

9th Tick and Tick-borne Pathogen Conference / 1st Asia Pacific Rickettsia Conference



One Health 9th Tick and Tick-borne Pathogen Conference & 1st Asia Pacific Rickettsia Conference

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ORAL PRESENTATIONS

(Abstract number order)

0208

Screening of tick-borne pathogens in Caribbean ticks using new High-throughput technologies (DOMOTICK project)

ORAL 29th August Epidemiology & Diagnostics 2 16:15-16:30 Ballroom 2

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Among hematophagous arthropods, ticks transmit the greater variety of pathogens of public health and veterinary importance whose (re)-emergence is recognized worldwide. However, few is known concerning the diversity of tick species and tick-borne pathogens circulating within the Caribbean, where most of the epidemiological data on the topic are based on old records and focused on the main livestock pathogens. These observations underline the need to develop high throughput diagnosis methods that will allow us to conduct large scale epidemiological surveys required to better anticipate the risk of (re)-emergence of tick-borne disease in such areas. In this context, we designed a new high-throughput real-time PCR method for a large scale screening of tick-borne pathogens circulating in the Caribbean. The technology is based on high-throughput microfluidic real-time PCRs using Taqman probes (BioMark™ dynamic arrays, Fluidigm Corporation), allowing the simultaneous detection of up to 95 pathogens across 95 samples of ticks. The choice of pathogens to detect was based on a comprehensive analysis of the literature, and on a without a priori detection of new or unsuspected pathogens by RNA-sequencing of ticks collected in Guadeloupe and Martinique. Up to now, 40 bacterial species have been listed, belonging to bacterial genera such as *Anaplasma*, *Ehrlichia*, *Bartonella*, *Borrelia*, *Rickettsia*, *Mycoplasma*; 14 parasites species, for example belonging to the genera *Babesia*, *Theileria*, *Hepatozoon*; and 32 arboviruses. The high-throughput detection tool developed here has been validated on Caribbean tick samples, allowing a large scale exploratory epidemiological study on tick-borne pathogens circulating within this Neotropical area.