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SESSION E. Room: Bach 1 13.20-13.40 hrs

Transgenerational response to an endocrine disruptor ingestion: phenotypic, genetic and epigenetic analyses in quail

Stacy Rousse^{1,2*}, Marta Godia Perello², Ole Madsen², Frédérique Pitel¹, Sonia E Eynard¹

¹GenPhySE, Université de Toulouse, INRAE, INPT, INP-ENVT, 31326 Castanet Tolosan, France

²Animal Breeding and Genomics, Wageningen University & Research, The Netherlands

* Corresponding author. E-mail: stacy.rousse@wur.nl

While the typical evaluation of an offspring's phenotypic traits usually focuses on the inheritance of parental alleles, variations across generations can also result from the transmission of non-genetic factors. Epigenetic marks like DNA methylation offer a dynamic molecular signature of an individual's history, as they can carry a memory of the individual's environmental past, and may also reflect that of its parents. A recent study in quail (*Coturnix japonica*) found that alterations in the embryonic environment can have an impact on subsequent generations, resulting in significant reduction of the offspring's body weight. To better disentangle the complex interplay between genetic and epigenetic effects, a specific quail breeding plan was designed. Twenty initial founder families were crossed to generate two epilines with similar genetic backgrounds. In the first generation, one epiline received a genistein supplementation whereas the other was only provided with regular feed. After this initial diet disruption, the groups were maintained under standard breeding conditions, and animals from the next two generations were mated following a mirrored design to ensure a balanced genetic structure in both groups. By recording multiple phenotypes (production, growth, behaviour), genotypes and epigenotypes of both epilines, this approach aims to investigate the transgenerational inheritance of an environmental effect through changes in DNA methylation profiles. We present here the first results obtained in this study.