Oral presentations

Effect of the ingredient A97614A1 on the adhesion and biofilm formation of *Staphylococcus pseudintermedius* in a model of reconstructed canine epidermis

Elodie Ollivier¹, Claudine Zemirline¹,
Laetitia Marchand², Brigitte Closs²

1 Ceva Santé Animale, Libourne, France
2 Silab, Brive, France

OBJECTIVES

Dogs with atopic dermatitis present a loss of diversity of their skin microbiota with relative increases in *Staphylococcus* spp. abundances during flares. There is a strong correlation between this dysbiosis, inflammation and skin barrier defect. *Staphylococcus pseudintermedius* is also the most frequent pathogen isolated from skin and ear infections in dogs. The objective of this study was to

evaluate the efficacy of the ingredient coded A97614A1 on the adhesion and biofilm formation of *Staphylococcus pseudintermedius* in a model of Reconstructed Canine Epidermis (RCE).

METHODS

Primary keratinocytes extracted from skin samples of two dogs were cultured in a specific medium for 12 days in order to develop RCEs. On day 12, RCEs were either treated topically with A97614A1 during 24 hours or not treated (controls). On day 13, 50 µL of a 106 CFU/mL suspension of *Staphylococcus pseudintermedius* isolated from a dog with pyoderma were topically applied on RCEs. Twenty-four hours later (day 14), RCEs were observed using scanning electron microscopy to assess the adhesion and biofilm formation of *Staphylococcus pseudintermedius*.

RESULTS

RCEs treated with A97614A1 presented much less *Staphylococcus pseudintermedius* than control RCEs. The ingredient A97614A1 therefore limited the adhesion and biofilm formation of *Staphylococcus pseudintermedius* at the surface of the RCEs.

STATEMENT (CONCLUSIONS)

These results support the potential interest of incorporating this ingredient into topical products intended for dogs presenting an alteration of their skin microbiota, including atopic dogs.

Efficacy of the ingredient A97614A1 in a model of reconstructed human epidermis stressed by cytokines

Elodie Ollivier¹, Claudine Zemirline¹,
Nicolas Amalric², Valérie Rahoul², Nadège
Reymond³, Marie-Christine Cadiergues⁴

1 Ceva Santé Animale, Libourne, France
2 Synelvia, Labège, France
3 Consultant, Villeneuve Loubet, France
4 UDEAR, Université de Toulouse, INSERM, ENVT, Toulouse, France

OBJECTIVES

In dogs and cats as in humans, dermatological disorders are associated with impaired skin barrier, comprising a defective mechanical barrier, a dysregulation of the

immune response and an alteration of the skin microbiota. The objective of this study was to evaluate the efficacy of a new ingredient coded A97614A1 on the mechanical and immunological skin barrier, using an *in-vitro* model of Reconstructed Human Epidermis (RHE) stressed by cytokines to induce a skin barrier defect.

METHODS

RHE stressed by cytokines were treated with A97614A1 and compared to non-treated stressed RHE and to normal (not stressed and non-treated) RHE. The evaluation of the effect of A97614A1 on the mechanical skin barrier (including hydration) was assessed through the analysis of RHE morphology, outside-inside permeability (Lucifer yellow test), transepidermal water loss (TEWL), Natural Moisturising Factors (NMFs) and ceramides. The analysis of the pro-inflammatory cytokines IL-8 and TSLP (markers of the immune response) served as criteria to evaluate the immunological skin barrier.

RESULTS

Compared to normal RHE, stressed RHE present a disorganisation of the structure (dissociation of cells, spongiosis, fewer and smaller keratohyaline granules), increased permeability and TEWL, and decreased amount of NMFs