Abstract

Toll and IMD pathway are two humoral immune response pathways present in Drosophila melanogaster.Although the developmental role of Toll pathway has been studied since decades, IMD pathway in context of development remained less explored. Here,using the hematopoietic organ, lymph gland of Drosophila larvae, we are able to unravel an unknown role of IMD pathway in hematopoietic niche maintenance.We conducted a loss of function analysis of the IMD pathway components and could demonstrate that functionality of niche is highly compromised in these genotypes. As a consequence there is a huge increment of differentiated hemocytes at the cost of progenitors. Thus, our results clearly establish the developmental role of IMD pathway in stem cell niche maintenance which was previously unknown. Since aberrant non-functional niches are characteristic feature of many hematopoietic malignancies, we foresee that this study can also shed light to our understanding of the basic differences in terms of molecular events happening at cellular level in functional and non-functional niches.