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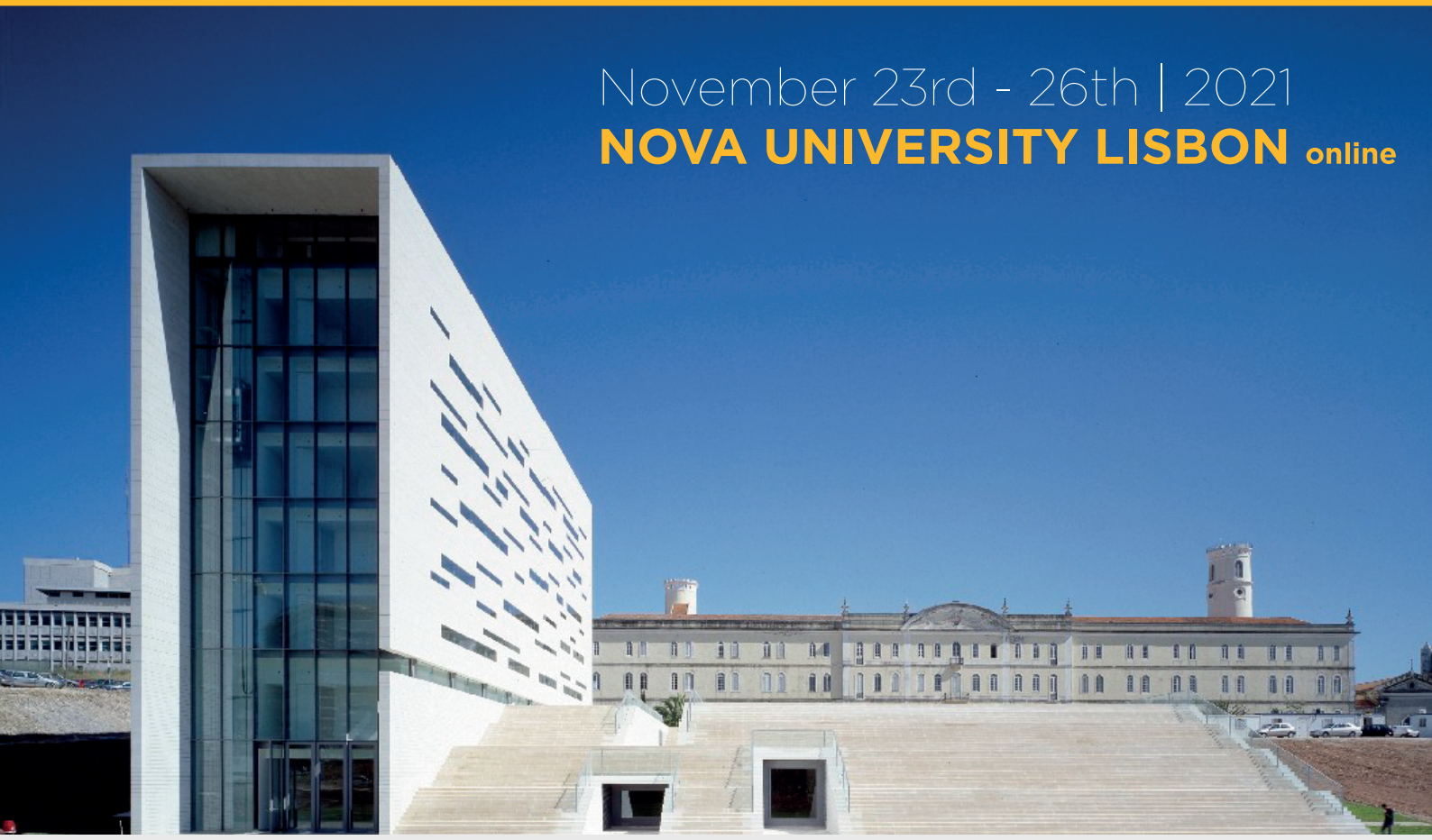

Abstracts Book

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465. Probiotic adhesion to skin keratinocytes and underlying mechanisms

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The beneficial effects of probiotics on the digestive system are well known, however, several probiotic benefits resulting from their topical application have recently been investigated. Improvements in different skin disorders such as atopic dermatitis, acne, eczema and psoriasis have been reported related to their topical use. One of the mechanisms through which such benefits are documented is by inhibiting colonization by skin pathogens.

Invasion and adhesion studies have been carried out using keratinocytes showed that the pathogenic bacterium *Escherichia coli* is not able to invade skin keratinocytes, but adhered to them. *Lactobacillus rhamnosus* and *Propioniferax innocua* decreased the viable counting of pathogenic bacteria *E*. *coli*, *Pseudomonas aeruginosa*, and *Staphylococcus aureus*. *L*. *rhamnosus* inhibited *S*. *aureus* adhesion significantly when compared to the control ($P < 0.01$). On the other hand, the probiotic *L*. *delbrueckii* also revealed the best results for *S*. *aureus,* however, with no significant differences in relation to control ($P > 0.05$). Contrarily, *P. innocua* did not inhibit pathogenic bacteria adhesion, but when added simultaneously with *S. aureus* (competition assay) a significant adhesion reduction (1.12 ± 0.14 $\log_{10}$CFU/mL) was observed. Probiotic bacteria seem to adhere to the keratinocytes through carbohydrates, while *S*. *aureus* uses proteins to adhere to keratinocytes.

L. *rhamnosus* showed promising results in pathogen inhibition both *in vitro* and *ex-vivo* experiments and can potentially be used as a co-adjuvant in the treatment of skin dysbiosis.