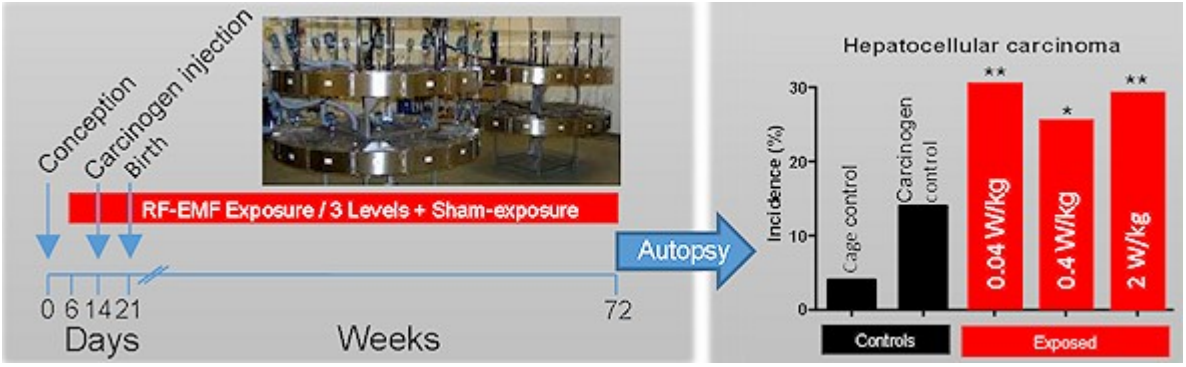
Powerwatch News 08/03/2015
RF EMFs produce clear co-carcinogenic effects



On the same day that the EC's SCENIHR released their long-awaited report [1] that concluded that we should not worry about any adverse health effects of EMF/RF fields, a new well conducted replication study [2] shows that long-term 3G/UMTS microwave exposure can act as a co-carcinogen and statistically significantly increase cancer growth at very low exposure levels, 50-fold below currently permitted levels.

Everyone using a 3G mobile phone or iPad or other tablet will be exposed at higher levels than this (0.04 W/kg). This study flags a big and important "wake up alarm call".

These are levels that many, if not most, of our children are now being being exposed to WiFi at school, when using laptops and tablet PCs. Modern WiFi signals use RF modulation schemes that are similar to UMTS. It is vital that this study is repeated using similar exposure levels with various types and frequencies of WiFi.

Pw In our opinion this is a crucial replication study that provides confirmation in a well-conducted *in-vivo* animal study that modulated microwave RF exposure can act as a co-carcinogen. This should be adequate to change its IARC 2B rating (possible human carcinogen) into the 2A category (probable human carcinogen).

The team was led by Professor Dr Alexander Lerchl and funded by a grant from the German Federal Office for Radiation Protection (BfS), Salzgitter, Germany. The funding agency defined the principal study design which was further developed with Dr Lerchl. The authors declare no conflicts of interest. In the past Dr Lerchl has been outspoken in his belief that current science had shown that low levels of microwave RF exposure could not be carcinogenic, so publication of this new, well conducted, study that shows the opposite is to his credit.

Pw We call on the EC to issue a warning to the general public, and especially schools, and to urgently authorise funding for repeating this work using exposures to the the various WiFi modulation standards as soon as possible. As a UK-based group, we also call on the UK Department of Health to revise their Public Health England organisation's website advice that currently supports schools in their use of WiFi for children of all ages. Powerwatch has long believed that this is unethical and we have repeatedly called for WiFi exposure related health research which, to our knowledge, has not been done by any official organisation.

The authors write:

"Previously published results from a pilot study with carcinogen-treated mice, however, suggested tumor-promoting effects of RF-EMF (Tillmann et al, 2010). We have performed a replication study using higher numbers of animals per group and including two additional exposure levels (0 (sham),

0.04, 0.4 and 2 W/kg SAR)... Numbers of tumors of the lungs and livers in exposed animals were significantly higher than in sham-exposed controls. In addition, lymphomas were also found to be significantly elevated by exposure. A clear dose-response effect is absent. We hypothesize that these tumor promoting effects may be caused by metabolic changes due to exposure."

"Our study confirms and extends the previously published observations of tumor-promoting effects of life-long RF-EMF exposure... Since many of the tumor-promoting effects in our study were seen at low to moderate exposure levels (0.04 and 0.4 W/kg SAR), thus well below exposure limits for the users of mobile phones."

"The fact that both studies found basically the same tumor-promoting effects at levels below the accepted (and in most countries legally defined) exposure limits for humans is worrying. Although animal experiments are generally not easily transferable to the situation in humans, the findings are a very clear indication that - in principal - tumor-promoting effects of life-long RF-EMF exposure may occur at levels supposedly too low to cause thermal effects."

Some more details of the study:

In 2010, Tillmann and colleagues published a study [3] showing tumour-promoting effects of life-long exposure to microwave RF from 3G (UMTS) at moderate exposure levels in mice treated with a carcinogen while *in-utero*. Those results were potentially influenced by an unexpected infection. Their data showed clear effects of RF-EMF exposure on the incidences of lung and liver tumours. The exposed mice also had double the number of metastasising lung tumours compared with the non-exposed mice. SCENIHR 2015 does mention the Tillmann, et al, study on page 85 and say that a further study "might be informative", but also state that peak exposures were high (5 W/kg), implying that there might be some thermal effect.

Lerchl's team have replicated this study with higher numbers of mice per group in order to clarify whether the previously reported results could be confirmed. In addition, two additional SAR levels of exposure (low and high) were included in this well designed new study in order to investigate possible dose-response relationships.

What they have found are co-carcinogenic promotional effects at all levels of UMTS RF/microwave exposure. In fact, the lowest level of exposure shows the highest, statistically significant, promotional effect. Please see the Figure (above) reproduced from the paper.

The paper is available from the journal's website, linked below.

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References

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2/. » A. Lerchl, M. Klose, K. Grote, A.F.X. Wilhelm, O. Spathmann, T. Fiedler, J.Streckert, V. Hansen, M. Clemens, Tumor promotion by exposure to radiofrequency electromagnetic fields below exposure limits for humans, Biochemical and Biophysical Research Communications (2015), doi: 10.1016/j.bbrc.2015.02.151

3/. » T. Tillmann, H. Ernst, J. Streckert, et al., Indication of cocarcinogenic potential of chronic UMTS-modulated radiofrequency exposure in an ethylnitrosourea mouse model, Int. J. Radiat. Biol. 86 (2010)

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