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Tumor promotion by exposure to radiofrequency electromagnetic fields below exposure limits for humans

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Abstract

The vast majority of in vitro and in vivo studies did not find cancerogenic effects of exposure to electromagnetic fields (RF-EMF), i.e. emitted by mobile phones and base stations. 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). We could confirm and extend the originally reported findings. 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. 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, further studies are warranted to investigate the underlying mechanisms. Our findings may help to understand the repeatedly reported increased incidences of brain tumors in heavy users of mobile phones.

Keywords: Cancer; Electromagnetic fields; Mice; Tumor promotion.

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Comment on Lerchl study: "Tumor promotion in mice by exposure to radiofrequency electromagnetic fields still waiting evidence".

Nesslany F, Aurengo A, Bonnet-Belfais M, Lambrozo J.

Biochem Biophys Res Commun. 2015 Nov 6;467(1):101-2. doi: 10.1016/j.bbrc.2015.09.114. Epub 2015 Sep 28.

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