

Dear All,

Please, note that my coworkers and I have got yet another article published:

Rajkovic V, Matavulj M, Johansson O, "Histological characteristics of cutaneous and thyroid mast cell populations in male rats exposed to power-frequency electromagnetic fields", *Int J Radiat Biol* 2005; 81: 491-499

This paper emanates from a very fruitful collaboration between the Department of Biology, Faculty of Sciences, Novi Sad, Serbia and Montenegro, and my own research group at the Karolinska Institute, Stockholm, Sweden. We have actually already presented some of the data at two conferences:

Rajkovic V, Matavulj M, Johansson O, "Histological and stereological analysis of cutaneous mast cells in rats exposed to 50 Hz EMF", 6th International Congress of the European Bioelectromagnetics Association (EBEA), Budapest, Hungary, November 13-15, 2003 (abstr.)

Rajkovic V, Matavulj M, Johansson O, "An immunohistochemical and morphometrical study of the power-frequency electromagnetic field influence on skin and thyroid amine- and peptide-containing cells in rats", *BioEM* 2005, Dublin, Ireland, June 19-24, 2005 (abstr.)

...and we also have further papers to be finalized.

As most of you already know, several years ago I and Peng-Yue Liu could, i.a., demonstrate a large increase in the cutaneous mast cell count in persons with electrohypersensitivity as compared to normal healthy individuals [cf. e.g. Johansson & Liu, "Electrosensitivity", "electrosupersensitivity" and "screen dermatitis": preliminary observations from on-going studies in the human skin", In: *Proceedings of the COST 244: Biomedical Effects of Electromagnetic Fields - Workshop on Electromagnetic Hypersensitivity* (ed. D Simunic), EU/EC (DG XIII), Brussels/Graz, 1995, pp 52-57]. In addition, also an effect on cutaneous mast cells from normal healthy volunteers in front of ordinary TVs/PCs could be shown [Johansson et al., "Cutaneous mast cells are altered in normal healthy volunteers sitting in front of ordinary TVs/PCs - results from open-field provocation experiments", *J Cutan Pathol* 2001; 28: 513-519]. Based on these findings, Shabnam Gangi and I could summarize this "mast cell hypothesis" in two papers [Gangi & Johansson, "Skin changes in "screen dermatitis" versus classical UV- and ionizing irradiation-related damage--similarities and differences. Two neuroscientists' speculative review", *Exp Dermatol* 1997; 6: 283-291; Gangi & Johansson, "A theoretical model based upon mast cells and histamine to explain the recently proclaimed sensitivity to electric and/or magnetic fields in humans", *Med Hypotheses* 2000; 54: 663-671]. My working hypothesis since then is that electrohypersensitivity is a kind of irradiation damage, since the observed cellular changes are very much the same as the ones you would find in tissue subjected to UV-light or ionizing radiation [see e.g. Johansson, "Elöverkänslighet - en form av strålskada" (= "Electrohypersensitivity - a kind of irradiation damage", in Swedish), *Tf-bladet* 2004; (3): 12-13].

One very fierce criticism from certain 'opponents' has been that such mast cell alterations in persons with electrohypersensitivity (or in normal healthy volunteers!) can not be due to the action of electromagnetic fields (EMFs) and/or airborne chemicals, but must be due to psychological or psychiatric personality disturbances, cognitive malfunction, or likewise. The purpose and objective of the present study was - therefore - to determine whether rat mast cells in skin and thyroid gland, as well as cutaneous nerve fibers and eosinophils, are sensitive to the influence of power-frequent EMFs.

In summary, it turned out that the numerical and volume densities of intact type A mast cells in the thyroid of the exposed group of rats were significantly higher as compared to the control ($p < 0.05$ for both). [N.B. The obtained animal results can not be understood by psychological or psychiatric theories, but are claimed to be due only to the EMF exposure.]

As usual, we are eagerly hoping for some funding to be able to continue our research efforts. We would be very happy to also include microwaves of mobile phone character in future studies.

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Best regards
Yours
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