

# Smoking electronic cigarettes kills large number of mouth cells

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A large number of mouth cells exposed to e-cigarette vapor in the laboratory die within a few days, according to a study conducted by Université Laval researchers and published in the latest issue of *Journal of Cellular Physiology*.

Dr. Mahmoud Rouabhia and his team at Université Laval's Faculty of Dental Medicine came to this conclusion after exposing gingival epithelial [cells](#) to [e-cigarette vapor](#). "Mouth epithelium is the body's first line of defense against microbial infection," Professor Rouabhia explains. "This epithelium protects us against several microorganisms living in our mouths."

To simulate what happens in a person's [mouth](#) while vaping, researchers placed epithelial cells in a small chamber containing a saliva-like liquid. Electronic cigarette [vapor](#) was pumped into the chamber at a rate of two five-second "inhalations" per minute for 15 minutes a day.

Observations under the microscope showed that the percentage of dead or dying cells, which is about 2% in unexposed cell cultures, rose to 18%, 40%, and 53% after 1, 2, and 3 days of exposure to e-cigarette vapor, respectively.

"Contrary to what one might think, e-cigarette vapor isn't just water," explains Dr. Rouabhia. "Although it doesn't contain tar compounds like regular cigarette smoke, it exposes mouth tissues and the respiratory tract to compounds produced by heating the vegetable glycerin,

[propylene glycol](#), and nicotine aromas in e-cigarette liquid."

The cumulative effects of this cell damage have not yet been documented, but they are worrying, according to Dr. Rouabhia, who is also a member of the Oral Ecology Research Group (GREB) at Université Laval: "Damage to the defensive barrier in the mouth can increase the risk of infection, inflammation, and gum disease. Over the longer term, it may also increase the risk of cancer. This is what we will be investigating in the future."

Provided by Laval University

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