Abstracts

Preliminary Observations with an Electromagnetic Method for the Noninvasive Analysis of Cell Suspension Physiology and Induced Pathophysiology

L.E. Larsen, J.H. Jacobi and A.K. Krey. "Preliminary Observations with an Electromagnetic Method for the Noninvasive Analysis of Cell Suspension Physiology and Induced Pathophysiology." 1978 Transactions on Microwave Theory and Techniques 26.8 (Aug. 1978 [T-MTT] (Special Issue on Microwaves in Medicine, with Accent on the Application of Electromagnetics to Cancer Treatment)): 581-595.

A technique for the electromagnetic analysis of physiological and patho-physiological states in cell suspensions is presented. The technique is based upon high speed automatic network analysis in the HF band for measurement of complex permittivity. The results demonstrate that changes in HF-band permittivity dispersion may be related to physiological and drug-induced patho-physiological states of the cell membrane. Mechanical disruption of the cell membrane by sonication obliterates the HF-band dispersion of permittivity that is present in undisrupted cells. The effect of species, suspending medium, and temperature were systematically analyzed in erythrocyte suspension in order to aid comparison between published studies of red cell preparations.

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