



Aalborg Universitet

AALBORG UNIVERSITY  
DENMARK

## Identification and Quantification fo Bacteria in Prosthetic Joint Specimens by Molecular Methods

Xu, Yijuan; Rudkjøbing, Vibeke Børsholt; Simonsen, Ole Højgaard; Pedersen, Christian; Schönheyder, Henrik Carl; Nielsen, Per Halkjær; Thomsen, Trine Rolighed

*Publication date:*  
2010

*Document Version*  
Early version, also known as pre-print

[Link to publication from Aalborg University](#)

*Citation for published version (APA):*

Xu, Y., Rudkjøbing, V. B., Simonsen, O. H., Pedersen, C., Schönheyder, H. C., Nielsen, P. H., & Thomsen, T. R. (2010). *Identification and Quantification fo Bacteria in Prosthetic Joint Specimens by Molecular Methods*. Poster presented at Symposium of The Danish Microbiological Society, København, Denmark.

### General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- ? Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- ? You may not further distribute the material or use it for any profit-making activity or commercial gain
- ? You may freely distribute the URL identifying the publication in the public portal ?

### Take down policy

If you believe that this document breaches copyright please contact us at [vbn@aub.aau.dk](mailto:vbn@aub.aau.dk) providing details, and we will remove access to the work immediately and investigate your claim.

**Symposium of The Danish Microbiological Society, November 9th, 2010**

**Poster: IDENTIFICATION AND QUANTIFICATION OF BACTERIA IN PROSTHETIC JOINT SPECIMENS BY MOLECULAR METHODS**

*Yijuan Xu<sup>1</sup>, Vibeke B. Rudkjøbing<sup>1</sup>, Ole Simonsen<sup>2</sup>, Christian Pedersen<sup>2</sup>, Henrik C. Schønheyder<sup>2</sup>, Per H. Nielsen<sup>1</sup> & Trine R. Thomsen<sup>3</sup>*

The diagnosis of prosthetic infection remains challenging. This study compared the bacterial diversity in surgical samples from 22 prosthetic patients using standard culture methods and culture-independent molecular methods including broad range 16S rRNA gene analysis, quantitative PCR (qPCR), and fluorescence *in situ* hybridization (FISH). Molecular methods detected bacteria in samples from 12 patients. Using clone libraries 40 different species were identified including known pathogens and species not previously reported in orthopaedic infections. Polymicrobial infections were found in 9 patients. Culture-based methods showed bacterial growth in 8 cases, of which 7 were monomicrobial. Neither anaerobe nor species not previously described in implant infections was isolated. Overall, the results of culture-based and molecular methods showed concordance in 11 cases (hereof 9 negative by both methods) and discrepancy in 6 cases. In the remaining 5 cases, culture methods identified one species or a group of bacteria (*e.g.*, coryneform rods), while molecular methods detected several distinct species including the species identified by culture. QPCR was used to quantify *Propionibacterium* and *S. aureus*. These quantifications confirmed the findings from the clone library approach. Additionally, both single cells and microcolonies were visualized using FISH and confocal scanning laser microscopy.