



Recent scientific publications relevant to mobile telephony

## August 2006

**Australia:** Expression of the immediate early gene, *c-fos*, in fetal brain after whole of gestation exposure of pregnant mice to global system for mobile communication microwaves, [Finnie et al, Pathology](#), 38(4):333-335, August 2006.

*'...In this animal model, no stress response was detected in the fetal brain using c-fos immunohistochemistry after whole of gestation exposure to mobile telephony.'*

**China:** Effects of Global System for Mobile Communications 1800 MHz radiofrequency electromagnetic fields on gene and protein expression in MCF-7 cells, [Zeng et al, Proteomics](#), Published Online: 3 August 2006.

*'...Overall, the present study does not provide convincing evidence that RF EMF exposure under current experimental conditions can produce distinct effects on gene and protein expression in the MCF-7 cells.'*

**Croatia:** Comparison of 864 MHz and 935 MHz microwave radiation effects on cell culture, [Pavicic et al, Arhiv za higijenu rada i toksikologiju](#), 57(2):149-54, June 2006.

*'...the growth curve of the 864 MHz irradiated cells showed a significant decrease after two-hour and three-hour exposure on the Day 3 after exposure. Likewise, cells exposed to 935 MHz microwaves for three hours showed a significant growth on Day 3 after exposure...'*

**Finland:** Meta-analysis of mobile phone use and intracranial tumors, [Lahkola et al, Scandinavian Journal of Work, Environment & Health](#), 32(3):171-177, 2006.

*'...The totality of evidence does not indicate a substantially increased risk of intracranial tumors from mobile phone use for a period of at least 5 years.'*

**Finland:** Mobile phone radiation causes changes in gene and protein expression in human endothelial cell lines and the response seems to be genome- and proteome-dependent, [Nylund and Leszczynski, Proteomics](#), Published Online: 28 July 2006.

*'...the same genes and proteins were differently affected by the exposure in each of the cell lines. This suggests that the cell response to mobile phone radiation might be genome- and proteome-dependent...Our findings might also explain, at least in part, the origin of discrepancies in replication studies between different laboratories.'*

**Finland:** No Effects of Radiofrequency Radiation on 3-Chloro-4-(dichloromethyl)-5-hydroxy-2(5H)-furanone-Induced Tumorigenesis in Female Wistar Rats, [Heikkinen et al, Radiation Research](#), 166(2):397-408, August 2006.

*'...RF radiation did not statistically significantly affect mortality or organ-specific incidence of any tumor type...The results of the present study do not support co-carcinogenic effects of low-level long-term RF-radiation exposure in rats.'*

**France:** Scalp localization of human auditory cortical activity modified by GSM electromagnetic fields, [Maby et al, International Journal of Radiation Biology](#), 82(7):465-472, July 2006.

*'...The present study suggests that radiofrequency fields emitted by mobile phones modify the AEP [Auditory Evoked Potentials]. Nevertheless, no direct link between*

*these findings and RF-induced damages in brain function was established.'*

**Finland:** Modest increase in temperature affects ODC activity in L929 cells: low-level radiofrequency radiation does not affect cellular ODC activity, [Höytö et al, Journal Radiation and Environmental Biophysics](#), Published Online: 19 July 2006.

*'...RF radiation did not affect cellular ODC activity. However, a slight increase in temperature (0.8-0.9°C) in the exposure system lead to decreased ODC activity in cell cultures... The results show that ODC activity is sensitive to small temperature differences in cell cultures. Hence, a precise temperature control in cellular ODC activity studies is needed.'*

**Finland:** Mobile phone effects on children's event-related oscillatory EEG during an auditory memory task, [Krause et al, International Journal of Radiation Biology](#), 82(6):443-450, June 2006.

*'...The current findings suggest that EMF emitted by mobile phones has effects on brain oscillatory responses during cognitive processing in children.'*

**Germany:** Beliefs and Emotionality in Risk Appraisals, [Thalmann and Wiedemann, Journal of Risk Research](#), 9(5):453-466, July 2006.

*'...The findings suggest that people have already formed an opinion on the EMF issue. Firstly, these prior beliefs influence their risk judgments and, secondly, highly emotional information polarizes existing beliefs and thereby influences the laypersons' risk appraisals.'*

**Germany:** Occupational Exposure to Radio Frequency/Microwave Radiation and the Risk of Brain Tumors: Interphone Study Group, Germany, [Berg et al, American Journal of Epidemiology](#), Published Online 27 July 2006.

*'...No significant association between occupational exposure to RF/MW-EMF and brain tumors was found. For glioma, the adjusted odds ratio for highly exposed persons compared with persons not highly exposed was 1.21 (95% confidence interval: 0.69, 2.13); for meningioma, it was 1.34 (95% confidence interval: 0.64, 2.81). However, the slight increase in risk observed with increasing duration of exposure merits further research with larger sample sizes.'*

**Germany:** Effects of Electromagnetic Fields on Cells: Physiological and Therapeutical Approaches and Molecular Mechanisms of Interaction: A Review, [Funk et al, Cells, Tissues, Organs](#), 182(2):59-78, June 2006.

*'...A further goal of this review is to bridge the gap between recent cell biological studies (which, indeed, show new data of EMF actions) and aspects of EMF-based therapy, e.g., in wounds and bone fractures.'*

**Hungary:** The application of surface plethysmography for heart rate variability analysis after GSM radiofrequency exposure, [Atlasz et al, Journal of Biochemical and Biophysical Methods](#), Published Online: 25 April 2006.

*'...there was no significant difference in the values of HR and HRV between the RF and the sham groups. Our preliminary study demonstrates that, in our experimental conditions, RF fields emitted by cellular phones do not cause observable effects on the regulation of heart rate of healthy, young adults.'*

**Israel:** Evidence for a Specific Microwave Radiation Effect on the Green Fluorescent Protein, [Coptý et al, Biophysical Journal](#), 91(4):1413-1423, August 2006.

*'...Although the microwave irradiation heats the solution, the microwave-induced*

*changes in fluorescence cannot be explained by heating alone. Several possible scenarios are discussed.'*

**Italy:** Age-Dependent Effects of in Vitro Radiofrequency Exposure (Mobile Phone) on CD95+ T Helper Human Lymphocytes, [Capri et al, Annals of the New York Academy of Sciences](#), 1067(1):493-499, May 2006.

*'...No significant changes in the percentage of these cell subsets were found between exposed and sham-exposed lymphocytes in both young and elderly donors. Nevertheless, after RF exposure we observed a slight, but significant, downregulation of CD95 expression in stimulated CD4+ T lymphocytes from elderly, but not from young donors. This age-related result is noteworthy given the importance of a such molecule in regulation of the immune response.'*

**Italy:** Gene expression changes in human cells after exposure to mobile phone microwaves, [Remondini et al, Proteomics](#), Published Online: 28 July 2006.

*'...Analysis of the affected gene families does not point towards a stress response. However, following microwave exposure, some but not all human cells might react with an increase in expression of genes encoding ribosomal proteins and therefore up-regulating the cellular metabolism.'*

**Italy:** Comparison between low-level 50 Hz and 900 MHz electromagnetic stimulation on single channel ionic currents and on firing frequency in dorsal root ganglion isolated neurons, [Marchionni et al, Biochimica et Biophysica Acta \(BBA\) - Biomembranes](#), 1758(5):597-605, May 2006.

*'...We present evidence that the firing rate of rat sensory neurons can be modified by 50/60 Hz magnetic field but not by low level 900 MHz fields...'*

**Japan:** Mobile phone use and acoustic neuroma risk in Japan, [Takebayashi et al, Occupational and Environmental Medicine](#), Published Online: 15 August 2006.

*'...no significant increase of acoustic neuroma risk was observed...No exposure-related increase in the risk of acoustic neuroma was observed...laterality of mobile phone use was not associated with tumors...results suggest that there is no significant increase in the risk of acoustic neuroma in association with mobile phone use in Japan.'*

**Japan:** Correlation Between Peak Spatial-Average SAR and Temperature Increase Due to Antennas Attached to Human Trunk, [Hirata et al, IEEE Transactions on Biomedical Engineering](#), 53(8):1658-1664, August 2006.

*'...Computational results suggests that one of the most dominant factors which affect the correlation between peak SAR and maximum temperature increase is blood flow in tissues...'*

**Korea:** Radiofrequency radiation does not induce stress response in human T-lymphocytes and rat primary astrocytes, [Lee et al, Bioelectromagnetics](#), Published Online: 12 July 2006.

*'...These results indicate that 1763 MHz RF radiation alone did not elicit any stress response, nor did it have any effect on TPA-induced MAPK phosphorylation, under our experimental conditions.'*

**Norway:** Paternal occupational exposure to radiofrequency electromagnetic fields and risk of adverse pregnancy outcome, Mjøen et al, [European Journal of Epidemiology](#), Published Online: 21 July 2006.

*'...Data on reproductive outcomes derived from the Medical Birth Registry of Norway*

*were linked with data on paternal occupation derived from the general population censuses...The study is partly reassuring for occupationally exposed fathers.'*

**Spain:** Evaluating Near-Field Radiation Patterns of Commercial Antennas, [Las-Heras et al, IEEE Transactions on Antennas and Propagation](#), 54(8):2198-207, August 2006.

*...This method can be used in characterizing the 'reference volumes' or exclusion zones for transmitting antennas dealing with the maximum levels of electromagnetic radiation safe for human exposure...'*

**Sweden:** Risk of Brain Tumors Associated with Exposure to Exogenous Female Sex Hormones, [Wigertz et al, American Journal of Epidemiology](#), Published Online: 11 July 2006.

*'...Hormone usage was not associated with glioma risk in this study. The findings suggest that the use of female sex steroids may increase the risk of meningioma.'*

**Sweden:** Exposure of Cultured Astroglial and Microglial Brain Cells to 900 MHz Microwave Radiation, [Thorlin et al, Radiation Research](#), 166(2):409-421, August 2006.

*'...No significant differences could be detected for any of the parameters studied at any time and for any of the radiation characteristics...The morphology of the cultured astroglial cells and microglia was studied and appeared to be unaffected by microwave irradiation. Thus this study does not provide evidence for any effect of the microwave radiation used on damage-related factors in glial cells in culture.'*

**Turkey:** Melatonin modulates 900 MHz microwave-induced lipid peroxidation changes in rat brain, [Köylü et al, Toxicology and Industrial Health](#), 22(5):211-216, June 2006.

*'...The levels of lipid peroxidation in the brain cortex and hippocampus increased in the MW group compared with the control group, although the levels in the hippocampus were decreased by MW + melatonin administration. The brain cortex lipid peroxidation levels were unaffected by melatonin treatment. We conclude that melatonin may prevent MW-induced oxidative changes in the hippocampus by strengthening the anti-oxidant defense system, by reducing oxidative stress products.'*

**UK:** History of allergies and risk of glioma in adults, [Schoemaker et al, International Journal of Cancer](#), Published Online: 5 July 2006.

*'...The study showed an inverse association of glioma risk with allergic disease. Possible reasons for the association, as well as potential immunological aetiology, include confounding, bias and reverse causality.'*

**USA:** Mobile Telephones and Rates of Brain Cancer, [Muscat et al, Neuroepidemiology](#), 27(1):55-56, July 2006.

*'...The rates did not change during this period, despite the exponential increase in mobile phone subscriptions starting in 1984. These results indicate that mobile phone use is unrelated to the risk of neuronal cancers.'*

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