

New signaling pathways involved in insect immunity and microbial pathogenesis.

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To date most studies on immune signaling pathways in insects have focused on activation of NF κ B like molecules by the Toll and imd signaling pathways. Part of the reason for this is most genetic screens to identify flies with immune signaling defects relied upon reporters that were induced by these pathways. Such screens are useful for dissecting a pathway but cannot identify new immune functions. We have developed assays that measure survival of flies following infections with a variety of pathogenic bacteria. In this way we have identified at least three two pathways that had not previously been shown to play a role in innate immune signaling. These pathways are highly conserved between humans and *Drosophila* and we anticipate they also play a role in the mosquito. We have also found that the *Drosophila* immune system responds in ways that have not been described previously.