

# RF EMF (Radiowaves and Microwaves)

## – Class 1 Carcinogen (known to cause cancer)

Dr Lennart Hardell MD PhD Department of Oncology, Orebro University Hospital, Sweden who had previously studied other environmental toxins recently turned to study EMF. Hardell (with Michael Carlberg) who has performed the high quality studies states:

***“Based on the Bradford Hill criteria, glioma and acoustic neuroma should be considered to be caused by RF-EMF emissions from wireless phones and regarded as carcinogenic to humans, classifying it as group 1 according to the IARC classification. Current guidelines for exposure need to be urgently revised.”***

In their article: *Using the Hill viewpoints from 1965 for evaluating strengths of evidence of the risk for brain tumors associated with use of mobile and cordless phones*, (<http://www.ncbi.nlm.nih.gov/pubmed/24192496>) the results state:

The criteria on **strength, consistency, specificity, temporality, and biologic gradient** for evidence of increased risk for glioma and acoustic neuroma were fulfilled. Additional evidence came from **plausibility and analogy** based on laboratory studies. Regarding **coherence**, several studies show increasing incidence of brain tumors, especially in the most exposed area. Support for the **experiment** came from antioxidants that can alleviate the generation of reactive oxygen species involved in biologic effects, although a direct mechanism for brain tumor carcinogenesis has not been shown. In addition, the finding of no increased risk for brain tumors in subjects using the mobile phone only in a car with an external antenna is supportive evidence. Hill did not consider all the needed nine viewpoints to be essential requirements.

Note: 5 viewpoints were clearly fulfilled, and the other 4 supported causality

This report was published in **2013** and after that more evidence has come that supports causality. Furthermore Hill postulated that not all 9 viewpoints must be fulfilled. In fact **all support causality by now**.

In fact using the Bradford Hill viewpoints on association and causation **RF EMF** should be classified as Group 1, the agent causes human cancer.

Best wishes Donna,

Lennart Hardell

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