

## 1. Floating electrode dielectric barrier discharge plasma in air promoting apoptotic behavior in Melanoma skin cancer cell lines

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**Abstract:** Initiation of apoptosis, or programmed cell death, is an important issue in cancer treatment as cancer cells frequently have acquired the ability to block apoptosis and thus are more resistant to chemotherapeutic drugs. Targeted and perhaps selective destruction of cancerous tissue is desirable for many reasons, ranging from the enhancement of or aid to current medical methods to problems currently lacking a solution, i.e., lung cancer. Demonstrated in this publication is the inactivation (killing) of human Melanoma skin cancer cell lines, in vitro, by Floating Electrode Dielectric Barrier Discharge (FE-DBD) plasma. Not only are these cells shown to be killed immediately by high doses of plasma treatment, but low doses are shown to promote apoptotic behavior as detected by TUNEL staining and subsequent flow cytometry. It is shown that plasma acts on the cells directly and not by "poisoning" the solution surrounding the cells, even through a layer of such solution. Potential mechanisms of interaction of plasma with cells are discussed and further steps are proposed to develop an understanding of such systems. © Springer Science+Business Media, LLC 2007. (71 refs)

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