

PREBIOTICS, PROBIOTICS AND POSTBIOTICS IN THE TREATMENT OF CANINE ATOPIC DERMATITIS

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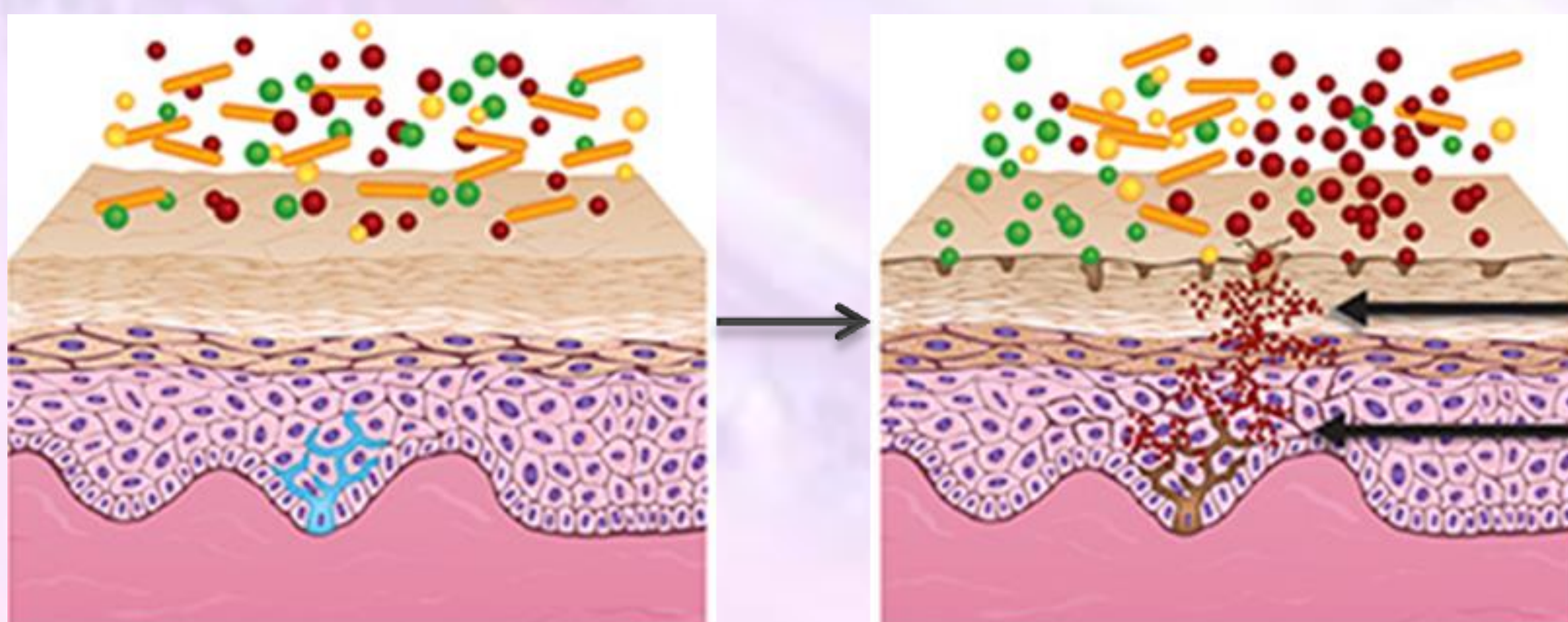
INTRODUCTION

Canine Atopic Dermatitis (CAD) is one of the most frequent pathologies in veterinary dermatology. Nowadays prebiotics, probiotics and postbiotics have shown beneficial effects in some studies on reducing the pruritus and inflammation. Thus, they may have an important role in the future treatment of CAD.

OBJECTIVES

The aim of this study is to make an updated review of prebiotics, probiotics and postbiotics and their application on the treatment of CAD.

CANINE ATOPIC DERMATITIS TREATMENT



Healthy skin

Canine Atopic Dermatitis

Figure 1. Difference between healthy and atopic skin (Baldwin et al. 2017).

Multifactorial disease, characterized by pruritus, erythema and inflammatory skin lesions caused by skin dysbiosis and defects on the *stratum corneum*.

Pharmacological CAD standard therapy:

- Antihistamines
- Glucocorticoids
- Cyclosporine
- Oclacitinib
- Lokivetmab

Effective to reduce pruritus and inflammation but, with several side effects and without improvement in microbiota composition and *stratum corneum* integrity.

PREBIOTICS, PROBIOTICS AND POSTBIOTICS

Prebiotics, probiotics and postbiotics are useful to change the microbiota dysbiosis and to influence the immune system increasing the Treg expression and function. They reduce the inflammation and the pruritus treating part of the etiology of CAD.

- Prebiotics: are non-digestible oligosaccharides fructans and galactans. Polyphenols and polyunsaturated fatty acids might also be included. (Gibson et al. 2017). In CAD, prebiotics help restoring microbiota diversity.
- Probiotics: are live microorganisms that confer a health benefit (Hill et al. 2014). In CAD, probiotics are useful to control the dysbiosis.
- Postbiotics: are active by-products of probiotic cultures, like sodium butyrate or other short chain fatty acids (Egawa et al. 2017), with skin antiinflammatory effects.

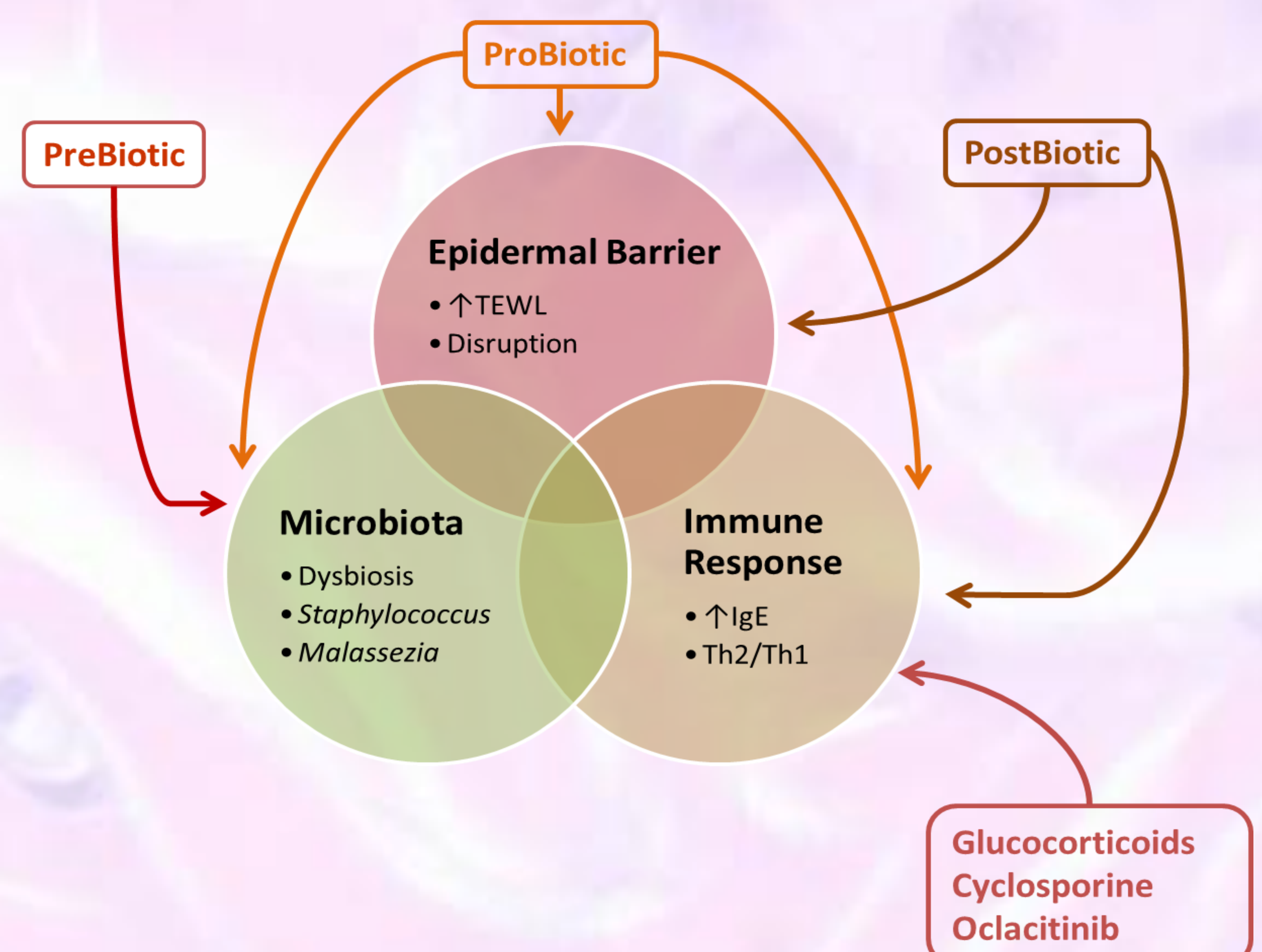


Figure 2. Effects of different treatments in CAD pathomechanisms.

CONCLUSIONS

- Pre, pro and postbiotics have shown effectiveness in different CAD clinical studies.
- Treatments addressed to modify the microbiota and to restore the epidermal barrier function reduce the clinical severity of CAD.
- To reduce the side effects observed in chronic pharmacological treatments, pre, pro and postbiotics can be a useful complement.

References:

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