***Drosophila melanogaster* as a model to study the role of gut microbiota in inflammaging**

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The aging process is characterized by a variety of events, including microbiota dysbiosis and increased inflammation, the so-called inflammaging. While it remains unknown whether this dysbiosis is a cause or consequence of inflammaging, it has been hinted that gut microbiota homeostasis is crucial for healthy aging and hence restoration of this homeostasis might be a route to maintain health in old age.

Here, the model organism *Drosophila melanogaster* is being used to ascertain causality between alterations in gut microbiota and the inflammatory status of the host contributing to aging. To address this, we aim to perform fecal transplantation experiments from old donor mice with different inflammatory status to germ-free flies. Compared to mice, *D. melanogaster* has a shorter lifespan, is easier to rear in large populations, has cheaper husbandry costs and no ethical implications. Furthermore, germ-free animals, amenable to gnotobiotic experiments with controlled microbiotas, are incomparably easier to obtain.

Following microbiota transplantation, we will score the appearance of age-associated signs, based on phenotypes such as the negative geotactic response, longevity, gut permeability and inflammation.

With this model, we expect to detect differences in age-associated traits of *D. melanogaster* that recapitulate the different levels of dysbiosis of the donor microbiota. This will help understand the extent to which microbiota influences inflammaging.