

Process promising for on-site printing of custom-dosed meds

October 4 2017



(HealthDay)—Small molecular medicines can be printed precisely using



organic vapor jets, according to a study published online Sept. 27 in *Nature Communications*.

Olga Shalev, Ph.D., from the University of Michigan in Ann Arbor, and colleagues discussed the potential use of solvent-free organic vapor jets to print small molecular medicines.

The researchers found that nanostructured films of small molecular pharmaceutical ingredients could be deposited by use of solvent-free organic vapor jet printing; these ingredients included caffeine, acetaminophen, ibuprofen, tamoxifen, BAY 11-7082, and fluorescein. Accuracy was on the scale of μ g per cm². The pharmaceutical ingredients could be printed onto glass, Tegaderm, Listerine tabs, and stainless steel microneedles. Similar crystallographic order and chemistry was demonstrated by the printed films and the original powders; relative to powder-form particles, controlled, order-ofmagnitude enhancements of dissolution rate were observed. In vitro treatment of breast and ovarian cancer cell cultures in aqueous media by tamoxifen and BAY 11-7082 films showed similar behavior to drugs predissolved in dimethyl sulfoxide.

"The ability to deposit small molecular drugs from their pure form, as <u>films</u> and without the use of solvents as shown here, opens an alternative approach to drug screening and manufacturing, where accurate dosage, chemical and structural stability, and processing flexibility are needed without hindering <u>drug</u> functionality," the authors write. "The technique demonstrated here also potentially enables continuous manufacturing, eliminating the need for mixing and powder preparation."

More information: <u>Abstract/Full Text</u>

Copyright © 2017 HealthDay. All rights reserved.



Citation: Process promising for on-site printing of custom-dosed meds (2017, October 4) retrieved 5 May 2024 from https://medicalxpress.com/news/2017-10-on-site-custom-dosed-meds.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.