

Abstract

Trans-species polymorphism (TSP) is described as the occurrence of identical or similar alleles in related species, excluding cases where the similarity arose by convergence. In TSP the alleles are inherited from ancestor to the descendant species. Neutral TSP is frequent in closely related newly diverged species and it gradually disappears. Considering evolution of immune system and host-pathogen interaction, balanced long-lasting TSP is much more important. Balanced TSP in immune-related genes is maintained by the mechanism of balancing selection and commonly persists for millions of years. In my thesis I map the contemporary knowledge on TSP in immune-related genes, focusing mainly on wild animals. The chief emphasis is given to evolutionary mechanisms influencing the width and age of TSP, distinguishing TSP from other TSP-like evolutionary patterns and methodical difficulties with the assignment of TSP. Presently, most articles dealing with TSP concentrate only on genotyping the Major histocompatibility loci (*MHC I* and *MHC II*), especially in the peptide binding region. Our knowledge concerning other immune genes with putative TSP is, therefore, insufficient. Most importantly, this is true for innate immunity genes. More effort should be given to comparative large-scale well-sampled studies which focus on the width and age of TSP in different taxa and its correlation with different ecological and evolutionary traits.

Key words: immunogenetics, immune genes, major histocompatibility complex, MHC, selection, trans-species polymorphism, TSP