

## Medical/biological Study (experimental study)

### The relationship between colony-forming ability, chromosome aberrations and incidence of micronuclei in V79 Chinese hamster cells exposed to microwave radiation.

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#### Aim of study (according to author)

To study the effect of microwave radiation on cell survival and on the incidence and frequency of micronuclei and structural chromosome aberrations.

#### Endpoints

- genotoxicity/mutation: frequency of micronuclei and chromosome aberrations
- cell viability/cell division/proliferation: cell survival

#### Exposure

Field characteristics	Parameters
7.7 GHz exposure duration: 10, 20, 30 and 60 min	power flux density: 500 $\mu\text{W}/\text{cm}^2$ (10 $\text{mW}/\text{cm}^2$ and 30 $\text{mW}/\text{cm}^2$ ; culture irradiated in a logarithmical phase of growth) power: 2 W (max output of the generator)

Exposed system:  
intact cell/cell culture (in vitro)  
V79 (Chinese hamster fibroblast cells)

#### Methods

Endpoint/Measurement parameters/Methodology

- genotoxicity/mutation: frequency of micronuclei; structural chromosome aberrations (e.g. chromatid and chromosome breaks; acentric fragments)
- cell viability/cell division/proliferation: cell survival (count of colonies; Giemsa stain)

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

time of investigation: after exposure

#### Main outcome of study (according to author)

The results indicate that microwave radiation can induce damage in the structure of chromosomal DNA: There was a significantly higher frequency of specific chromosome aberrations such as dicentric and ring chromosomes in irradiated cells in comparison to the control samples. The presence of micronuclei in exposed cells confirmed the changes that had occurred in chromosome structure. The decrease in the number of exposed cell colonies was related to the power density applied and to the time of irradiation.

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

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