

Medical/biological Study (experimental study)**Microwave effects on acetylcholine-induced channels in cultured chick myotubes.**

by D'Inzeo G, Bernardi P, Eusebi F, Grassi F, Tamburello C, Zani BM
published in: Bioelectromagnetics 1988; 9 (4): 363 - 372

Aim of study (according to author)

To study the effects of microwaves on a membrane protein channel, the acetylcholine receptor-channel, in cultured chick myotubes.

Background/further details:

Acetylcholine-induced currents have been recorded via patch-clamp techniques using both cell-attached (single-channel current recording) and whole-cell (total current recording) configurations.

Endpoint

- cell function: acetylcholine-induced channel currents

Exposure

Field characteristics	Parameters
10.75 GHz continuous wave (CW) exposure duration: 30 s to 120 s	power flux density: 50 μ W/cm ²

Exposed system:

intact cell/cell culture (in vitro)

Methods

Endpoint/Measurement parameters/Methodology

- cell function: acetylcholine-induced channel currents (single cell current; total current; patch-clamp technique (distribution of amplitude of activated currents; mean channel open time; mean opening frequency; conductance))

investigated material: intact cell/cell culture (in vitro)

time of investigation: before, during and after exposure

Main outcome of study (according to author)

During the exposure to low-power microwaves the frequency of the acetylcholine-activated single channel openings decreased, while the acetylcholine-induced total current showed a faster falling phase. Channel open time and conductance were not influenced by microwave exposure. The authors concluded that exposure to microwaves increases the rate of desensitization and decreases the channel opening probability.

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

 [Back to search result](#)

© 1997 - 2007, Research Center for Bioelectromagnetic Interaction (femu - RWTH Aachen University, Germany).

All Rights Reserved. You may retrieve, read or print, but not reproduce or publish any information found here, for personal and strictly non-commercial purposes, provided that you (i) do not modify such information, and (ii) include any copyright notice originally included with such information.

Unless otherwise noted, the information provided in these documents does not represent the official view or statement of femu - Aachen University. By retrieving, reading or printing these documents you expressly state your agreement with all conditions in the [fine print](#).



Screen view