Search for new antibiofilm agents for the treatment of wound biofilms

On behalf of a German industrial customer, the *German Technology Service* is looking for new active compounds / agents, new molecular antibiofilm concepts and development partners for the:

"Development of novel, active antibiofilm agents for the treatment of wound biofilms in chronic wounds (class III medical device)."

Background

(Keywords: medical technology, pharmacy, microbiology, wound biofilm, endolysins, iron chelators, quorum sensing)

Wound biofilms are a complex polymicrobial community of bacteria and fungi surrounded by an extracellular matrix consisting of proteins, polysaccharides and bacterial as well as host eDNA. The matrix protects the microorganisms from the host's own immune defense and significantly increases tolerance to classical antimicrobial agents. The biofilm community regulates the structure of the extracellular matrix as well as its own metabolism via quorum sensing and it is believed it stimulates a permanent chronic inflammatory reaction of the immune system.

Description of the sought-after new antibiofilm agents

The treatment of wound biofilms is hardly possible with classical antimicrobial agents and requires the development of new agents or strategies that, for example, impair wound biofilms and kill the microorganisms within the biofilm. For this reason, we are now looking for new antibiofilm compounds / agents or new molecular antibiofilm concepts / pathways for the topical treatment of wound biofilms in chronic wounds. The focus here is on new active compounds and metabolic targets / principles that are not yet available on the market.

Objective: Development of a new, innovative wound dressing (class III medical device; ISO 14971:2007; active release of pharmaceutical compounds) featuring a new antibiofilm compounds for the topical treatment of chronic wounds. The new antibiofilm compounds are intended to kill or disrupt existing biofilm microorganisms and to inhibit possible new formation of biofilm (class III medical device).

Focus areas / Proof-of principle requirements

- **Bacteriophage lysins (endolysins)**, engineered endolysins or enzybiotics
- **Quorum sensing inhibitors** / anti-virulents
- **Bacterial iron chelators or compounds to block iron homeostasis** / siderophore synthesis / iron transport
- New, innovative antibiofilm active ingredients / active principles
- In-vitro and in-vivo proof-of-concept available

The following active substances / agents are NOT of interest

- PHMB, poloxomer 188, silver, iodine, pyridine, chlorhexidine, lactoferrin, electroceuticals
- Antimicrobial peptides, phytochemicals, Ringer's solution, hypochlorous / acetic acid
- Melaleuca oil, honey

Opportunities for cooperation

The goal of our customer is the joint development of new antibiofilm compounds and their use in a wound dressings (class III medical device). Ideally, in-vivo proof-of-concept is already available. A 3-5 year development cooperation including clinical trials is planned. The following forms of cooperation are conceivable:

- Applied R&D cooperation in the field of active antibiofilm compounds
- Further development / optimization of already existing antibiofilm compounds / concepts
- Company purchase / patent purchase / licensing

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