

Abstract Submitted
for the GEC20 Meeting of
The American Physical Society

Apoptosis-inducing activity through caspase pathway in melanoma cells treated by radical-activated lactate Ringer's solution¹ YUKI HORI, TOMIYASU MURATA, Meijo University, HIROMASA TANAKA, MASARU HORI, Nagoya University, MASAFUMI ITO, Meijo University — It has been reported that plasma-activated lactate Ringer's solution (PAL) can selectively inactivate various cancer cells. However, it has not been clarified which factor of plasma such as neutral radicals, charged species and optical radiation activates solutions and influences the viability of cancer. To investigate the individual contribution of these species, we have developed an atmospheric-pressure radical source which can selectively expose neutral radicals without other species in the plasma. The radical source was driven with Ar, O₂ and N₂ whose flow rates were set at 1.40, 0.51 and 0.09 slm. lactate Ringer's solution using the radical source and melanoma cancer cells (B16-F10) were incubated in radical-activated lactate (RAL) solution and the cell viability was measured using MTS assay. As a result, cells were effectively inactivated using RAL. Also, the activity of caspase-3, known as a mediator of apoptotic death, in the treated melanoma cells was measured. The activity of caspase-3 in melanoma treated with RAL was 24 times higher than that treated with radical-untreated lactate solution. These results suggest that neutral radicals are effective factors for the anti-cancer property of PAL and the apoptosis was induced in melanoma cells via caspase pathway.

¹This work was supported by JSPS KAKENHI [grant numbers 19H01889 and 19H05462].

Yuki Hori
Meijo University

Date submitted: 11 Jun 2020

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