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*Genomic imprinting mediates social interactions within honeybee (*Apis mellifera*) colonies.*

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Genomic imprinting is an epigenetic mechanism that facilitates the differential expression of inherited alleles. The kinship theory of genomic imprinting predicts that differential relatedness of inherited alleles to other individuals in the colony will result in different expression patterns between maternally and paternally inherited alleles favoring different phenotypic outcomes. Honeybees provide an excellent system in which to test the kinship theory of genomic imprinting because their haplodiploid genetics creates relatedness asymmetries for maternally and paternally inherited alleles within colonies, and because there are a myriad of complex social interactions among the colony members predicted to be influenced by imprinting. Since the honeybee queens typically mate with multiple males, this leads to relatedness asymmetries of paternally-inherited alleles among workers within a single colony. Workers are facultatively sterile, but under certain circumstances they may activate their ovaries to produce haploid males. In this case, kinship theory predicts that paternally-inherited alleles will favor worker reproduction, while maternally-inherited alleles will disfavor it. To test this prediction, multiple reciprocal crosses of two honeybee races (Africanized and European) were created. Workers from these colonies were reared under conditions favoring ovary activation. Our results indicate that paternity significantly affects a worker's reproductive potential in terms of ovary size and ovarian activation. Transcriptomic analysis of expression levels of maternal and paternal alleles in reproductive vs. sterile workers is ongoing. These studies suggest that imprinting may play a significant role in regulating social dynamics within insect colonies.