

Is *Babesia* still *Babesia*?

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The babesias belong to the Apicomplexa (Alveolata; Eukaryota), as do the causative agents of malaria. Likewise they also parasitize red blood cells of vertebrates. Human babesiosis is a zoonosis transmitted by ixodid ticks, in which the relevant hosts are bovines, other mammals, and also birds. Most human cases are caused either by *Babesia divergens*, which occurs exclusively in Europe, or *B. microti*, which mainly occurs in the northeastern eastern parts of the USA.

In 1888 the Romanian pathologist Victor Babes described *Haematococcus bovis*, a blood parasite of cattle. Later he found a similar parasite in the blood of sheep and named it *H. ovis*. One year after Babes' first description, Smith and Kilbourne, described *Pyrosoma bigeminum* (later re-described as *Piroplasma bigeminum*) isolated from blood specimens of cattle suffering from Texas fever. Finally, the genus *Babesia* was established by Starcovici in 1893, uniting *B. bovis* and *B. ovis*, and later also including *B. bigemina*.

Meanwhile, more than 100 species have been described, mainly according to their respective vertebrate hosts. In the past years, however, the validity of many species has been questioned and also new species have been described, including *B. venatorum*, Herwaldt et al. 2003 and *B. duncani* Conrad et al. 2006, both isolated from humans. Moreover, it has been shown that *B. microti* is more closely related to the genus *Theileria* than to other *Babesia* species. According to molecular data, five distinct groups can be discriminated within the Piroplasmidae: *Babesia* sensu stricto I, *Babesia* sensu stricto II, *Babesia microti* group, *Theileria*-like group and *Theileria* sensu stricto.

Three cases of human babesiosis have been described in Austria, two caused by to the newly described species *B. venatorum* (Herwaldt et al. 2003, Gattringer et al. in preparation) and one by *B. microti* (Ramharter et al. 2010).

Herwaldt, B.L., Cacciò, S., Gherlinzoni, F., Aspöck, H., Slemenda, S.B., Piccaluga, P., Martinelli, G., Edelhofer, R., Hollenstein, U., Poletti, G., Pampiglione, S., Löschenberger, K., Tura, S., Pieniazek, N.J. .2003. Molecular characterization of a non-*Babesia divergens* organism causing zoonotic babesiosis in Europe, Emerg. Infect. Dis., 9, 942-948.

Ramharter, M., Walochnik, J., Lagler, H., Winkler, S., Wernsdorfer, W.H., Stoiser, B., Graninger, W. 2010. Clinical and Molecular Characterization of a Near Fatal Case of Human Babesiosis in Austria, J. Travel Med., Epub ahead of print.