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Title:	Drosophila metamorphosis involves hemocyte mediated macroendocytosis and efferocytosis
Authors:	Ghosh, Saikat (/jspui/browse?type=author&value=Ghosh%2C+Saikat) Ghosh, Sushmit (/jspui/browse?type=author&value=Ghosh%2C+Sushmit) Mandal, L. (/jspui/browse?type=author&value=Mandal%2C+L.)
Keywords:	Drosophila Efferocytosis Hemocyte Plasmatocyte Pupa
Issue Date:	2020
Publisher:	University of the Basque Country Press
Citation:	International Journal of Developmental Biology, 64(1-3), pp.319 - 329.
Abstract:	Drosophila hemocytes are majorly associated with immune responses, but they also undertake several non-immune functions that are crucial during various stages of development. The activity and behaviour of hemocytes are least documented during the metamorphic phase of fly development. Here we describe the activity, form and behaviour of the most abundant type of hemocyte in <i>Drosophila melanogaster</i> , the "plasmatocyte," throughout pupal development. Our study reveals different forms of plasmatocytes laden with varying degrees of histolyzing debris (muscle and fat) which extend beyond the size of the cell itself, highlighting the phagocytic capacity of these plasmatocytes. Interestingly, the engulfment of apoptotic debris by plasmatocytes is an actin-dependent process, and by the end of metamorphosis, clearance is achieved. The uptake of apoptotic debris consisting of muscles and lipids by the plasmatocytes provides us a model that can be employed to dissect out the relevant components of macroendocytosis and lipid-loaded phagocytosis. This understanding, by itself, is crucial for addressing the emerging role of phagocytes in physiology and pathophysiology.
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