CURCUMIN POTENTIATES THE ANTI-INFLAMMATORY ACTIVITY OF FLAVOCOXID AT A POST-TRANSCRIPTIONAL LEVEL IN HUMAN CHONDROCYTES WITH AN INFLAMMATORY PHENOTYPE.

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Flavocoxid, a catechin and baicalin mixture, and curcumin exert anti-inflammatory activity in several experimental in vivo and in vitro paradigms of inflammation (Bitto et al., 2014; Henrotin et al., 2010). The effects of both compounds were tested in an experimental in vitro model of arthritis based on the use of human articular chondrocytes triggered with lipopolysaccharide (LPS) (Lorenz et al., 2013).

Human articular chondrocytes were stimulated with LPS (2 ug/ml; Escherichia coli serotype 055:B5) alone or in combination with different treatments: flavocoxid 16 and 32 ug/ml, curcumin 5 and 10 ug/ml or a combination of flavocoxid and curcumin. Four hours after treatment total RNA was isolated from the cells to evaluate the mRNA expression of both p50 and p65 subunits of Nuclear Factor Kappa B (NF-□B), interleukin 1 beta (IL-1□), IL-13 and the metalloproteinases (MMP) 1 and 3. Total protein content of IL-1□, IL-13, MMP-1 and 3 were also evaluated in the cell lysates. LPS prompted the mRNA expression of pNF-□B, IL -1□, IL-13, MMP-1 and 3. Both doses of flavocoxid did not change the inflammatory phenotype induced by LPS in chondrocytes, whereas both doses of curcumin partially blunted the inflammatory phenotype. A drug combination at both doses markedly reduced the mRNA expression of pNF-□B, IL-1□, IL-13, MMP-1 and 3 and the effect was significantly greater ($p<0.01$) than both doses alone. Overlapping results were observed in the protein expression of the several inflammatory markers.

The results suggest that curcumin potentiates flavocoxid anti-inflammatory activity and that curcumin in combination with flavocoxid has a greater effect than curcumin alone, thus strongly suggesting the potential for a dual combination of the two compounds for the management of osteoarthritis.

Bitto et al. (2014). Mediators Inflamm. 2014:790851.

Henrotin et al. (2010). Osteoarthritis Cartilage. 18:141-149.

Lorenz et al. (2013). Arthritis Res Ther. 15:R111.