Elephants rarely get cancer. Can humans borrow their genetic strategies?

Elephants have 100 times as many cells as humans. But they seldom get cancer. This is surprising, because cancer is a result of cell division gone wrong, and the more cells an organism has, the higher the chances that some will mutate into tumors.

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It turns out that cancer does not strike all species equally: Some animals have evolved powerful strategies to keep the disease at bay, while others are particularly vulnerable.

Scientists are increasingly exploring this interspecies variation in cancer rates, hoping to learn more about how cancer works in humans and to identify better ways of treating or preventing it.

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Joshua Schiffman — a pediatric oncologist [at the University of Utah] — and colleagues have found that elephants have 40 copies of the TP53 gene, which suppresses tumor cells before they can grow and spread. By comparison, humans and most other animals have only two copies… The elephants' approach appears to be a unique evolutionary strategy for fighting cancer.

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Elephants are not the only animal with unusually low rates of cancer. Using data from zoos and veterinarians as well as anecdotal reports from the wild and lab research, scientists know or suspect that other creatures, including mole rats, gray squirrels, horses, whales and bats, rarely get cancer.

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Eventually, it may be possible to use gene therapy, genetic engineering or pharmacology to apply animals' cancer strategies to humans.

Read full, original post: Rarity of cancer in elephants may help explain cancer in humans.