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"Biochemical Insights into Molecular Mechanisms"

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“Biochemical Insights into Molecular Mechanisms”

University of Belgrade - Faculty of Chemistry
Relative properties of Spirulina-derived phycofibrous and
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New aspects of vitamin C during prenatal period of development

Small molecules attenuate activation of the NF- κ B signaling in epithelial cells by Act d 1 kiwifruit allergen

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Many inflammatory events are regulated by the NF- κ B signaling pathway including the allergic response to food allergens. Small molecule NF- κ B inhibitors can enable better regulation of the inflammation process, prevent unwanted side effects and increase safety of vaccines¹⁻³. The aim of this study was to explore the inhibitory potential of selected small molecules on NF- κ B signaling pathway to decrease the inflammatory effect of food allergens on epithelial cells (HEK293 and Caco-2 cell line). Besides kiwifruit allergen Act d 1, LPS was used as pro-inflammatory stimuli for the cell treatment. Fluorescent microscopy and flow cytometry were employed to confirm the activation of NF- κ B in HEK293 cells after transfection with reporter NF- κ B-GFP plasmid. LPS induced a very low inflammatory effect on HEK293 and Caco-2 epithelial cell lines. On the other hand, after Act d 1 treatment gene expression of pro-inflammatory cytokines in HEK293 cells significantly increased and showed a typical cytokine profile of allergic sensitization. Cells that were treated with vanillyl alcohol or lauric acid previous to the Act d 1 exposure, showed decreased expression of cytokines (IL-1b, IL-6, IL-25, IL-33, TNF α). The transcription factor was activated upon allergen treatment and subsequently attenuated by the small molecules.

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