House mouse hybrid zone is a complex of subspecies *Mus musculus musculus, Mus musculus domesticus* and their hybrids. This hybrid zone is considered as a tension zone, maintained by balance between dispersion of individuals towards the zone center and negative selection against the hybrids. Decreased anti-parasite resistance could be one of selective factors which maintain the hybrid zone. In this thesis, I use hematological methods and skin-swelling test to compare variability in mouse health state within the house mouse hybrid zone. The skin-swelling test is a method measuring pro-inflammatory immune responsiveness. Since the commonly adopted method to perform this test does not allow clear interpretation of the test results, in this thesis I also aim to optimise the test protoco . I found that utilization of concanavalin A (ConA) is more suitable in mice than application of the commonly used phytohemaglutinin (PHA). Assessment of health state of mice by both hematological methods and skin-swelling test consistently indicates increased ability of anti-parasitic resistance in the subspecies *M. m. musculus* compared to subspecies *M. m. domesticus.* Hematological examination further shows better health state of hybrid individuals compared to parental subspecies. Our results support hybrid resistance hypothesis. Parasite mediated selection most likely does not play significant role in maintaining stability of hybrid zone between the two subspecies.