

Bacteria, Viruses, and Protozoa Associated with *Haemaphysalis longicornis*

Pathogen/Associate	Species/Strain	Nature of study	Location	References
Bacteria				
<i>Anaplasma</i> species (Rickettsiales, Anaplasmataceae)	<i>Anaplasma phagocytophilum</i>	Natural infection	China, Korea	Kang et al. (2016); Oh et al. (2009); Kim et al. (2003); Kang et al. (2016); Sun et al. (2008)Zhang et al. (2010); Wang et al. (2013)
	<i>Anaplasma bovis</i>	Natural infection	China, Korea	Oh et al. (2009); Kim et al. (2003); Kang et al. (2016); Doan et al. (2013); Lee & Chae (2010); Sun et al. (2008)
	<i>Anaplasma marginale</i>	Experimental study; Negative transmission	Japan, Australia	Furuya (1980); Connell (1978);
	<i>Anaplasma centrale</i>	Experimental study; Negative transmission	Japan, Korea	Oh et al. (2009); Fuyura (1980)
	<i>Anaplasma</i> sp.	Natural infection	China	Chen et al. (2014)

<i>Ehrlichia</i> species (Rickettsiales, Anaplasmataceae)	<i>Ehrlichia chaffeensis</i>	Natural infection	China, Korea	Oh et al. (2009); Kim et al. 2003; Lee et al. (2005); Lee & Chae (2010)
	<i>Ehrlichia</i> species.	Natural infection	China, Japan	Luo et al. (2016); Inokuma et al. (2004)
<i>Rickettsia</i> species (Rickettsiales, Rickettsiaceae)	<i>Rickettsia japonica</i>	Natural infection	China, Korea	Tabara et al. (2010); Uchida et al. (1995); Lee et al. (2003); Noh et al. (2017)
	<i>Rickettsia heilongjiangensis</i>	Natural infection	China	Lee et al. (2003)
	“ <i>Candidatus Rickettsia hebeiii</i> ”	Natural infection	China	Zou et al. (2011)
	<i>Rickettsia</i> species.	Natural infection	China, Korea	Meng et al. (2008); Noh et al. (2017); Gofton et al. (2015); Liu et al. (2013); Chen et al. (2014)
<i>Coxiella</i> species (Legionellales, Coxiellaceae)	<i>Coxiella endosymbiont</i>	Natural infection	Japan	Noda et al. (1997); Liu et al. (2013)
	<i>Coxiella burnetii</i>	Experimental study; negative transmission to guinea pigs	Australia	Smith (1942)

<i>Bartonella</i> species (Rhizobiales, Bartonellaceae)	<i>Bartonella henselae</i>	Natural infection	North Korea	Kang et al. (2016);
	<i>Bartonella grahamii</i>	Natural infection	North Korea	Kang et al. (2016)
	<i>Bartonella</i> species	Natural infection	Korea	Sun et al. (2008)
<i>Borrelia</i> species (Spirochaetales, Spirochetaceae)	<i>Borrelia burgdorferi</i>	Natural infection	Korea, China	Sun et al. (2008)
	<i>Borrelia garinii</i>	Natural infection	China	Sun et al. (2008)
	<i>Borrelia</i> sp.	Natural infection	North Korea, Korea, China	Kang et al. (2016); Meng et al. (2008)

Viruses				
Tick-borne encephalitis (TBEV) (Flavivirus, Flaviviridae)	Western subtype	Natural infection	Korea	Ko et al. (2010); Yun et al. (2016)
Langat virus (LGTV) (Flavivirus, Flaviviridae)	TP21 strain	Experimental study; transmission to mice	Japan	Talactac et al. (2017)
Thogoto virus (THOV) (Thogotovirus, Orthomyxoviridae)	H1-Kamigamo-25	Natural infection; isolation	Japan	Yoshii et al. (2015)
Khasan virus (KHAV) (Phlebovirus, Bunyaviridae)	Strain LEIV-776P	Natural infection; isolation	Russia	Lvov et al. (1978)
Severe fever with thrombocytopenia syndrome (SFTS) virus (Phlebovirus, Bunyiviridae)	Multiple strains (SFTS virus, Huaiyangshan virus, Henan virus)	Natural infection; strong association with human cases	China, Korea, Japan	Luo et al. (2015); Park et al. (2014); Wang et al. (2015); Song et al. (2017); Yun et al. (2014; 2016); Zhang et al. (2012)
Nairobi sheep disease virus Nairovirus, Bunyaviridae)	NSDV (China)	Natural infection; negative isolation attempts	China	Gong et al. (2015)

Canine parvovirus (Parvovirus,)	Strain Cp49 (CPV type 2)	Experimental study; no transmission	Japan	Mori et al. (2015)
Protozoa				
<i>Babesia</i> species Piroplasmida, Babesiidae	<i>Babesia bovis</i> (Texan strain)	Experimental cell culture study	Japan	Maeda et al. (2013)
	<i>Babesia bigemina</i> (Argentine strain)	Experimental cell culture study	Japan	Maeda et al. (2013)
	<i>Babesia caballi</i> (USDA strain)	Experimental study	Japan	Bautista et al. (2001)
	<i>Babesia canis vogeli</i>	Natural infection	China	Chen et al. (2014)
	<i>Babesia gibsoni</i> (Dog-Towada)	Experimental studies Natural infection	Japan Japan	Higushi (1990); Tsuji et al. (2008) Iwakami et al. (2014)
	<i>Babesia microti</i> (Munich strain)	Experimental study; no transmission	Japan	Kusakisako et al. (2015)
	<i>Babesia microti</i>	Natural infection	China	Chen et al. (2014)
	<i>Babesia ovata</i> (strain unlisted) <i>B. o. oshimensis</i>	Experimental study	Japan, China Japan	Higushi (1978); Higushi (1989); Heath (2002) Ohta et al. (1996).

	<i>Babesia</i> species (Strain BQ1 [Lintan])	Experimental study; positive transmission to sheep	China	Guan et al. (2010)
	<i>Babesia</i> species (Strain <i>Babesia</i> U sp.)	Experimental study; negative transmission to cattle	China	Luo et al. (2003)
<i>Theileria</i> species Piroplasmida, Theileriidae	<i>Theileria equi</i> USDA strain	Experimental study	Japan	Ikadai et al. (2007); Tsuji et al. (2008)
	<i>Theileria orientalis</i> Genotypes Ikeda, Chitose, and Buffeli	Natural infection	Australia, China	Hammer et al. (2015); Chen et al. (2014)
	<i>Theileria sergenti</i>	Natural infection	China	Chen et al. (2014)
	<i>Theileria buffeli</i>	Natural infection	China	Chen et al. (2014)
	<i>Theileria luwenshuni</i>	Natural infectionj	China	Chen et al. (2014)