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Genetics of social behaviour

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Social behaviour can be pretty complex at the best of times, and defining the underlying genetic events has provided a formidable challenge. In the November 15 [Scienceexpress](#), Michael Krieger and Kenneth Ross, from the [University of Georgia](#), describe the first clear example of a single gene affecting complex social behaviour (*ScienceXpress* 10.1126/science.1065247). [Colony queen number](#) in the fire ant *Solenopsis invicta* is associated with variations in the *Gp-9* gene, such that worker ants with the *B* allele are associated with a single queen (monogyne social form), whereas the *b* allele workers are polygyne. Krieger and Ross sequenced the *Gp-9* gene and show that it encodes a [pheromone-binding protein](#). Thus, GP-9 may play a role in chemoreception by influencing worker recognition and acceptance of pheromone-producing queens. The *B* and *b* alleles are distinguished by several amino-acid changes. The *Gp-9* allele variation is conserved in South American fire ants exhibiting social polymorphism. This study provides fascinating insights into the genetic basis and evolution of complex social behaviour.

References

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