Insights: Publications

Altered pheromone biosynthesis is associated with sex-specific changes in life span and behavior in Drosophila melanogaster

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Many insect behaviors, including foraging, aggression, mating or group behavior, are tightly regulated by pheromones. Recently, it has been shown that pheromones may influence extreme longevity in the honeybee Apis mellifera, while changes in pheromone profile have been observed during ageing in Drosophila melanogaster. These data suggest a potential link between the pheromone system, behavior and longevity in insects. Here, we investigate this potential link by examining changes in behavior and longevity in fruit flies with altered pheromone profiles. We demonstrate that oenocyte-specific reduction of desaturase activity is sufficient to dramatically alter the composition of the hydrocarbon mix displayed by the flies. In addition, flies with altered desaturase activity display changes in fecundity and stereotypical mating behavior, and, importantly, extended longevity. These data provide evidence for a potential link between hydrocarbon synthesis and life span, and suggest that longevity may be influenced by behavior.

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