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PAPER TITLE Analysis of mutagenic effect of low frequency electromagnetic fields fluorescence in situ hybridization (FISH)

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ABSTRACT (See instructions overleaf)

Fluorescence in situ hybridization (FISH) has been shown to be a feasible technique of detecting chromosome rearrangements, being currently used for analysis of induced chromosomal damage.

The experimental evidence on genetic effects with 50-60Hz electromagnetic fields (EMF) indicate contradictory results; however, the majority of the reports failed to demonstrate adverse effects.

Blood peripheral lymphocytes from normal donors, phytohemaglutinin stimulated, were in vitro exposed to a 50 Hz EMF at a flux density of 300, 115, and 28 μT during the time of cultures for cytogenetic analysis (72h). After harvesting, following "chromosome painting" FISH procedures, microscope slides with chromosome spreads were hybridized with two whole-chromosome DNA-libraries and detected with fluorescein-labeled avidin. Under fluorescence microscope, stable chromosome aberrations such us deletions, and translocations, insertions, rings, and duplications were easily detected.

The FISH aberration scoring, under progress, are compared with the conventional light microscope scoring previously done which include, both, stable and unstable chromosomal mutations. With the current results we could conclude that even the use of more accurate techniques as FISH, continuous 50 Hz EMF are not able to produce chromosomal damage at the detectable level.

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