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Dissecting the fire ant social supergene
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The fire ant *Solenopsis invicta* is characterized by a remarkable form of social polymorphism, with the presence of one or several queens per colony being completely associated with allelic variation at a single Mendelian factor marked by the gene Gp-9. Because additional phenotypic differences in physiology, fecundity, and behavior are also completely associated with Gp-9, it was hypothesized that the locus actually consists of multiple genes that form a supergene. Recently, genetic and cytogenetic analyses revealed that this is the case with Gp-9 being associated with ~600 genes locked together by a large inversion. Despite the discovery of a social supergene, a detailed understanding of how this social system works is still lacking. Currently, we are examining one of the drivers of the fire ant social form polymorphism, which is the reciprocal interaction between the queen odor and worker perception or response, leading to the monogyne or polygyn colony phenotype. I will report our ongoing progress using transcriptomic profiling of antennae and brains to identify the genes important for the worker perception of or response to queens. Additionally, I will present our preliminary progress at examining the transposon landscape within the supergene.