DOES GENETIC IMPRINTING MEDIATE SEXUAL CONFLICT IN GOODEIDS?

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ABSTRACT

Males that manipulate maternal investment gain fitness benefits if this leads to larger broods or to more competitive offspring than those of their competitors, even if it forces (iteroparous) females to reduce investment in future reproductive events. Where embryos can influence maternal investment, paternal genetic manipulation may evolve, prompting the evolution of maternal genomic countermeasures. This coevolutionary process may act in different ways/speeds in isolated populations, leading to asymmetric embryonic growth upon secondary contact. We sought evidence of such asymmetry in the matrotrophic Amarillo fish (*Girardinichthys multiradiatus*). Reciprocal crosses between fish from two genetically distant populations; Zempoala (Z) and San Matías (M) revealed that whereas offspring from M females x Z males were indistinguishable from their controls (M x M), offspring from Z females x M males were significantly bigger and heavier than their controls (Z x Z). Hybrid vigour may not explain the above, since offspring of M x Z were smaller than those of Z x M. Since females from both populations prefer sympatric males, we can also rule out the possibility that Z females found M more attractive and thus preferentially invested on their offspring. Our data are instead consistent with what would be expected if antagonistic coevolution in M promoted enhanced male epigenetic manipulation of female reproductive allocation coupled with enhanced female resistance, in comparison with Z. To asses this preliminary conclusion, we are evaluating the pattern of expression of *IGF2*, a protein with an important role as growth factor, especially during embryonic development. We first sequenced the gene of fish from of the two populations, and after comparing the coding region of both sequences, we found in exon 2 one SNP in some individuals from Z. A next step will be to determine whether *igf2* is expressed monoallelically in the embryos.