

Research article

QiOne® 2 Pro – Investigations on its Potential for the Exclusion of Unwanted Cellular Effects of Mobile Phone Radiation

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Abstract

QiOne® 2 Pro is a specifically created device which forms a static field that stimulates water molecules to undergo a transition into the coherent state. Since our body consists of about 60 to 75% of water (depending on age), this coherent state of the water molecules might increase the cellular resistance against exogenous reliabilities such as electromagnetic fields. Human promyelocytes (HL-60 cells) were differentiated to functional neutrophils over a period of 6 days by the addition of 1.5 vol% dimethylsulfoxide to the culture medium. Functional neutrophils are able to generate highly reactive superoxide anion radicals upon stimulation and play a key role in the front-line defense against invading microbial pathogens *in vivo*. After differentiation, cultured cells were exposed to a discontinuously voice-transmitting mobile phone with a switched-on WLAN connection and a switched-off display which was applied for 4 hours to the cells in an external mini-incubator. Cells were exposed with and without the presence of QiOne® 2 Pro. Corresponding controls were incubated for the same time in another mini-incubator without mobile phone radiation. Finally, the cells were transferred back to the standard incubator and cultivated for another 20 hours before the intensity of superoxide anion radical generation in the course of an induced oxidative burst was examined. Unprotected cells showed a markedly decreased generation of oxygen radicals after being exposed to mobile phone radiation which was dependent on the placement of the cell culture in relation to the active mobile phone. In contrast, the cells protected by QiOne® 2 Pro showed a significantly higher oxygen radical generation at all placements demonstrating the higher vitality of the cells due to the protective effect of QiOne® 2 Pro. However, even for the protected conditions, the values of the untreated controls without mobile phone radiation were not completely achieved. In conclusion, the efficacy of the innate immune system which might be reduced by mobile phone radiation *in vivo*, is markedly improved by QiOne® 2 Pro in this present study. Thus, the continuous use of QiOne® 2 Pro might improve and maintain personal health and well-being by a stronger resistance against exogenous reliabilities such as electromagnetic fields.

Keywords: Mobile phone radiation, coherent water, innate immune system, oxidative burst; neutrophil, HL-60, cell culture

Introduction

Neutrophils are the most abundant type of granulocytes which make up about 60% of all white blood cells in humans and are normally found in the bloodstream. They form an essential part of the innate immune system [1] and, therefore, play a key role in the front-line defense against invading microbial pathogens. They are also one of the first responders of inflammation. They are able to generate highly reactive superoxide anion radicals in the course of a so-called oxidative or respiratory burst [2,3]

According to quantum electrodynamics (QED), liquid water is a system of two phases in which one of the phases is in a coherent state with all molecules oscillating in the same phase,

whereas the other is made up of uncorrelated molecules in a gas-like state [4]. The collision of such uncorrelated water molecules might interfere with cell communication and signalling [5,6]. In the case of coherent water, additional hydrogen bonds cause the water molecules to arrange themselves in a structure without any impact. Thus, all signals within the body should reach the cells in an unaffected way and influence them to resist exogenous reliabilities such as electromagnetic fields in a more confident way.

According to the manufacturer and distributor, Qi Blanco UG (haftungsbeschränkt), D-97711 Maßbach, Germany, QiOne® 2 Pro contains a grid chip with a specifically developed gold al-

loy which forms a static field that stimulates water molecules to undergo a transition into the coherent state. Since our body consists of about 60 to 75% of water (depending on age), this coherent state of the water molecules influences the cells of our whole body.

In the present study, current bioassays with functional neutrophils were used to investigate whether the use of QiOne® 2 Pro might result in a protection against unwanted mobile phone radiation.

Material and Methods

QiOne® 2 Pro device

QiOne® 2 Pro was kindly provided by Qi Blanco UG (haftungsbeschränkt), D-97711 Maßbach, Germany, for the duration of the experiments. The device is a second generation grid chip of a specifically developed gold alloy with eightfold strength which creates a static field that stimulates water molecules in your body to enter a coherent state (<https://www.qiblanc.com>).

Routine cell culture

The investigations were conducted with human promyelocytes (cell line HL-60; ACC-3; ECACC 98070106; Leibniz-Institut; DSMZ German Collection for Microorganisms and Cell Cultures, Braunschweig, Germany) in the subcultivation stages (passages) 31 to 36 over a period of more than one month. The cells were routinely cultivated in RPMI 1640 medium supplemented with 10% growth mixture and 0.5% gentamycin. The non-adherent cells were routinely cultivated as suspended mass cultures and were regularly subcultured twice a week with fresh culture medium. Cultures were incubated in an incubator at 37°C and an atmosphere of 5% CO₂ and 95% air at almost 100% humidity. All cell reagents were purchased from Pan-Biotech, Aidenbach, Germany.

Basic experimental design

For the experiments cells were cultivated as suspension cultures in special culture flasks with a ventilated lid (25 cm² growth area; TPP Switzerland, Faust Lab Science, Klettgau, Germany) which are designed to inhibit gas exchange between the culture medium and the normal air with its low CO₂ concentration during treatment so that no pH changes resulted.

By addition of 1.5% dimethyl sulfoxide to the culture medium, the cells were differentiated over a period of 6 days into functional neutrophils, which are capable of generating superoxide anion radicals after the addition of phorbol-12-myristate-13-acetate (Sigma-Aldrich, Deisenhofen, Germany) [7-11].

Finally, the cells for each experimental series were prepared by two centrifugation steps (6 min at 190 × g) and repeated washings in phosphate buffered saline with calcium and magnesium. Finally, 40-60 µl aliquots of the resuspended cells in phosphate buffered saline with calcium and magnesium containing 10 mM glucose were taken for the tests.

The reactive superoxide anion radicals in the reaction mixture caused the cleavage of the tetrazolium dye WST-1 (Roche Diagnostics, Mannheim, Germany), which was also present in the reaction mixture. The amount of superoxide anion radicals present in the reaction mixture was directly related to the color change of the dye. The optical density was recorded at various

time points up to 45 min as a differential measurement $\Delta OD = 450 - 690$ nm by an Elisareader (BioTek ELx 808 with software Gen 5 version 3.00) and calculated with Microsoft Excel 2016.

Exclusion of mobile phone radiation by QiOne® 2 Pro

Promyelocytes which have been differentiated to functional neutrophils for 6 days were exposed to the radiation of a current and commercially available mobile phone from a leading brand manufacturer with a SAR value of 0.76 W/kg [12]. No distinction was made between thermal and non-thermal radiation, because both are also present in reality when making a call and using WLAN and have an impact on the human body.

The experimental setup was conducted in such a way that two culture flasks with the cells were placed on the display of the mobile phone and two culture bottles were placed beneath its back cover near the energy cells and the antenna. The mobile phone transmitted voice and environmental sounds discontinuously; the WLAN function was switched on and the display was switched-off. For clarification of the setup and the positions of the flasks and their nomenclature (Figure 1). This corresponded to the real situation of a radiation direction towards the user or away from the user. By this experimental design, also varying radiation intensities at different local areas of the mobile phone could be examined. Three independent experiments with quadruplicate culture flasks were conducted.

The total exposure time to the actively transmitting mobile phone was 4 hours at 37°C for each independent experiment (with and without the presence of QiOne® 2 Pro) in a temperature-controlled external mini incubator. Thereafter, the cells were transferred back to the standard incubator and incubated for another 20 hours before the intensity of superoxide anion radical generation in the course of an induced oxidative burst was examined.

Statistical analysis

Statistical analysis was done with the non-parametric two-tailed Wilcoxon-Mann-Whitney test.

Results

Basically, the different exposure positions around the mobile phone caused a different reduction in the generation of superoxide anion radicals (Figure 2). However, when no protection was used, only 50% of radical generation by the functional neutrophils was left at the upper right position and approximately 65% at the lower left position. When taken all the data and culture flask positions together, mobile phone radiation in the unprotected situation caused a reduction in superoxide anion radical generation to $60.5 \pm 3.9\%$ (mean value \pm standard deviation) in comparison to untreated cells which were set as 100%. QiOne® 2 Pro protected cells showed a much lower reduction in superoxide anion radical generation at all culture flask positions. In total, it was reduced to $84.7 \pm 7.0\%$ (mean value \pm standard deviation) in comparison to untreated cells (set as 100%), which is nearly 50% better than for the unprotected cells. The difference between both situations, unprotected cells and QiOne® 2 Pro protected cells, was highly significant ($p \leq 0.01$). However, even for the protected conditions, the values of the untreated controls without mobile phone radiation were not completely achieved.

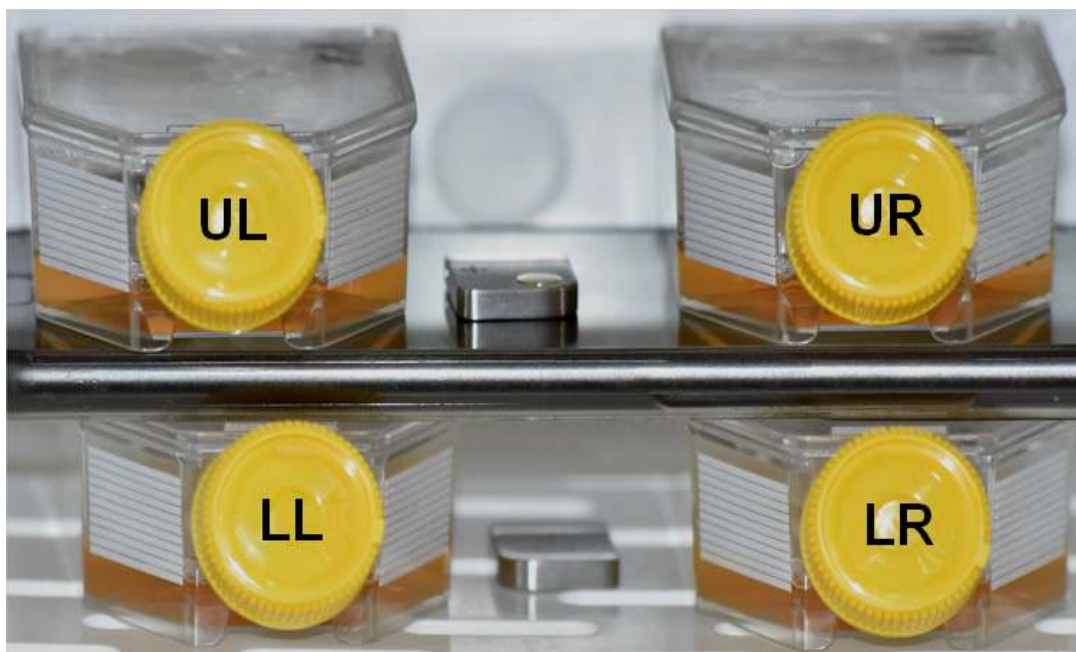


Figure 1. Experimental setup during exposure with quadruplicate samples placed on the mobile phone display (= direction of radiation towards the user) and placed beneath its back cover (= direction of radiation away from the user). QiOne® 2 Pro was placed between the culture flasks at each radiation level. The positions of the flasks are marked as UL (= upper left), UR (= upper right), LL (= lower left), LR (= lower right).

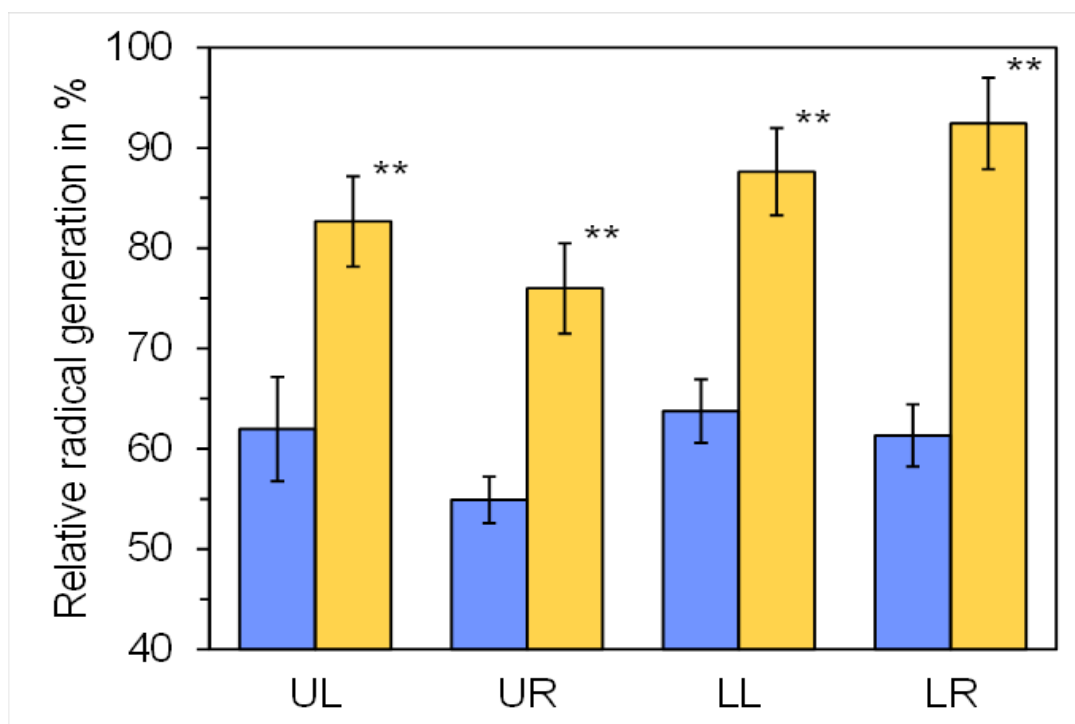


Figure 2. Presentation of the different percentage decrease in superoxide anion radical generation by functional neutrophils after 4 hours of exposure to the radiation of an active mobile phone without protection (blue columns) and after protection by QiOne® 2 Pro (yellow columns). The untreated controls are set as „100 %“. The positions of the flasks are marked as UL (= upper left), UR (= upper right), LL (= lower left), LR (= lower right). Data represent mean values \pm standard deviations of 3 independent experiments. ** $p \leq 0.01$ for protected vs. unprotected cells; two-tailed Wilcoxon-Mann-Whitney test.

Discussion

Although the principles of quantum electrodynamics (QED) are not really accepted in conventional medicine as a method to influence the state of water – which is also under controversial discussion by itself [13] – the present investigation has shown that coherent water obviously has a definite positive impact on cells by increasing their resistance against exogenous reliabilities such as electromagnetic fields.

Non-thermal electromagnetic field effects are due to very low intensity fields that do not heat up the cells or tissues of organisms such as microwaves [14,15]. However, both are present in aqueous systems when making a call or being connected to the internet via WLAN. Both effects play an essential role in mobile telecommunication. The coherent state of water, which is characterized by a homogenous oscillation of the electron clouds of water molecules and additional hydrogen bonds [4-6], has also been addressed to play a relevant role for electromagnetic fields [5].

It has been stated that electromagnetic fields can be coupled to coherent systems resulting in a “self-trapping” which causes a common in phase dynamical oscillation [4,16-18]. As a matter of fact, the coherent system might be protected against exogenous electromagnetic fields like the inner part of a Faraday cage.

As demonstrated in the present investigation, QiOne® 2 Pro caused a significant exclusion of the effects of mobile phone radiation in comparison to unprotected functional neutrophils. The generation of superoxide anion radicals in the course of an oxidative burst was the actual examination criterion, which also reflects the vitality of the cells. Moreover, a reduced generation of superoxide anion radicals in the unprotected situation might be also related to a reduced innate immune defense in vivo, because the neutrophils might show a decreased activity in the devitalization of microbial pathogens.

However, one might argue that cell cultures do not represent the human body with its complex metabolic pathways, but it should be considered that cell cultures can shed light on selected aspects of living matter.

At present, one can only speculate about the basic protective mechanisms of QiOne® 2 Pro against mobile phone radiation. However, the effect might be related to the induction of the coherent state of water, which induces electromagnetic waves to get a common in phase dynamical oscillation. More work has to be done to clarify the correlation between the coherent state of water and its effect on living matter.

Conclusion

The present study with cultured functional neutrophils has shown that QiOne® 2 Pro was effective in the exclusion of the effects of mobile phone radiation which has a negative impact on the generation of reactive oxygen radicals by these cells. The generation of oxygen radicals is necessary as a front-line defense of the innate immune system against microbial pathogens invading into the bloodstream.

Thus, the continuous use of QiOne® 2 Pro might improve and maintain personal health and well-being by a stronger resistance against exogenous reliabilities such as electromagnetic fields.

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