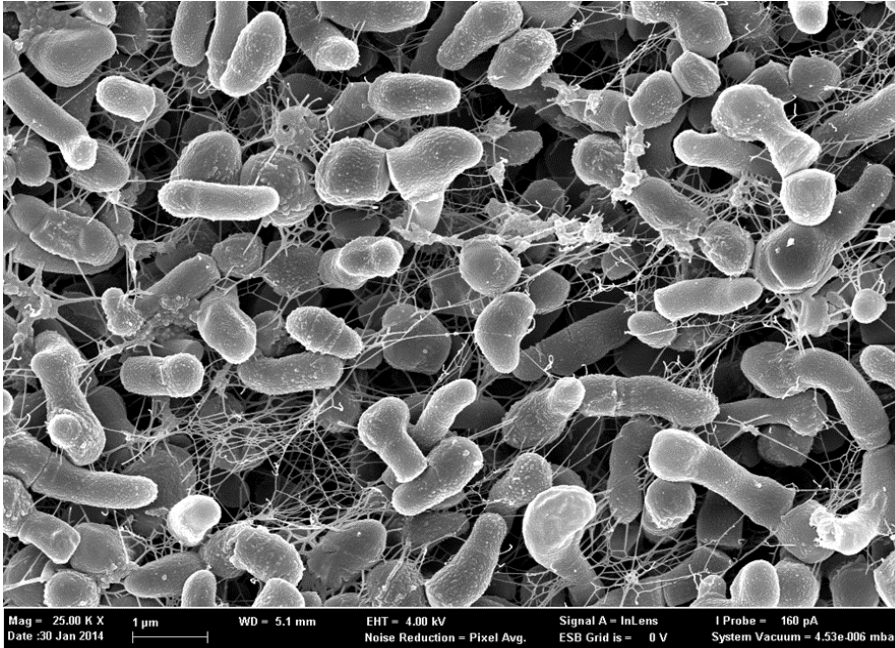


Acne Treatment Project

DEVELOPING LOCAL TREATMENT FOR ACNE VULGARIS



Mag = 25.00 K X 1 µm WD = 5.1 mm EHT = 4.00 kV Signal A = InLens I Probe = 160 pA
Date :30 Jan 2014 Noise Reduction = Pixel Avg. ESB Grid is = 0 V System Vacuum = 4.53e-006 mbar

Market need and potential

It is hard, because it stares you in the face. 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 2016 pharmacological therapy sales for acne to a total approximately \$2.9B across the seven major pharmaceutical markets: US, France, Germany, Italy, Spain, UK and Japan. The US contributes with 90% and an estimated \$2.6B in acne therapy sales in 2016.

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.

Contact

Oleg Alexeyev, Project owner
+46 90-785 28 41
oleg.alexeyev@umu.se

Website

www.ubi.se/case/new-treatment-acne-based-antibacterial-protein

IPR

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

Capital need

No current data available. Capital need will be evaluated this fall/winter.

Partnership

Initial discussions to find possible future collaborations/investments

Team / Scientific advisors

Oleg Alexeyev, Project owner, MD, PhD, clinical microbiology

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.