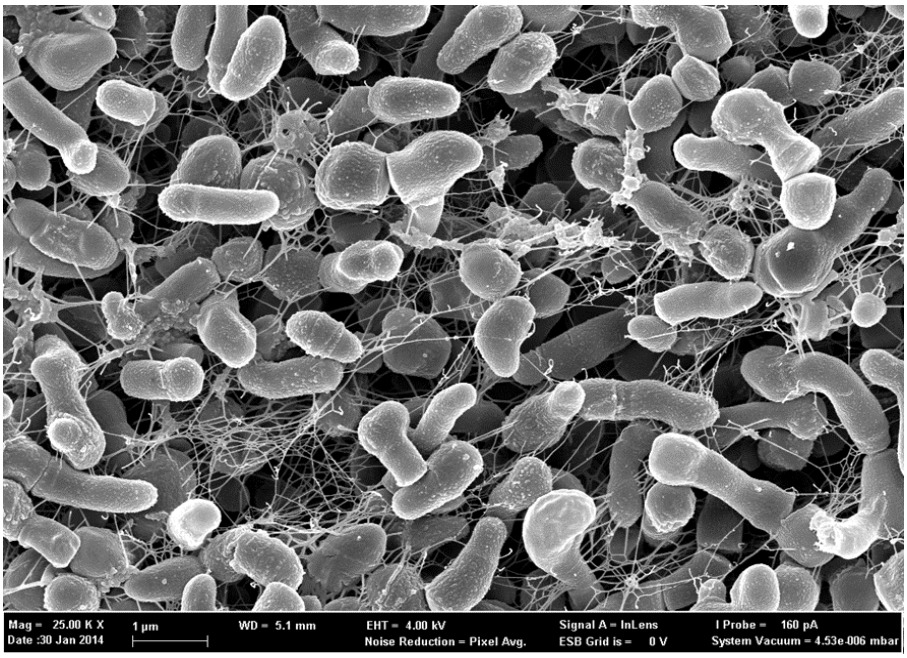
ACNE TREATMENT PROJECT

DEVELOPING LOCAL TREATMENT FOR ACNE VULGARIS



Market need and potential

Acne vulgaris affects more than 80% of people at some point in their life and frequently continues into adulthood, and recent data suggest that there are about 700 million people living with acne around the world. Acne is associated with diminished quality of life, lower self-esteem and even suicide attempts. The social, psychological, and emotional impairment that can result from acne has been reported to be similar to that associated with epilepsy, asthma, diabetes, and arthritis.

The problem does not go unnoticed or without remedies, but they are not sufficient or efficient enough, and the different treatments come with problems ranging from antibiotic resistance to skin irritation. GlobalData estimates the 2017 pharmacological therapy sales for acne to a total approximately $2.8B across the six major pharmaceutical markets: US, France, Germany, Italy, Spain, and the UK. The US contributes with 92% and an estimated $2.6B in acne therapy sales in 2017.

Business idea

Although inflammatory acne has been well characterized clinically, the mechanisms by which inflammatory lesions arise are still poorly understood. Excessive growth of the human skin bacterium *Propionibacterium acnes*, which is normally present on the skin, has long been associated with inflammatory acne. The bacteria can form large aggregates or biofilms, which may contribute to resistance towards antimicrobial agents. We have identified a bacterial protein that can degrade *P. acnes* biofilm *in vitro*. The properties of the protein are unique and the approach to target biofilms in acne vulgaris is novel. Our strategy is to purify the bacterial protein and use it as an active ingredient of a facial cream.

Competition

Antibiotics are effective for acne treatment, but it requires at least a 12 weeks treatment, and this is associated with the risk of bacterial resistance. The prolonged treatment (12-16 weeks) negatively influences compliance and the problems recur as soon as the antibiotics treatment is withdrawn. There are also creams etc. for topical treatment, but many modalities cause local skin irritation.

Advantages

Compared to the currently available acne treatments our proposed product has the potential to:

- Be combined with daily habits of applying facial cream once a day and reduce appearance of acne lesions in five days
- Environment-friendly and antibiotic-free approach which is beneficial for patients, society and nature

Current Status

We have purified the bacterial protein and demonstrated positive effects in an *in vitro* model of *P. acnes* biofilm. The regulatory demands have been evaluated and the product will be classified as a pharmaceutical. The project is at an early stage and we have recently finished business activities including need analysis and competitive analysis.

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IPR

A patent application covering the novel compounds was filed in March 2019 (# SE 1950356-4).

Capital need

23 MSEK to finance product-, preclinical- and business development for the next three years.

Partnership

Initial discussions to find possible future collaborations/investments

Team / Scientific advisors

Oleg Alexeyev, Project owner, MD, PhD, Clinical Pathology
Gabriella Persson, Project manager
Peter Jacobsson, Business coach
Vicky Bronnec, Postdoctoral researcher
Mats Strömqvist, Business expert

Background

The project is based on research performed at Department of Pathology at Umeå University. Oleg Alexeyev has identified a novel bacterial protein with the potential to treat acne vulgaris.

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