Commensal Microbes in Lifespan Regulation: Exploring the Impact of Dietary Intervention in Fruit Flies

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The gut microbiome has emerged as a crucial factor influencing host lifespan, with environmental factors such as diet and pharmacological intervention shaping its composition. This study focused on the relationship between commensal microbes and host longevity induced by dietary interventions, using *Drosophila melanogaster* as a model organism. We investigated the impact of dietary restriction (DR), a well-known aging intervention, on longevity and intestinal homeostasis in fruit flies. Our findings highlight the pivotal role of commensal microbes in mediating the effects of DR on lifespan and intestinal health. Additionally, we explored the impact of host-microbiome interactions on the longevity effect of Aronia berry, which is rich in polyphenolic compounds with various physiological and pharmacological activities. This presentation aims to elucidate how commensal microbes influence the longevity effects of dietary interventions, offering insights into the mechanisms underlying host aging and lifespan regulation through dietary interventions.