

**DIFFERENTIATION EXPERIMENTAL EFFECTS OF LOW INTENSITY
SEMF, ON PHEOCHROMOCYTOMA CELLS, TYPE PC-12.**

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Herein we investigate the effects of the Static Electro-Magnetic Fields (SEMF) on the pheochromocytoma cell line PC-12, isolated from a rat's pheochromocytoma. The PC-12 cells colony was incubated for 10 days at 37 °C (O₂ 95%, CO₂ 5%) and then exposed to SEMF, 12 hours every day, in 3 consecutive sessions, by using Radio Wave Frequencies, between 10-200 kHz of radiowave spectrum. Radio frequency measurements and SEMF exposure of cells were performed by MULTI CHANNEL DYNAMIC EXITER 100-V1, a device certified by the International Committee of Atomic Energy-EKEFE-DEMOKRITUS, for its safe use in humans and animals. It consists of two main parts: a) a diagnostic part with EPR-spectrometer characteristics and b) a SEMF generator of varying intensities ($1.1 - 1.11 \pm 0.01$ V/m for electric field and $0.0027 - 0.0029 \pm 0.00005$ A/m for magnetic field), along with radio frequencies (1kHz to 1MHz), monitored by a sophisticated software. To use this software, first it is necessary to record the biological target system's frequencies and then, by using a specific algorithm, to calculate the appropriate SEMF frequencies, that are needed for the exposure of living target systems or cells.

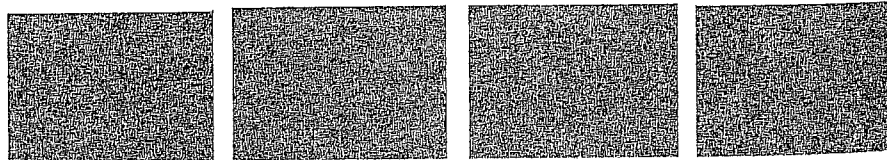


Fig. 1

Fig. 2

Fig. 3

Fig. 4

A slight inhibition of cell proliferation rate was observed after exposition to SEMF. After first exposition a small number of PC-12 cells, presented morphological characteristics of nervous cell differentiations, (Fig. 1, Fig. 2). At the end of the third exposure session, a high percentage (>50%) of the PC-12 cells presented conspicuous morphological characteristics, of nervous cells and a formation of well-described neuronal networks (Fig. 3). It's not yet clear if this