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***In Vitro* and *In Vivo* Study of Snail Mucus Filtrate to Reduce Inflammation in Canine Atopic Dermatitis**

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Atopic Dermatitis (AD) is an inflammatory and allergic disease, whose multifactorial etiopathogenesis is the consequence of the link between the genetic, immunological, and environmental components. The complexity and difficulty in understanding the causes that trigger or exacerbate this pathology make it difficult, once diagnosed, to proceed with a targeted and effective therapeutic process. Today, the new frontiers of research look to natural and innovative treatments to counteract the different manifestations of dermatitis. From this point of view, the mucus secreted by *Helix aspersa* Muller has proven, since ancient times, to be able to neutralize skin diseases. To study Canine Atopic Dermatitis (CAD), we used a double approach: *In vitro* and *in vivo*. In particular, we used cell lines of Canine Epidermal Keratinocytes (CPEK) that are optimal to understand the biological reactivity of keratinocytes *in vitro* and a mouse model of canine atopic dermatitis. Atopic dermatitis-like lesions were induced, in mice, by the topical application of Oxazolone (Ox). The mice were sensitized with a single application of 1% Ox. One week later, 0.1% Ox was topically applied every other day for 20 days. Moreover, mice received topical Snail Secretion Filtrate (SSF) before Ox treatment for 20 days. Data obtained from *in vitro* study demonstrated the anti-inflammatory capacity of SSF in counteracting the production of proinflammatory cytokines produced during CAD. Our *in vivo* results demonstrated the protective barrier effects of SSF characterized by a reduction in histological lesions, mastocyte degranulation, and marker of the inflammatory process (evaluated through ELISA assays for cytokines such as IL-6, IL-1 β , TNF- α , and Western blot analysis for NF κ B) in the skin following Ox treatment. Our data support the effectiveness of SSF to reduce skin damage, demonstrating that a product containing SSF could be considered as a potentially interesting approach for the management of CAD.

Recent Publications

1. Messina L (2022) Snail Mucus Filtrate Reduces Inflammation in Canine Progenitor Epidermal Keratinocytes (CPEK). *Animals (Basel)* 12(14):1848
2. Gugliandolo E, (2021) The Protective Effect of Snail Secretion Filtrate in an Experimental Model of Excisional Wounds in Mice. *Vet Sci* 8(8):167
3. Gugliandolo E, (2021) Protective effect of snail secretion filtrate against ethanol-induced gastric ulcer in mice. *Sci Rep* 11(1):3638

Biography

Rosalia Crupi studied biology at University of Messina. She received her first PhD degree in 2008 Clinical Neurosciences and the second in 2013 Experimental Medicine at University of Messina. In 2007 she studied as PhD student in Neuroscience at Department of Biological Sciences, Columbia University New York, USA e CUNY School of Medicine, Department of Physiology and Pharmacology, New York, USA. After 4 years Postdoctoral Fellowship supervised by Prof. Cuzzocrea at University of Messina, Italy. She is now Assistant Professor in Veterinary Pharmacology at the same University. Rosalia Crupi has published more than 171 research articles in international peer-reviewed journal. H-index 37, her research interests have always been aimed at veterinary pharmacology, toxicology, pharmacological activity of natural substances, nutraceuticals, dietary contaminants, animal welfare etc.

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