

Prevalence of the endosymbiont *Wolbachia* in heartworms (*Dirofilaria immitis*)

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Wolbachia are Rickettsia-like, vertically transmitted, obligate intracellular bacteria that are associated with heartworms (*Dirofilaria immitis*) in small animals. Recent studies have found that the endosymbiont, *Wolbachia*, might play an important role in the pathogenesis and immune response to heartworm infection. We have investigated the prevalence rate of endosymbiont *Wolbachia* in *D. immitis* in a Korean population of heartworm infected dogs. Furthermore, we have also investigated the detection rate of WSP in microfilaria. We collected two hundred adult heartworms (100 females, 100 males) from 40 dogs (from 8 different provinces in Korea) with severe heartworm infection. Blood samples were also collected from all dogs via the jugular veins for microfilaria detection. The combined *Wolbachia/D.immitis* PCR amplifications performed using primers from the surface protein gene of *D. immitis* and the WSP gene. We obtain successfully results of PCR amplifications amplified the surface protein gene of *D. immitis* (product size 459bp) and the WSP gene (product size 619bp). An extensive survey of a total of 200 adult worms collected from 40 affected dogs revealed a 100% overall infection rate. Out of the 40 blood samples collected, the WSP gene was detected in 36 samples (90% positive rate). In conclusion, the prevalence rate of the endosymbiont *Wolbachia* in *D. immitis* in Korean study population was found to be 100%. Since our study was performed on a small population of dogs in one country, a large scale international survey for the prevalence rate of the endosymbiont *Wolbachia* in *D. immitis* is warranted.

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