
Cold Atmospheric Pressure Plasma Mediated Wound Healing

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Within the last decade, devices generating cold atmospheric pressureplasma (CAP) were developed for medical applications, e.g. for wound healing. CAP consists of a complex mixture of reactive species, free radicals, mildheat, electric fields and radiation ranging from UV to visible light andinfrared. In recent years, the threat of multi-resistant bacteria is emergingall over the world due do the misuse of antibiotics and an increasing number ofmulti-resistant bacteria. CAP has proven to be effective against bacteria,including multi-resistant strains, and to stimulate skin cell proliferation andimprove microcirculation. The aim of this study was to investigatethe impact of cold plasma on the stimulation of mammalian cells with respect tochronic wound healing. Therefore, samples from plasma treated patients wereinvestigated regarding their composition and the effects on cell proliferation. Especially, knowledge about the interplay between bacterial load and the amountof inflammatory signals as well as enzymes for matrix modulation plays animportant part in order to understand the effects of CAP. Understanding theunderlying processes still needs to be investigated in order to modulate theplasmas for future applications – especially with respect to clinicalapplication (including patient diversity) and comparison of different plasmasources.