**Babesia microti Antigens**

*Babesia* spp. are protozoan parasites of the phylum Apicomplexa, which infect and replicate within erythrocytes, and are the causative agent of babesiosis, a worldwide emerging zoonotic disease. Symptoms associated with babesiosis can range from mild to moderate flu-like symptoms as well as rash, fever, arthralgia and myalgia, although asymptomatic infections are also known. Up to 10% of patients, especially those with a compromised immune system, may suffer from more severe symptoms like jaundice, diffuse ecchymosis, hemoglobinuria, and organ failure (Yabsley and Shock 2013; Vannier et al. 2015).

*Babesia microti* and *B. divergens* are considered the predominant causative agents of babesiosis in North America and Europe, respectively. Like the Lyme disease causing *Borrelia burgdorferi sensu lato* bacteria, *Babesia* parasites are primarily transmitted by ticks of genus *Ixodes* and co-infections can occur (Swanson et al. 2006; Vannier et al. 2015). In endemic areas of the United States, approximately 20% of these ticks are infected with *B. microti* (Yabsley and Shock 2013; Vannier et al. 2015). In addition, infection can occur by blood transfusions, and babesiosis is considered the most common blood-transfusion associated disease. Yabsley and Shock (2013) reported that up to 4.3% of all blood donors from in these endemic areas are serologically positive for *B. microti* (Yabsley and Shock, 2013).

Scientific studies identified a relatively high number of ticks from Southern Germany and Switzerland infected with *B. microti*, indicating that it is likely to have a wider worldwide prevalence (Foppa et al. 2002; Eshoo et al. 2014). This is supported by the identification of humans in Switzerland and Belgium who were serologically positive for *B. microti*, and a confirmed autochthonous infection in Germany (Foppa et al. 2002; Hildebrandt et al. 2007; Lempereur et al. 2015). Further, *B. microti* has been reported to be the predominant species causing babesiosis in the People’s Republic of China (Zhou et al. 2014).

Screening studies identified *B. microti* antigens useful for immunological assays. These include a 32-kDa secretory protein, *Babesia microti* p32 (Ooka et al. 2012), a cytoplasmic interspersed repeat antigen, *Babesia microti* IRA, that comprises three distinct blocks of repetitive amino acids (Cao et al. 2013), and *Babesia microti* p41, which was found to be expressed in all of the developmental stages of *B. microti* merozoites (Masatani et al. 2013).

**References:**
- Cao et al. (2013) Exp Parasitol. 133:346-352
- Eshoo et al. (2014) Vector Borne Zoonotic Dis. 14:584-591
- Foppa et al. (2002) Emerg Infect Dis. 8:722-726
- Zhou et al. (2014) Parasit Vectors. 7:509

In some countries the use of certain antigens in diagnostic tests may be protected by patents. DIARECT is not responsible for the determination of these issues and suggests clarification prior to use.