



COBRE Seminar Series

Detecting tick-borne pathogens in Australian ticks

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Over 50 species of ticks have been described in Australia since 1970, including three introduced species. To date, little is known about the role these ticks play in the transmission of infectious diseases. Past research has focused on species that harbor pathogens which affect humans or domestic and agricultural animals. However, the majority of Australian ticks parasitise native species and have been little studied. Because ticks are known for transmitting the broadest array of pathogens of all arthropod vectors, this study was aimed at detecting and characterizing genera of known virulence in Australian ticks.

Since November 2004, close to 2,000 tick samples have been collected opportunistically from a wide range of host animals and geographical regions in Australia. Ticks collected from native marsupial and reptile host species were targeted for molecular screening. Primers amplifying several key genes of the genera *Coxiella*, *Rickettsia*, *Bartonella*, *Borrelia*, *Hepatozoon* and *Ehrlichia* were used to identify novel and previously identified species in extracted tick DNA, each representing new tick host and geographical records. Uncharacterized *Rickettsia* and *Hepatozoon* species were identified in the common marsupial tick *Ixodes tasmani* collected from Tasmanian devils (*Sarcophilus harrisii*) and koalas (*Phascolarctos cinereus*). Phylogenetic analysis of several sequences obtained for conserved and variable genes reflected a high level of bacterial and protozoal species diversity in Australian ticks.

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John A. Burns School of Medicine, Kaka'ako
Medical Education Building, Room 315 (Auditorium)

For further information, call 692-1654

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