

Medical/biological Study (experimental study)**Multiple power-density windows and their possible origin.**

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Aim of study (according to author)

In some previous *in vitro* experiments it was found that the calcium efflux in chicken brain tissue could be altered by defined ranges of frequency-, modulation-, and power density -dependent radiofrequency exposure. These are the so called power density windows.

So the purpose of this study was 1) to confirm earlier data indicating that modulated RF fields exhibit multiple power density windows capable to alter calcium efflux of chicken brain tissue, 2) to extend the power density range in search of possible additional power density windows, and 3) and to develop a speculative mechanism of action.

Endpoint

- cell function: calcium efflux

Exposure

Field characteristics	Parameters
50 MHz amplitude modulation exposure duration: continuous for 20 min	power flux density: 750 $\mu\text{W}/\text{cm}^2$ min value (e: 1.75 mW/cm^2 , 2.3 mW/cm^2 , 3.85 mW/cm^2 , 4.5 mW/cm^2 , 5.57 mW/cm^2 , 5.85 mW/cm^2 , 6.82 mW/cm^2 , 7.08 mW/cm^2 , 7.65 mW/cm^2 , 7.77 mW/cm^2 , 8.19 mW/cm^2 , 8.66 mW/cm^2 , 8.82 mW/cm^2 , 10.6 mW/cm^2 and 14.7 mW/cm^2)

Exposed system:
isolated organ (in vitro)
chicken brain tissue

Methods

Endpoint/Measurement parameters/Methodology

- cell function: determination of calcium efflux (use of radiolabeled calcium, scintillation counting)

investigated material: isolated organ (in vitro)


time of investigation: after exposure

Main outcome of study (according to author)

Earlier findings of two power density windows between 0.37 to 4.50 mW/cm^2 , leading to an increased calcium efflux, could be reinforced by the data obtained in this study. Furthermore an enhanced calcium efflux at 1.75, 3.85, 5.57, 6.82, 7.65, 7.77, and 8.82 mW/cm^2 was observed in this study.

In brief, the speculative mechanism of action is proposed as a field-induced change e.g. at the cell membrane.

(Study character: medical/biological study, experimental study, full/main study)

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