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Book of Abstracts

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new possible way in which G-matrices evolve and how the environment may play a role in shaping complex genotype-to-phenotype maps.

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Lead induces sex and development related differential *Mtn* gene expression in two *Drosophila* species

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Lead is one of the most abundant pollutants extensively used all through human history and, with industrialization and exploitation of its ores, its accumulation in the environment has increased over time. As a non-essential heavy metal with high persistence and toxicity, lead has severely negative effects on all organisms, but the adaptation of populations and species in contaminated environments can be through different responses. Metallothioneins (Mtn) are involved in heavy metal detoxification as metal-binding proteins present in all living species, with six isoforms found in the *Drosophila* genus. It is presumed that some of them have higher specificity for certain metal ions, such as Pb^{2+}, but the question arises if there is a specific response related to species, sex and developmental stage. To further corroborate the metallothioneins with an affinity for lead ions, the expression of six *Mtn* genes (*MtnA-F*) was quantified by RT-qPCR in larvae and adult female and male flies of *D. melanogaster* and *D. subobscura* reared on the standard medium and medium enriched with lead-acetate for thirteen generations and lead bioaccumulation was measured in adult flies. Our experimental design allows for the detection of variation in expression of *Mtn* genes in response to lead exposure between species, sexes and developmental stages. Results also show a correlation between *Mtn* gene expression and measured lead bioaccumulation in adult male and female flies of both species.

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P174

The metabolic switch? Linking individual physiology and life-history in the Glanville fritillary

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The idea that individuals have finite resources which must be differentially allocated between physiological processes to maximise fitness outcomes underpins the theory of life-history evolution. Yet, while the concept of resource allocation trade-offs is longstanding, our understanding of how physiological mechanisms may mediate such trade-offs is comparatively lacking. An intriguing line of thought suggests that metabolic energy serves as a currency in trade-offs between costly life processes, such as