

Math, not skin, may be a better way to help researchers test consumer products, study shows

May 10 2016

Researchers at the University of Cincinnati (UC) James L. Winkle College of Pharmacy are presenting collaborative research on the use of mathematical methods for understanding the transportation of chemical compounds in biological tissues, like the skin.

This could lead to better ways of testing cosmetic or [consumer products](#) without harming humans or animals.

The research, led by Gerald Kasting, PhD, professor of [pharmaceutical sciences](#) in the college, will be presented at the 8th annual meeting of the International Society of Porous Media (Interpore) on Wednesday, May 11, at the Hilton Netherland Plaza hotel in downtown Cincinnati. The meeting is co-sponsored by [academic institutions](#) and industrial corporations including the Procter & Gamble Company.

Interpore is a non-profit scientific society established in 2008 to advance and disseminate knowledge for the understanding, description and modeling of natural and industrial porous media systems.

Kasting, who is collaborating with Arne Naegel and Gabriel Wittum from Goethe University in Frankfurt, Germany, for this research, says mathematical modeling allows scientists to test [chemical compounds](#) virtually, in place of human or animal testing.

"A lot of people have models, but we have predictive models," Kasting says of developing mathematical equations to determine whether a chemical compound will penetrate skin or induce allergy based on the results of prior compounds. "Instead of doing testing on 30,000 compounds, we are able to test a subset of say 200 and make predictions about the other 29,800 based on the subset."

These predictions, he says, are essential to manufacturing in global chemical, cosmetic and personal care industries impacted by REACH, a European regulatory guideline that aims to improve the protection of human health and the environment through the better and earlier identification of the properties of chemical substances.

"In order to produce globally, companies need to meet and adhere to the most stringent guidelines. Potentially troublesome ingredients such as fragrances and preservatives are widely used in the cosmetic and personal care industry, so manufacturers are very interested in ways to improve testing," he says.

Kasting's research is funded by Cefic, a Brussels-based chemical consortium.

Provided by University of Cincinnati Academic Health Center

Citation: Math, not skin, may be a better way to help researchers test consumer products, study shows (2016, May 10) retrieved 8 February 2023 from <https://phys.org/news/2016-05-math-skin-consumer-products.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.