



## Technology Offer

### Diagnosis of low-grade periprosthetic infections

#### Abstract

The diagnosis of low-grade periprosthetic infections is difficult and time consuming. The invention provides a novel approach to differentiate highly specific between septic and aseptic tissue using a tissue biopsy.

#### Background

The number of arthroplasties is growing and a proportional increase of infections comes with it. There are early periprosthetic joint infections which are associated with symptoms such as pain, loss of function, fever and other indicators for inflammation etc. and which are detectable by several parameters e.g. white blood cell count or C-reactive protein level. Low-grade infections, however, are more difficult to detect as they do not always evoke the described symptoms and in most cases are only identified at very late stages. Recently proposed markers for bacterial infection do not distinguish with high specificity and sensitivity between septic and aseptic tissue. The late diagnosis of infection often leads to severe complications and an explantation of the infected prosthesis becomes unavoidable instead of applying appropriate treatment if it would have been diagnosed earlier.

#### Problem / Solution

Therefore, new markers are needed for early diagnosis of low-grade infections. The present study revealed that components of the terminal complement pathway may be suitable biomarkers for this purpose. The proposed marker differentiates between septic and aseptic tissue with a predictive specificity of 100 % and a sensitivity of 88.89 %.

#### Advantages over the state of the art

- Early detection of periprosthetic infections
- Highly specific differentiation between septic and aseptic tissue
- Distress for patients can be reduced
- Cost for treatment at early stages would be lower
- Explantation can possibly be avoided
- Time before necessary exchange of implants may be prolonged

#### Cooperation opportunities

ESA PVA is – in the name of the Medical Faculty of the Otto-von-Guericke-University Magdeburg - seeking partners who would be interested in developing the compounds for the treatment of patients. Scientific assistance for an industrial partner can be assured in a proper way within the frame of further the development for the market and market entry.

#### Further reading

Meinhausen A-K., et al. The terminal complement pathway is activated in septic but not in aseptic shoulder revision arthroplasties. *J. Shoulder Elbow Surg* (2018) 27, 1837-1844

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#### Technology / Field of application

- Diagnosis of infections related to arthroplasties
- Human medicine

#### Market

- Diagnostics

#### Developmental status

Proof of Concept

#### Patent Status

Application

#### Reference No.:

- ESA-FMEMD113 -

#### Contact

ESA Patentverwertungsagentur  
Sachsen-Anhalt GmbH  
Breitscheidstraße 51  
39114 Magdeburg  
Germany

Tel.: +49 (0)391 8107220  
Fax: +49 (0)391 8107222  
E-Mail: [info@esa-pva.de](mailto:info@esa-pva.de)  
Internet: [www.esa-pva.de](http://www.esa-pva.de)