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## The distribution and diversity of Lyme disease pathogens in the Ixodes ticks in Ukraine

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Lyme borreliosis (LB) is caused by tick-borne spirochetes of *Borrelia burgdorferi* sensu lato complex (*Bb*) transmitted by Ixodes ricinus ticks in Europe. As in the United States, LB is of great public health concern in Europe with the *Bb* prevalence in Ixodes ticks ranging from 6.2% in Poland, 9.4% in Belarus, 11% in Lithuania to up to 40.7% in Russia. LB is currently the most prevalent vector-borne illness in Ukraine. During the period of 2000-2010, 4,597 cases were reported. The objective of the present study was to investigate the prevalence and diversity of *Bb* pathogens in *I. ricinus* ticks collected in Kyiv and Chernobyl cities of Ukraine. It was hypothesized that a potential difference in *Bb* prevalence and diversity of *Bb* species may exist in the ticks collected from the two different urban ecosystems. As a result of nuclear meltdown, the uninhabited Chernobyl region has been directly exposed to ionizing radiation for over 30 years. On the other hand, Kyiv, the most densely populated Megapolis of Ukraine was exposed to radiation at a much lower degree. Questing *I. ricinus* ticks were collected via flagging from eight recreational areas in Kyiv and within the 10- and 30-kilometer Chernobyl Exclusion Zones (CEZ). A total of 587 and 372 *I. ricinus* ticks were collected in Kyiv and CEZ, respectively. In our study, collected ticks were subjected to real-time and nested PCR analysis. Resulting amplicons were sequenced to determine *Bb* genospecies. Our preliminary results reveal that 11.5% and 22.5% of *I. ricinus* ticks in Kyiv and CEZ, respectively, were positive for *Bb* DNA. *B. afzelii*, *B. burgdorferi* sensu stricto, and *B. garinii* were the three genospecies detected in ticks. Overall, the present study provides the most current data on the diversity and prevalence of *Bb* spirochetes in the two cities of Ukraine.

### Biography

Artem S Rogovskyy is a Faculty in Department of Veterinary Pathobiology, College of Veterinary Medicine & Biomedical Sciences, Texas A&M University, USA. He came to Texas A&M University following extensive research training in master's level at Louisiana State University, followed by mentored research at University of Georgia, and then PhD from Washington State University. In addition to his teaching commitment, he runs his research laboratory and serves as an Associate Director of the Clinical Microbiology Laboratory in the Veterinary Medical Teaching Hospital. He is a Board Certified Microbiologist.

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