

Geomagnetic cyclotron resonance in living cells

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Abstract

Although considerable experimental evidence now exists to indicate that low-frequency magnetic fields influence living cells, the mode of coupling remains a mystery. We propose a radical new model for electromagnetic interactions with cells, one resulting from a cyclotron resonance mechanism attached to ions moving through transmembrane channels. It is shown that the cyclotron resonance condition on such ions readily leads to a predicted ELF-coupling at geomagnetic levels. This model quantitatively explains the results reported by Blackman et al. (1984), identifying the focus of magnetic interaction in these experiments as K^+ charge carriers. The cyclotron resonance concept is consistent with recent indications showing that many membrane channels have helical configurations. This model is quite testable, can probably be applied to other circulating charge components within the cell and, most important, leads to the feasibility of direct resonant electromagnetic energy transfer to selected compartments of the cell.