

**ARGON PLASMA VS. AIR PLASMA:
CHARACTERIZATION AND INTERACTION WITH
BIOLOGICAL SYSTEMS**

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Recently, there has been enormous progress in plasma medicine. New groups have joined this area of research. New plasma devices have been developed and tested for biomedical applications. The difference in plasma production methods and composition of input gases does not allow to directly compare plasmas produced by various devices and predict their effect on biological systems.

In this study, we compare the effects of plasmas produced by two plasma sources developed in our group, argon plasma torch and barrier corona discharge device, on bacteria and human cells in liquid phase. The results of this study complemented by chemical analysis of plasma-irradiated liquids suggest that mechanisms by which argon and air plasmas interact with living cells are different. The major effect of air plasma on cells and bacteria is caused by reactive species produced in the gas phase. In the case of argon plasma, liquid ionization by plasma-generated ions, excited-state molecules and atoms, and UV radiation was identified as one of the main biologically active factors.