The identification of pathogens is an important prerequisite for targeted antimicrobial treatment. Especially for severe and rapidly progressing diseases like Sepsis a fast and reliable method of identification is necessary since a wrong treatment can cost lives. Unfortunately standard microbiology is often unable to reliably identify bacterial samples if antibiotic treatment has already commenced. This is mostly due to the fact that common identification procedures require the pathogens to be cultured, which often cannot be accomplished anymore for antibiotic-treated bacteria.

Since Raman spectroscopy provides the potential to identify single bacteria we investigated the impact of antibiotic treatment on the identification performance. Samples were grown under the influence of antibiotics, Raman spectra of single bacterial cells were measured and a chemometric model for their identification was set up. The performance of the model was evaluated with independent samples grown with different antibiotics. Our findings suggest that Raman spectroscopy can be a fast and reliable method to identify bacteria pretreated with antibiotics.