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Conserved Interactions with Cytoskeletal but Not Signaling Elements Are an Essential Aspect of *Drosophila Wasp* Function

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Abstract

Wiskott–Aldrich Syndrome proteins (WASp) serve as important regulators of cytoskeletal organization and function. These modular proteins, which are well-conserved among eukaryotic species, act to promote actin filament assembly in response to cues from various signal transduction pathways. Genetic analysis has revealed a requirement for the single *Drosophila* homolog, *Wasp* (*Wsp*), in cell-fate decisions governing specific neuronal lineages. We have used this unique developmental context to assess the contributions of established signaling and cytoskeletal partners of WASp. We present biochemical and genetic evidence that, as expected, *Drosophila Wsp* performs its developmental role via the Arp2/3 complex, indicating conservation of the cytoskeletal aspect of *Wsp* function *in vivo*. In contrast, we find that association with the key signaling molecules CDC42 and PIP2 is not an essential requirement, implying that activation of *Wsp* function *in vivo* depends on additional or alternative signaling pathways.

Keywords

WASp; *Drosophila*; Arp2/3 complex; CDC42; PIP2; sensory organs

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