

A NEW ROLE FOR MYELOID LEUKEMIA FACTOR (MLF) IN CONTROLLING LAMELLOCYTE FATE IN *DROSOPHILA MELANOGASTER*

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Due to the conserved regulatory networks of hematopoiesis, the fruit fly has been widely utilized as a model organism to understand the mechanisms of blood cell differentiation and function. Three types of mature blood cells are present in the larva: plasmatocytes, crystal cells, and lamellocytes, which are specialized cells that differentiate exclusively in response to immune challenge and in case of tumors. In a screen to identify genes involved in lamellocyte formation, we have isolated *Myeloid leukemia factor* (*Myf*), a conserved factor in the pathogenesis of acute myeloid leukemia in humans. Although previous literature linked the *Myf* gene with regulating crystal cell fate and number, no data indicated its regulatory role in lamellocyte differentiation.

We found that lamellocytes were present both in the lymph gland - a lymphoid organ - and in the circulation of *Myf* null mutant larvae, suggesting a role for *Myf* in controlling the fate of not only crystal cells, but also lamellocytes. With the knockdown of *Myf* expression in different hematopoietic domains, we found that the function of *Myf* is specific to the lymph gland, where it is required for the coordination of blood cell fate.

With genetic interaction experiments, we set up to elucidate the signaling pathways via which *Myf* regulates hematopoiesis in *Drosophila*. We hope that our results will lead to a better understanding of the function of the *Myf* family in human hematopoiesis and carcinogenesis as well.

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