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Nematode immunity

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The importance of the **innate immune system** is underscored by its remarkable conservation in the immunity strategies of organisms from flies to mammals. In the July 26 *Science*, Kim *et al.* report the results of a genetic analysis of immune function in the nematode, *Caenorhabditis elegans* (*Science* 2002, **297**:623-626). To screen for 'enhanced susceptibility to pathogen' (Esp) mutants, they monitored the response of mutagenized F2-generation larval-stage nematodes to infections with the bacterium *Pseudomonas aeruginosa*. Wild-type worms typically begin to die at around 34 hours. They screened 14,000 haploid genomes and identified several mutants that were killed by 31 hours. These strains were also hyper-sensitive to infection with Gram-positive pathogens. Kim *et al.* used high-resolution mapping of single-nucleotide polymorphisms (SNPs) to identify the mutant genes. Two of the Esp mutants had inactivating mutations in genes encoding components of the MAP kinase signal transduction pathway, namely *sek-1* (an MKK3 homolog) and *nsy-1* (an ASK1 homolog). Kim *et al.* then used RNAi experiments to demonstrate that the downstream transcription factor p38/pmk-1 is also required for pathogen defence.

References

1. Phylogenetic perspectives in innate immunity.
2. *Science*, [<http://www.sciencemag.org>]