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Abstract: Flightin is a protein first discovered in the flight muscle of fruit flies, where it has been found essential for flight. Recent studies have revealed the presence of flightin in other insects, including non-flying insects, and in Crustacea. These results suggest that flightin has evolved from a protein with a broad function to one with a tissue-specific function. To better understand this transformation over evolutionary time, I am studying flightin expression in Crustacea by comparing expression in two basal genera: *Daphnia* (water flea), and *Artemia* (brine shrimp), with a more recent genus, *Orconectes* (freshwater crayfish). The expression of flightin in specific tissues will be determined by polymerase chain reaction (PCR), and *in-situ* hybridization. It is hoped that an understanding of the expression of Flightin in a more basal and more complex organisms within Crustacea will provide information about the evolution and functional specialization of flightin.