INVERTEBRATES AND ECTOTHERMIC VERTEBRATES AS MODELS FOR INFECTION DISEASES AND IMMUNE REACTIONS

Summary

Ethical issues concerning application of mammalian species in experiments lead reseachers to finding of alternative animal models such as invertebrates and ectothermic vertebrates. The most studied invertebrate models are fruit fly (*Drosophila melanogaster*) and nematode *Caenorhabditis elegans*. Studies of fruit fly helped to understand mechanisms of recognition of pathogen associated molecular patterns (PAMP) by pattern recognition receptors (PRR). Whereas *C. elegans* enlightened our knowledge about programmed cell death — apoptosis. Recently, zebrafish (*Danio rerio*) and clawed frog *(Xenopus laevis*) are often used to study the immune system. Small size and transparency of *C.elegans* and larvae of zebrafish enable real-time analysis of their immune responses. All the mentioned species are now used to study immune reactions upon bacterial, fungal and viral infections. Development of new laboratory tools, including specific monoclonal antibodies, should facilitate identification of crucial, evolutionarily conserved mediators associated with these processes.