Poster abstracts

Abstract number: 63

Technical validation of three commercial real-time PCR kits for the diagnosis of neuroborreliosis in cerebrospinal fluid on three different real-time PCR platforms.
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Lyme neuroborreliosis is caused by the spirochete Borrelia burgdorferi sensu lato complex (Bb sl). Diagnosis mainly relies on interpretation of clinical signs and serology. The goal of this study is to evaluate the technical performance of three commercially available assays [Borrelia burgdorferi PCR kit (Geneproof), Borrelia burgdorferi sensu lato Real-TM kit (Sacace) and the O-Dia-Borburg real-time PCR kit (Diagenode)] using three different real-time PCR platforms [Rotorgene Q (Qiagen), CFX96 (Bio-Rad) and LightCycler (Roche)] in order to select a method suitable for clinical validation.

DNA was extracted using Qiasymphony SP (Qiagen). Performance characteristics such as specificity, inclusivity, limit of detection (LOD95%), linearity and reproducibility were evaluated using EQC panels (Instand), ATCC strains and commercially available DNA (Vircell). Linearity, reproducibility and LOD95% were determined for Borrelia afzelii, garinii and sensu stricto. Aliquots for LOD95% measurements were preserved at 4°C and -20°C to mimic transport and storage conditions.

No cross-reactivity was found for genetically related organisms or for pathogens which may be present in CSF. All species of the Bb sl complex were detected with Geneproof and Sacace. Diagenode failed to detect B. lusitaniae. LOD95% measurements indicate a better sensitivity than described in the kit insert. All kits showed a larger linear range on Rotorgene Q than on CFX96 and Lightcycler. A good reproducibility was obtained for all assays. Preliminary results seem to indicate a better overall performance of Geneproof on Rotorgene Q.