

Abstract

Drosophila melanogaster under normal growth conditions possess primarily two types of hemocytes namely plasmatocytes and crystal cells. Residing in the differentiating or cortical zone of the hematopoietic organ of the fly, these cells arise from a common bipotent progenitor cell. Interestingly, instead of a comparable number of both cell types, the third instar larval hematopoietic organ has innumerable plasmatocytes in comparison to a few crystal cells. We asked that why the bipotent cell which can and which should give rise to both cell types equally gets biased towards plasmatocytes. Moreover, there is a noteworthy difference between these two progenies. The crystal cells which once differentiated are locked into a post mitotic state while plasmatocytes has the luxury to further divide even after differentiation. Therefore, the aim of the study is to understand how the precise regulation on the crystal cell number is achieved in the hematopoietic organ by dissecting out the underlying molecular basis. The long term goal of the project is to figure out/ appreciate the switch from bipotency to unipotency.