

Poster abstracts

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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 (LOD_{95%}), linearity and reproducibility were evaluated using EQC panels (Instand), ATCC strains and commercially available DNA (Vircell). Linearity, reproducibility and LOD_{95%} were determined for *Borrelia afzelii*, *garinii* and *sensu stricto*. Aliquots for LOD_{95%} 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. lusitanae*. LOD_{95%} 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.