

Dartsch Scientific GmbH · Auf der Voßhardt 25 · D-49419 Wagenfeld

ICO: 60174382  
DIC: CZ7401020165  
David Kaliberka  
Na Kvetnici 1118/5  
Praha 4  
14000

Auf der Voßhardt 25  
D-49419 Wagenfeld, Germany

Fon: +49 5444 980 1322  
Mobil: +49 151 2272 1294  
Email: [info@dartsch-scientific.com](mailto:info@dartsch-scientific.com)  
Web: [www.dartsch-scientific.com](http://www.dartsch-scientific.com)

March 12, 2022

---

## TEST REPORT

### Protective effect of BIONICBAND® against oxidative stress

---

#### Background

In the present preliminary study, a current cell biological test assay was used to investigate whether BIONICBAND® might be able to protect cultured connective tissue fibroblasts against exogenous oxidative stress. Exogenous oxidative stress plays a key role in several pathogenic processes caused by environmental pollution or due to unwanted electromagnetic fields from mobile phones or data communication devices.

#### Experimental design of the preliminary study

Connective tissue fibroblasts (cell line L-929) were cultivated for 24 hours in the presence of BIONICBAND® which was placed beneath the cell culture dishes. Then, hydrogen peroxide was added in the following concentrations to the culture medium: 0 µM (= internal control without hydrogen peroxide) – 250 µM – 500 µM – 1,000 µM. Cells were then incubated for another 14 hours with and without BIONICBAND®. Finally, cell viability was examined by an enzymatic reaction by addition of XTT (= sodium 3'-[1-(phenylaminocarbonyl)-3,4-tetrazolium]-bis(4-methoxy-6-nitro) benzene sulfonic acid hydrate), a tetrazolium dye which changes its colour upon the activity of mitochondrial dehydrogenases within the cells from yellow to orange. The colour change, which is directly correlated to the enzymatic activity of the cells, was measured with an Elisa reader.

#### Results

Actively proliferating connective tissue fibroblasts as represented during an cell regeneration process showed an increased viability by 10-12% after treatment with the BIONICBAND® when compared with untreated controls. Confluent and quiescent cells as represented by an intact cell layer did not show any differences between control and treated cells.

## Conclusions

As shown in the present preliminary study, BIONICBAND® improves the protection of connective tissue fibroblasts against exogenous oxidative stress only when cell layers are in a proliferating state such as in regenerative or healing processes. Quiescent cell layers are stable enough to have a better resistance against oxidative stress and are not supported by BIONICBAND®.

However, BIONICBAND® seems to enhance the cellular resistance against exogenous oxidative stress such, especially in situations where the body is involved in regenerative processes.



Prof. Dr. Peter C. Dartsch  
Certified biochemist