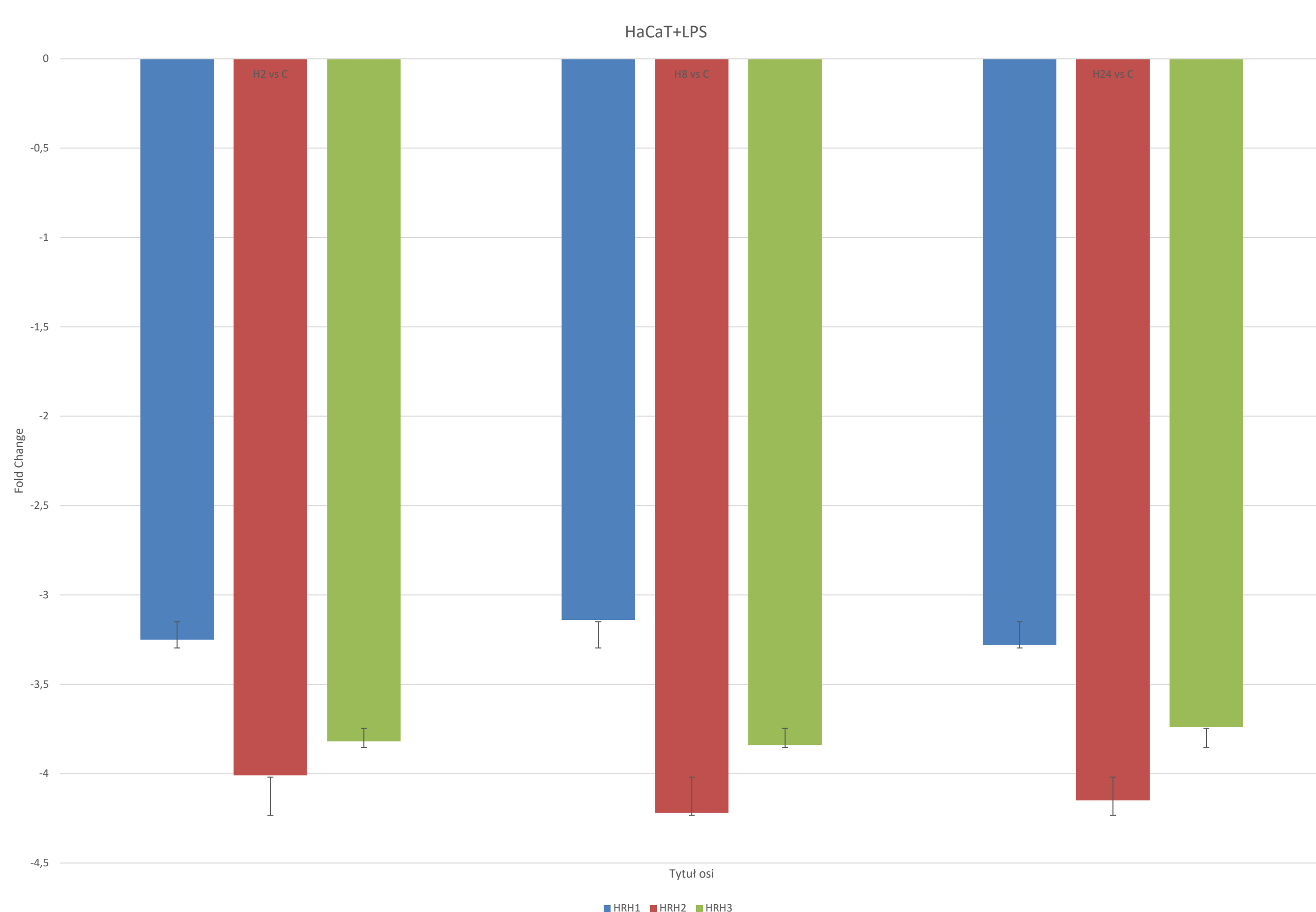


Fig. 1. Microarray results of expression profile of selected genes related to the histaminergic system in HaCaT cells treated with HaCaT with LPS

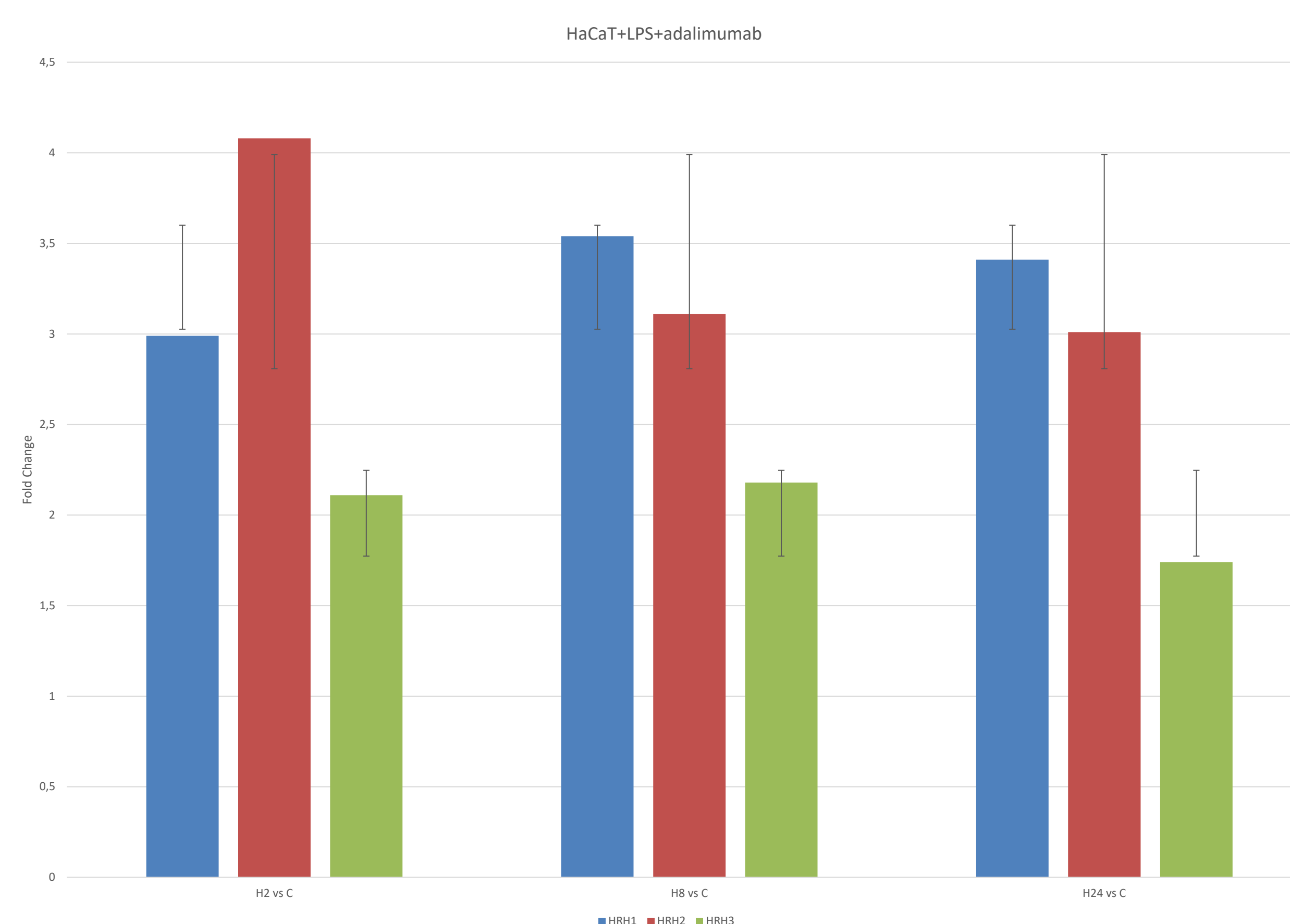


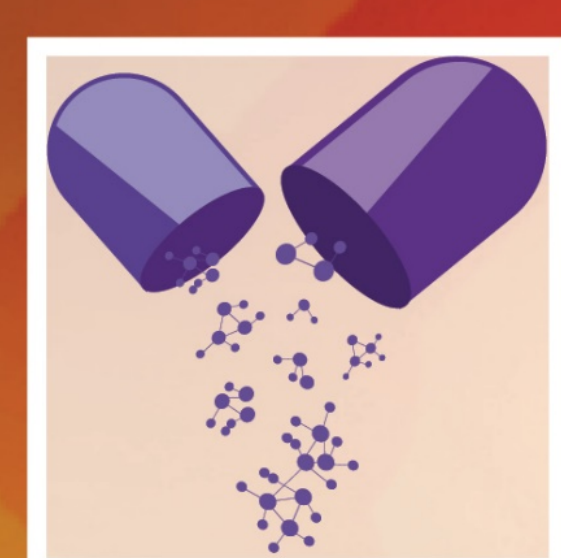
Fig. 2. Microarray results of expression profile of selected genes related to the histaminergic system in HaCaT cells treated with HaCaT +LPS+ adalimumab

Conclusion:

After 8 hours of incubation, the highest concentration of *HRH1* and *HRH3* in keratinocyte cultures exposed to adalimumab was observed. Our studies have shown the effect of adalimumab on the activity of the histaminergic system in skin keratinocytes *in vitro*. The complex nature of the histaminergic system was confirmed.

Key words:

adalimumab, histamine receptors, keratinocyte, lipopolysaccharide A, mRNA, psoriasis



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