

Mapping evolutionary history with genes for smell

Animals have been smelling for hundreds of millions of years, but the evolution of that sense is difficult to trace. You can't ask an elephant to describe the fragrance of an acacia tree, for example, nor can you ask a lion if it gets the same feeling from a whiff of the same plant.

So scientists have to gather indirect clues to how different species use their noses. One way is to run simple tests on animals, seeing if they show an ability to tell different odors apart. Elephants, for example, can tell the difference between the smells of as many as 30 different members of their extended family.

Recently, scientists at the University of Tokyo compared 20,000 olfactory receptor genes from 13 species of mammals. In some cases, such as elephants, they were the first to make such a catalog. In other cases, such as cows and mice, they identified olfactory receptor genes that had gone overlooked till now.

What's most interesting about the new study from Tokyo is that the scientists were able to reconstruct 100 million years of smell evolution in a single tree. They could recognize related versions of the same gene in different species, and use that information to trace when new genes arose and when they disappeared.

Read the full, original story: [The tree of smells](#)