

P-448

**EVALUATION OF LONG-TERM EFFECTS OF 50-HZ MAGNETIC FIELDS ON IMMUNE FUNCTIONS IN HUMANS**

TOUITOU Y<sup>1</sup>, AUZEBY A<sup>1</sup>, LAMBROZO J<sup>2</sup>, CAMUS F<sup>1</sup>, SOUQUES M<sup>2</sup>, VERRIER A<sup>2</sup>

(1) Faculty of Medicine Pierre et Marie Curie, Paris, France

(2) EDF / GDF, Paris, France

Presentation preference: Poster Only

Major scientific thematic areas: TA10 - Non Ionizing Radiations

The relationship between exposure to 50-Hz magnetic fields (ELF) and human health is of increasing interest since this exposure has been implicated in many different diseases including cancers in epidemiological studies, though the results are controversial. The identification of possible mechanisms of interaction between ELF and biological systems that could provide a biological plausibility to the observed effects has failed so far. In this study we investigate the possible chronic effects of exposure to ELF in humans. We examine the circadian rhythm of CD<sub>3</sub>, CD<sub>4</sub>, CD<sub>8</sub>, NK cells and B cells in 15 men (38.0 ± 8.9 yrs) exposed chronically and daily for a period of 1-20 years, in the workplace and at home, to a 50-Hz magnetic field in search of any cumulative effect from those chronic conditions of exposure. The weekly geometric mean of individual exposures ranged from 0.1 to 2.6 μT. The results are compared to those for 15 unexposed men similar in age (39.4 ± 1.2 yrs), with the same synchronisation and physical activity who served as controls (individual exposures ranged from 0.004 to 0.092 μT). Blood samples were taken hourly from 2000 to 0800. This work shows that subjects exposed over a long period (up to 20 years) and on a daily basis to magnetic fields experienced no changes in their plasma immune variables. Our data suggest therefore that magnetic fields have no cumulative effects on immune functions, at least for the variables under study.