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 - Technology
 - Investing
 - Real Estate
 - Stocks
- ▼ **Sports**
 - Orioles/Baseball
 - Ravens/Football
 - College Basketball
 - College Football
 - College Lacrosse
 - College
 - Pro Basketball
 - Hockey
 - Soccer
 - Horse Racing
 - Tennis
 - Golf
 - Auto Racing
 - Boxing
 - High School
 - Outdoors
 - Olympics
 - AP Sports
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 - Today
 - Arts/Society
 - Home/Family
 - Travel
 - Movies/Video
 - Music/Nightlife
 - Restaurants/Food
 - Art/Museums
 - Theater/Dance
 - Books
 - Visitors' Guide
 - TV/Media
 - Crossword
 - Horoscope
- ▼ **Opinion**
 - Talk
 - Letters to Editor
 - Editorials
 - Op/Ed
 - Perspective
 - Columnists

Heavy metals attract strong, bad odors

Knight Ridder/tribune
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Heavy metal smells.

While it may sound like music criticism, the conclusion is actually a new scientific model that may explain how humans and other mammals detect odors.

Scientists at the University of Illinois have discovered that odor-sensing proteins, called olfactory receptors, may owe much of their stink-detecting capabilities to heavy metals such as zinc or copper.

The discovery is based on knowledge that inorganic chemists have had for a long time, but biologists have largely overlooked - things that bind to metals smell strongly and badly.

"Inorganic chemistry stinks," said Kenneth S. Suslick, the chemist who led the work on smell. The results of the study appeared Tuesday in the Proceedings of the National Academies of Science.

The primary function of the olfactory system - the scientific name for the part of the body responsible for the sense of smell - is to help mammals avoid spoiled food, Suslick said. Bacteria often give off malodorous chemicals that stick strongly to metals, he said. Those metals - zinc, copper, iron, magnesium and others - may come from food and water.

The Illinois researchers have used this bit of wisdom to develop an artificial nose that could help detect noxious chemicals. Metal-binding dyes in the artificial nose change colors when certain odors latch onto the metals.

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