

Influence of an Arnica-Gel on the transcription factor NF- κ B

C.A. KLaas¹, A.Suter², M. Weber², I. Merfort¹

¹Institute of Pharmaceutical Biology, 79104 Freiburg, Germany

²Medical Department, Bioforce AG, 9325 Roggwil, Switzerland

Objective

Evaluation of the anti-inflammatory properties of a newly developed Arnica-Gel by measuring the inhibition of the transcription factor NF- κ B.

Material & Methods

Test sample

Samples of two batches (N^o 909105 and N^o909106) of an ethanolic gel, containing 50% fresh plant tincture of *Arnica montana* flowerheads (Flos. rec. T. 1:20).

Test system

Jurkat T cells were incubated for one hour with different concentrations of the respective gel, which was diluted with ethanol in a ratio of (1:2). Subsequently, cells were stimulated for one hour with 200 U/ml TNF- α , after which total cell extracts were prepared. These extracts were incubated with an NF- κ B oligonucleotide, which was labeled using γ -[³²P]-ATP (3000 Ci/mmol) and T4 polynucleotide kinase, and analyzed in an Electrophoretic Mobility Shift Assay (EMSA). Additionally, cells were only incubated with ethanolic solutions as a control to study the effect of ethanol.

Results

Both batches completely inhibited the transcription factor NF- κ B at a concentration of 20 ml/ml. One batch (N^o 909106) possessed a stronger inhibitory effect. Here, very slight amounts of NF- κ B could be observed even at a concentration of 10 ml/ml. The influence of ethanol could be neglected.

Conclusions

The transcription factor NF- κ B plays an important role in inflammatory processes at a very early and central stage. This protein regulates the transcription of several inflammatory cytokines such as interleukin-1, -2, -6, -8 and TNF- α as well as that of genes encoding for COX-2, nitric oxide synthase and immunoreceptors. Recent publications could show that the anti-inflammatory properties of preparations from Arnica flowerheads can be explained by inhibiting NF- κ B. The experiments reported here confirm the previous results and show that a gel prepared from fresh flowerheads of *Arnica montana* is a very potent inhibitor of this transcription factor in particular.