

## New scientific publication by Dr. Dimitris J. Panagopoulos

**Panagopoulos DJ, (2024): Mobile telephony radiation exerts genotoxic action and significantly enhances the effects of gamma radiation in human cells. *General Physiology and Biophysics*, 43(2):103-120. <https://pubmed.ncbi.nlm.nih.gov/38099580/>**

### Abstract

I previously reported chromosomal damage in human peripheral blood lymphocytes (HPBLs) induced by: a) Mobile telephony (MT) electromagnetic fields (EMFs)/electromagnetic radiation (EMR), b) a high caffeine dose, and c) the combination of the two stressors. HPBLs from the same subjects exposed to gamma radiation at doses 0.1, 0.3, or 0.5 Gy, displayed more aberrations than those exposed to MT EMFs or the high caffeine dose in a dose-dependent manner. When the cells exposed to these gamma radiation doses were pre-exposed to a single 15-min MT EMF exposure, the number of aberrations increased significantly more than the sum number of aberrations induced by the individual stressors in all subjects. Thus, MT EMF exposure at a power density  $\sim 136$  times below the latest International Commission on Non-Ionizing Radiation Protection-ICNIRP exposure limit, apart from the fact that it is genotoxic by itself, significantly enhanced the genotoxic action of gamma radiation. Since gamma radiation at similar doses is applied for diagnostic and therapeutic purposes, people should be aware of the increased risk during treatment periods. Comparison of the genotoxic action between MT EMF and gamma radiation shows that the ICNIRP limits are, at least,  $\sim 4.5 \times 10^4$  times less stringent than the limits for gamma radiation.

**Conclusions:** 1) MT EMF exposure, apart from the fact that it is genotoxic by itself, significantly enhanced the genotoxic action of gamma radiation in combined exposure; 2) People/patients who are subjected to diagnostic or therapeutic treatment with ionizing radiation should be prudently advised to avoid using Wireless Communication (WC) devices (mobile/smart phones, wi-fi, cordless domestic phones, etc.) for a few days before, during, and after such treatments; 3) Medical/radiology practitioners should be specifically educated on the risks of anthropogenic EMF-exposures in addition to those of ionizing radiations; 4) Comparison with caffeine and gamma radiation suggests that the ICNIRP (2020) limits for WC EMF exposure should be lowered by 40,000 and 45,000 times respectively; 5) The limit for short-term (acute) exposure should then become  $0.1 \mu\text{W}/\text{cm}^2$  and accordingly for long-term exposure  $0.001 \mu\text{W}/\text{cm}^2$ ; 6) The combined effects of real-life man-made EMFs with a variety of other environmental stressors should be examined as a priority by next studies.