Abstract Submitted
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Contribution of single reactive species in plasma liquid chemistry for biomedical approaches[1] KRISTIAN WENDE, SEBASTIAN WENSKE, JOHANNA STRIESOW, GIULIANA BRUNO, SANDER BEKESCHUS, INP Greifswald/ZIK plasmatis, MICHAEL LALK, University of Greifswald, KLAUS-DIETER WELTMANN, THOMAS VON WOEDTKE, INP Greifswald, ZIK TEAM, INP TEAM — Plasmas are a new therapeutic option in various inflammatory processes, such as wounds, cancer, and precancerous lesions. Recent studies indicated an interaction of plasma-derived species with cellular redox signaling. Discord exists regarding origin and transport of reactive species while recent publications indicate a mix of contributions from both gas and liquid phase [1]. Using peptides and lipids as targets, significant traces have been identified for atomic and singlet oxygen, hydroxyl radicals, nitric oxide, and peroxynitrite. Among the targets, aromatic structures, double bonds, and thiol groups were found. Introduction of nitrogen from reactive nitrogen species was observed to a limited extent only, with nitrosylation of thiol groups and nitration of phenolic structures most prominent and potentially involved in redox signaling events. A large proportion of the atoms added to the target structures derived from the treated target itself. Taken together, tertiary products assumingly contribute to the biological impact of plasmas. It remains to be clarified, if site and target specific treatment regimens can be utilized to increase the precision of CAP in biomedical applications. [1] K. Wende *et al.*, *RSC Advances,* vol. 10, no. 20, pp. 11598-11607, 2020, doi: 10.1039/c9ra08745a.

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