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极低频磁场致癌效应的细胞学研究进展

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近年来有关极低频磁场致癌效应的细胞学研究取得了长足进展。多数研究表明，极低频磁场本身对正常的动物细胞并没有诱发癌变的效应，但它可作为促进因子或协同促进因子使具有癌变倾向的、以及已经癌变的细胞加快癌变的进程。这种影响可发生于细胞生理过程的任何一个环节，如细胞信号转导、第二信使、基因修改、转录及翻译、酶的活性、自由基产生以及与细胞增殖有关的生理活性物质等。

THE PROGRESS OF CYTOLOGICAL RESEARCH ON CARCINOGENIC EFFECT OF THE EXTREMELY LOW FREQUENCY MAGNETIC FIELDS

The progress of cytological research on carcinogenic effects of the extremely low frequency magnetic fields (ELFMF) are reviewed. Most researches showed that ELFMF didn’t show any carcinogenic effects on the normal cells of animals, but it may be a promoter or co-promoter which can accelerate the development of cancer-prone or precancerous cells. The effects may occurred at any time in a cell cycle, such as signal transduction, second messenger, gene modification, transcription and translation, enzymatic activity, free radicals and some physiological active substances related to cell multiplication.

关键词

极低频磁场(extremely low frequency magnetic fields); 致癌作用(Carcinogenic effects); 促进因子(Promoter); 协同促进因子(Co-promoter); 细胞学研究(Cytological progress)