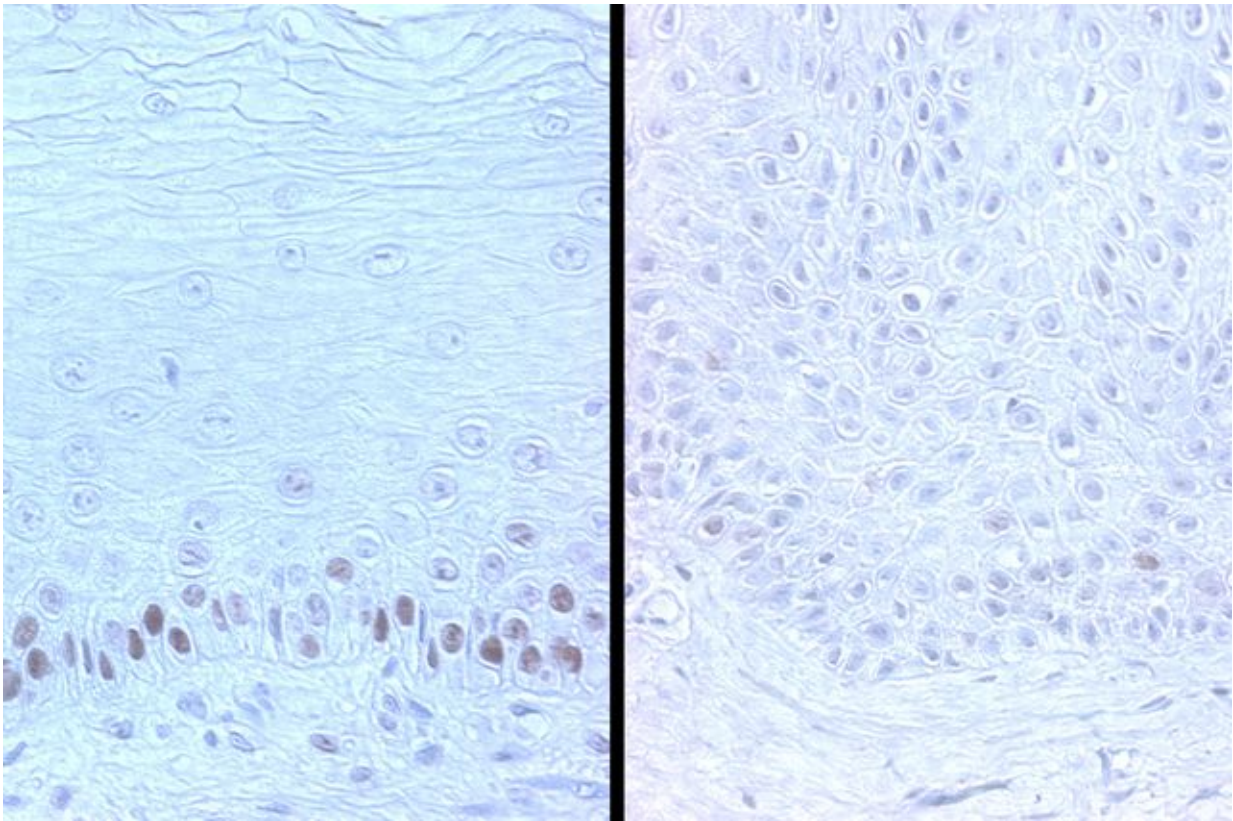


Study finds that a protein that helps suppress cancer fades as we age

July 16 2015, by Andrea Parada



Images showing the difference in the prevalence of p53 in the oral tissue of a 28-year-old (left) and a 74-year-old (right). Credit: Dr. Reuben Kim

Researchers at UCLA have found that a protein that serves as a suppressor of cancer diminishes in skin and mouth epithelial cells as the

human body ages.

Dr. No-Hee Park, dean of the UCLA School of Dentistry, and his research team have been studying [p53](#), a [tumor suppressor protein](#) known as "the guardian of the genome" because of its involvement in DNA repair, cell cycle regulation and cellular deterioration.

"Looking at ways to maintain levels of p53 as one ages may provide a therapeutic clue to preventing cancer development," said Park, who is also a distinguished professor in the departments of dentistry and medicine at UCLA.

Previous studies have shown that p53 accumulates in large quantities as [connective tissue cells](#), called fibroblasts, age and stop dividing. It has been believed that the accumulation of p53 causes cells to stop dividing, which prevents out-of-control cells from growing into tumors.

In a paper published online by the journal *Aging Cell*, the researchers found that in epithelial cells lining the skin and the mouth, the level of p53 is reduced, rather than enhanced when cells age.

Epithelial cells line the major cavities of the body, including most organs, such as the mouth, stomach, small intestine, kidney, and pancreas. These cells have a set level of p53 that provides protection from [environmental factors](#) and ensures their wellbeing. With less p53, older epithelial cells have a harder time maintaining the integrity of their genetic material when they encounter carcinogens, which allows cancer to develop.

Park and his team also reported that in humans, the level of p53 in skin and mouth epithelial cells decreased with age by epigenetic (external and environmental) factors, not by the changes of the p53 DNA sequence.

"Inasmuch as approximately 90 percent of human cancers are originated from [epithelial cells](#), we suspect this may have to do with the increased incidences of skin and oral cancers in elderly patients," said Dr. Reuben Kim, an associate professor at UCLA Dentistry and a co-corresponding author of the study.

The study's other authors are Drs. Mo Kang, Terresa Kim, Paul Yang, Susan Bae, Drake Williams, Samantha Phung, Ki-Hyuk Shin and Christine Hong, all of UCLA Dentistry.

Provided by University of California, Los Angeles

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