

Technology Offer Anti-inflammatory, anti-bacterial agent for treatment of Atopic Dermatitis

Reference Number 14-00097

Challenge

Atopic Dermatitis (AD) is a chronic recurrent, non-contagious skin diesease, which is characterized by pruritis (i.e. itching), disturbed skin barrier, chronic skin inflammation and impaired skin flora (i.e. microbioma). It is considered a civilization disease, exhibiting highest prevalence in urban areas of highly developed industrial countries. Current treatment is selected in accordance to the disease severity, ranging from low-dose (light AD) and high-dose (moderate AD) glycocorticoids and/or calcineurin inhibitors, to systemic immunomodulators/immunosuppressants (e.g. cyclosporine, pimecrolimus) or anti-IL-4/IL-13 antibodies (severe AD). All treatments are associated with side effects (e.g. skin atrophy, pain on application), and accordingly, there is high unmet medical need.



Healing attempt AD

Technology

Aspidasept is a proprietary synthetic peptide, and the result of nearly 20 years of development and optimization. The compound was genuinely designed and optimized for high affinity binding to and neutralization of bacterial endotoxins. Further characterization, however, showed that Aspidasept (i) is also able to neutralize "damage-associated molecular patterns" (e.g. heparin sulfate), (ii) has moderate anti-microbial activity, and (iii) exhibits high synergistic anti-microbial activity in combination with other antibiotics. Aspidasept has been originally developed for the indication of sepsis, for which the compound is in an advanced preclinical development stage, showing low toxicity and favorable safety, PK and PD profiles. The inherent properties (i.e. endotoxinneutralizing, anti-microbial, anti-inflammatory) and MoA render Aspidasept also useful for dermal application.

Commercial Opportunity

The compound is available for in-licensing and/or co-development.

Development Status

The benefits of Aspidasept for wound healing and wound infections have been comprehensively studied in vitro and in vivo. Initial healing attempts in humans validated the compound's efficacy in dermal indications (e.g. open wound/radiation damage, inflammation of skin, inflammation of mucous), including the treatment of Atopic Dermatitis (all studies conducted by Dr. Mauss at Asklepios Clinic Hamburg-Altona).

The latter study has been conducted on a female patient with exacerbated Atopic Dermatitis on the right arm with bacterial infestation. Therapy with standard-of-care cortisone preparations was unsuccessful. The healing attempt was carried out, using 1% Aspidasept in DAC base cream (twice daily). After 2 days, a significant relief was achieved, i.e. no efflorescence, no itching, no open wounds.

Patent Situation

Aspidasept is subject of a granted "composition of matter" patent (WO 2009/124721), and a pending patent application (WO 2017/140770), covering e.g. particular compositions and formulations, as well as use for treatment of e.g. non-systemic infections.

Further Reading

Pfalzgraff et al. (2016) Synthetic antimicrobial and LPS-neutralising peptides suppress inflammatory and immune repsonses in skin cells and promote keratinocyte migration. Sci Rep 6:31577

Martin et al. (2016) The synthetic antimicrobial peptide 19-2,5 attenuates septic cardiomyopathy and prevents downregulation of SERCA2 in polymicrobial sepsis. Sci Rep 6:37277

Pfalzgraff et al. (2018) Antimicrobial peptides and their therapeutic potential for bacterial skin infections and wounds. Front Pharmacol 9: 281

Kuhlmann et al. (2018) Peptide drug stability: The anti-inflammatory drugs Pep19-2.5 and Pep19-4LF in cream formulation. Fur J Pharm Sci 115: doi 10.1016 Forschungszentrum Borstel Leibniz-Zentrum für Medizin und Biowissenschaften



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