Abstract Submitted
for the GEC20 Meeting of
The American Physical Society

Metabolomic profiles of glioblastoma in plasma-activated solutions[1] KENJI ISHIKAWA, HIROMASA TANAKA, LI JIANG, SHINYA TOYOKUNI, KAE NAKAMURA, HIROAKI KAJIYAMA, FUMITAKA KIKKAWA, MASAAKI MIZUNO, CAMELIA MIRON, MASARU HORI, Nagoya University — Cell culture media and Ringer's lactate solution irradiated by non-thermal plasma are defined as plasma-activated medium (PAM) and plasma-activated lactate (PAL), respectively. By analysis of metabolomic profiles of a hundred intracellular metabolites using capillary electrophoresis mass spectrometry, glioblastoma cells U251SP cultivated in PAM and PAL were changes in intracellular metabolites. The metabolomic profiles of the PAM-treated U251SP cells were changed significantly with inhibition of the glycolysis pathway and with enhancement of the pentose phosphate pathway. The metabolomic profiles of the PAL-treated U251SP were changed with generation of acetyl-CoA increased for lipid metabolism from alanine and asparagine. PAL thus induces regulated death of U251SP glioblastoma cells even in reductive microenvironments than PAM.

[1]This study was supported in part by Kakenhi Grants-in-Aid (Nos. 24108002 and 17H02850) from the Ministry of Education, Culture, Sports, Science and Technology, Japan.

Kenji Ishikawa
Nagoya University

Date submitted: 12 Jun 2020 Electronic form version 1.4