NOSE KNOWS SMELLS THANKS TO GENE GROUP, RESEARCH FINDS

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NEW YORK - A nose knows a rose when it smells one thanks to a newly discovered family of genes, biologists reported.

They have identified what they believe are 18 of the genes that enable the nose to latch on to the fragrant oils of the rose and distinguish them from tens of thousands of other smells.

"It's a bombshell," said Charles Wysocki of the Monell Chemical Senses Center in Philadelphia. "It's something that was not expected for many years."

A report of the discovery, by Linda Buck and Richard Axel of Columbia University, appears in today's issue of the journal Cell.

"These molecules will serve as useful tools" for solving a variety of important scientific and practical problems, Buck said.

She said the discovery could be the first step toward understanding how the brain's nerve cells are wired together. It also could have practical applications in such areas as insect control, she said.

Strong-smelling substances called pheromones play a role in insect behavior and reproduction. Learning how those substances are detected could lead to new means of inhibiting insect reproduction.

Before this study, researchers had disagreed about whether smell was governed by a few genes or a large number. The study suggests that 100 to 200 genes may be involved, Buck and Axel said.

"The number of genes, if it holds up to be true, is phenomenal," said Wysocki, an authority on the biology and psychology of smell.

"It makes it now one of the largest related families of genes that's been identified."

He said the research is "literally going to open up whole new fields. It's going to draw people who never even thought of doing work with the sense of smell."

Odors are detected by tiny tubular extensions on nerve cells high in the nasal cavity, Buck said. The extensions, called cilia, are believed to be the location of molecules called receptors. Odor molecules are believed to slip into receptors as a key slips into a lock.

The newly identified genes are almost certain to carry the blueprints for those receptors, Buck said. Experiments now in progress are expected to confirm that.

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