Honey bee chemoreceptors found for smell and taste

Honey bees have a much better sense of smell than fruit flies or mosquitoes, a new study shows. The research, reported in Science, is the first to show that honey bees have a dedicated set of chemoreceptors for smell and taste, according to UI researchers.

The new study provides evidence of a molecular mechanism for the distinct olfactory and gustatory systems of honey bees. In particular, the study shows that honey bees have a specific receptor that recognizes mannose, a sugar that is abundant in plant cell walls.

The study was led by Charles Whitfield, a professor of integrative biology at the University of Illinois, and Gene Robinson, a professor of entomology at Cornell University.

"We have been working on honey bee chemoreceptors for many years," said Whitfield. "But this is the first time we have been able to identify a specific receptor that recognizes mannose, a sugar that is abundant in plant cell walls. This receptor is specific to honey bees and is not found in other insects."