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TEST REPORT
Beneficial effects of BIONICBAND® with organ-specific cell cultures

Background

In the present study, current cell biological test methods were used to investigate whether the BIONICBAND® is able to improve (1) the vitality of connective tissue fibroblasts, and (2) the activity of phagocytic cells of the non-specific innate immune system, which acts as a first-line defense against invading microbial pathogens.

Experimental design & results

1 ***Connective tissue fibroblasts*** (cell line L-929) were cultivated for 24 hours in the presence of the BIONICBAND® which was placed beneath the cell culture dishes. Then, cell vitality was examined by an enzymatic reaction by addition of XTT, a dye which changes its colour upon the activity of mitochondrial dehydrogenases of the cells. The colour change, which correlates with the enzymatic activity of the cells, was measured with an Elisa reader.
Connective tissue fibroblasts showed an increased vitality by 10-15% after treatment with the BIONICBAND® when compared with untreated controls.

2 ***Functional neutrophils*** (differentiated human promyelocytes; cell line HL-60) were cultivated during their differentiation process for 6 days in the presence of the BIONICBAND® which was placed beneath the cell culture flasks. Finally, cells were collected, washed by several centrifugation steps and were pipetted to a reaction mixture with a specific tetrazolium dye (WST-1) which allows the examination of the basal cell metabolism by colour change. Moreover, differentiated cells were induced to undergo an oxidative burst which yields highly

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reactive superoxide anion radicals able to kill microbial pathogens in the blood in vivo. Please note: The innate immune system has nothing to do with the specific adaptive immune response against viruses etc.
We found a significant increase in energy metabolism of the functional neutrophils by about 20% and an increase in radical generation by about 25%.

Conclusions

The BIONICBAND® improves cell vitality of connective tissue fibroblasts which might lead to an improved individual vitality and well-being. Moreover, the BIONICBAND® might be also useful for an improvement of the non-specific innate immune system by stimulating the radical generation of phagocytes.

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