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## Role of protein folding in plasma medicine

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Plasma medicine has developed substantially over the last decade, mainly focusing on wound healing, cancer treatment and sterilization [1]. Cold atmospheric plasma (CAP) generates a plethora of reactive oxygen and nitrogen species (RONS) for the treatment of various biological problems. However, they provide little information about the role of RONS during the plasma treatment and how they affect the biochemistry of the treated cells. This knowledge is of utmost importance, as RONS are primarily responsible for the cytopathic activity of CAPs. Redoxbiology and the associated chemical species that are involved in all important signaling networks play a key role for cancer treatment or sterilization in cellular biochemistry. To gain further insight, it is necessary to investigate not only the biological effects of cells and tissues, but also their interaction with cold plasmas on the molecular level. Proteins are the main vehicles of biological functions and account for 68% of the dry weight of cell and tissues. The structural changes of proteins can modify the way of folding [2] as well as the binding with other proteins, thereby altering key processes for, e.g., gene expression. Therefore, it is very important to understand the effect of RONS on the structure and function of proteins. We have used various CAP devices and treated the model proteins. Further, we analyzed the structural changes of these model proteins using circular dichroism, fluorescence and NMR spectroscopy.

### References

[1] Lu, X. et al., Phys. Rep. 2016, 630, 1

[2] P. Attri et al. Sci. Rep. 2017, 7, 8698; Phys. Chem. Chem. Phys. 2017, 19, 25277; Anti-cancer agents in medicinal chemistry, 2018 (In Press)

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