

**P 12 Real-time PCR-based species identification of *Borrelia burgdorferi* in ticks collected from humans in Romania**

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In Romania, there are no data regarding the presence of *Borrelia burgdorferi* (*Bb*) sensu lato or *Bb* genospecies in *Ixodes* ticks collected from patients. The aim of our study was to evaluate the prevalence of *Bb* genospecies in such ticks using a real-time PCR assay targeting the *hbb* gene.

All ticks removed from patients who presented themselves to the Clinic of Infectious Diseases Cluj Napoca (01.04.–07.09.2010) were prospectively studied. Ticks were morphologically identified by an entomologist and stored in ethanol, buffered formalin, or were embedded in paraffin until further examination. For DNA extraction, High Pure PCR Template Preparation Kit (Roche, Germany) was used according to the instructions of the manufacturer. The analysis was performed using LightCycler480 thermal cycler. Melting curve analysis of the PCR amplicons of the *hbb* gene allows genospecies identification. Positive and negative controls were included in all runs.

A total of 532 ticks was examined (518 *Ixodes ricinus*, 10 *Dermacentor*, and 3 *Haemaphysalis* ticks, one unidentified tick). Preliminary results based on 269 samples reveal an average prevalence of infection with *Bb* of 13%. Species identification based on melting curve analysis reveals around 70% *B. afzelii*, but also *Bb* s.s., *B. garinii*, and *B. lusitaniae*. Since melting curve analysis cannot differentiate between *B. spielmanii* and *B. valaisiana* such samples were subjected to *OspA* sequencing for differentiation.

(i) The most prevalent species of *Bb* in ticks collected from our patients is *B. afzelii*.

(ii) This is the first report of *B. burgdorferi* s.s. in ticks collected from Romania.

(iii) The majority (97.3%) of the ticks examined belongs to the genus *Ixodes*, the vector of Lyme borreliosis.

(iv) Our study provides evidence that all relevant human pathogenic genospecies of *Bb* are present in ticks from our region thus posing a risk of infection to human subjects.