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Title:	The Dialogue of the JAK/STAT Pathway with Other signalling Cascades Patterns the Dorsal Longitudinal Muscles in Drosophila
Authors:	<a href="#">Anoop, Chaithra</a>
Keywords:	Muscle Tissue Muscle Development Insulin pathway genes
Issue Date:	May-2024
Publisher:	IISER Mohali
Abstract:	<p>Muscle development is a complex and highly regulated biological process crucial for the formation of the proper musculature indispensable for motor function. Although the role of myogenic regulatory factors has been extensively studied, the intricate interplay of signalling pathways in muscle development remains largely unexplored. In this study, we have utilised the Drosophila DLMs as a model due to its remarkable developmental and structural similarities with vertebrate skeletal muscle. During metamorphosis, the DLMs are formed upon the splitting of three persistent larval oblique muscles in each hemithorax. Our lab has recently discovered that the Signal Transducer and Activator of Transcription (STAT) signalling pathway, classically known for its role in immune responses and cell proliferation, has pleiotropic roles in muscle development. Here, using genetic, behavioural, and molecular biology approaches, we uncover the intricate crosstalk between the STAT pathway and other critical signalling cascades, including the Notch, the Epidermal Growth Factor Receptor (EGFR), the Insulin, and the c-Jun N-terminal Kinase (JNK) pathways during early adult myogenesis in Drosophila. Misexpression of the components of these pathways compromises the flight ability and affects the stereotypic pattern of the DLMs of adult flies. Since these signalling mechanisms are conserved between Drosophila and vertebrates, investigating these interactions provides insights into how multiple signalling pathways coordinate and converge to orchestrate muscle development, ensuring proper growth, differentiation, and function.</p>
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