

PT-P025

## Cellular and Molecular Responses of a Filamentous Fungus *Neurospora Crassa* to Non-thermal Plasma at Atmospheric Pressure

Gyungsoon Park, Young Hyo. Ryu, Young June. Hong, Han Sup. Uhm, Eun H. Choi

Plasma Bioscience Research Center, Kwangwoon University

Although plasma is an efficient means of microbial sterilization, mechanism of plasma effect on microorganisms still needs to be clarified. In addition, a limited number of studies are available on eukaryotic microorganisms such as yeast and fungi in relation to plasma application. Thus, we investigated cellular and molecular aspects of plasma effects on a filamentous fungus, *Neurospora crassa* by making use of argon plasma jet at atmospheric pressure. The viability and cell morphology of *N. crassa* spores exposed to plasma were both significantly reduced depending on the exposure time when treated in water. The intracellular genomic DNA content was dramatically reduced in fungal tissues after a plasma treatment and the transcription factor *tah-3* was found to be required for fungal tolerance to a harsh plasma environment.

**Keywords:** Plasma jet, Fungus viability, Fungal tolerance to plasmas, Transcription factor *tah-3*, *Neurospora crassa*