

Scientific Meeting

Genotoxic Effects of Radiofrequency Fields – Lessons from the Conflicting Results

May 11th, 2007

Oberschleißheim (Neuherberg), near Munich, Germany
Federal Office for Radiation Protection in Germany (BfS)

Organized by the German Research Association for Radio Applications (FGF).

Background

In the last twenty years a lot of projects were conducted to investigate a possible influence of radiofrequency fields on the genome. The results are rather inconsistent: Whereas most of the publications show no effects at exposure levels below or near existing guidelines, a lot of publications found such effects. For a review see: Vijayalaxmi and Obe 2004.

Meanwhile, several new studies were finished again showing conflicting results. Of particular interest are the genotoxic studies from the European REFLEX Program and attempts to replicate the data (Diem et al. 2005, Tauber et al. unpublished, Nikolova et al. 2005, Speit et al. 2007, Schär et al. unpublished) as well as further research applying the approach used in the REFLEX experiments for different RF fields (Schwarz et al. 2006).

Several questions arise from the results of these experiments:

- Do the effects depend on the cell line? Effects were found in human fibroblasts, human HL-60 cells, rat granulosa cells, and partly in mouse embryonic stem cells.
- Do the effects depend on exposure characteristics? Effects were found depending on duration, intermittence, and modulation of exposure – but not consistent between the groups.
- Does the evaluation of the results depend on its methodological details? Re-evaluation of some of the results in different laboratories revealed the same trend, but different quantities of the effects.
- Do the waveguides used have some features that might explain the differences, or is a different handling of these devices responsible for the conflicting results? In almost all of the experiments the same exposure devices were used.
- What's the reason for the partly differing results in replication studies? Replication attempts were done with similar experimental protocols and with assistance of involved laboratories.

Therefore the aims of this workshop are:

- bringing together all involved scientists to discuss the conflicting results of their recently finished experiments on the influence of RF-Fields on DNA strand breaks and micronucleus formation in different cell lines, and
- to decide whether FGF should sponsor additional research to the lymphocytes and fibroblasts studies planned by the BfS.

References:

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