

Abstract Submitted
for the GEC12 Meeting of
The American Physical Society

Viability and apoptosis of cultured cancer cells induced by atmospheric pressure plasma jet HEA MIN JOH, SUN JA KIM, TAE HUN CHUNG, SUN HEE LEEM, Dong-A University — Recent studies have shown that atmospheric pressure plasmas are a possible candidate in cancer therapy. In the case of biological structure damage induced by plasma treatment, the primary role is played by reactive oxygen species (ROS), UV photons, charged particles and electric fields. Among them, extracellular and intracellular ROS produced by plasma are considered to be the key constituents that induce cellular changes and apoptosis. These changes were different depending on the discharge conditions controlled by many operating parameters including applied voltage, driving frequency, supply gas and flow rate, and treatment time. Thus, the effects of operating parameters including working gases, plasma dose, treated time and media on cellular changes in plasma-cell interactions need to be investigated. The cellular changes in cultured cancer cells were detected using TUNEL assay with DAPI staining. Cell viability was investigated by using MTT assay which is a method for measurement of metabolic events leading to a reduction in cell survival and necrosis or apoptosis. Also we examined whether cell viability was dependent on plasma-induced cellular ROS generation.

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Date submitted: 13 Jun 2012

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