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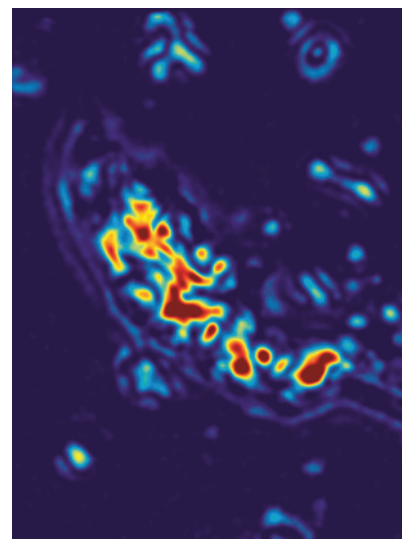
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## ABOUT THE COVER

Current fecal tests (occult blood, methylation, DNA mutations) target minute amounts of tumor products among a large amount of fecal material and thus have suboptimal performance. By exploiting field carcinogenesis as a modality to amplify the neoplastic signal, the present study demonstrates that endoscopically normal rectal brushings have striking nano-architectural alterations which are detectable utilizing a novel optical technique, partial wave spectroscopic microscopy (PWS). Mucus layer fecal colonocytes (MLFCs) at preneoplastic and neoplastic time-points in azoxymethane (AOM)-treated rat models were examined using PWS analysis to derive the nano-architectural parameter, disorder strength (Ld). MLFCs from both control and AOM-treated animals appeared microscopically normal and identical under bright field microscopy. However, superimposing Ld pseudocolor maps on the images (cover micrograph; saline-treatment; AOM treatment not shown) revealed marked differences (elevation) in Ld in the AOM-treated rats in the areas of nucleus and cytoplasm when compared to control animals. Thus, by utilizing a biophotonics proof of principle approach to fecal assay, the present study demonstrates that targeting the nano-architectural changes of field carcinogenesis rather than the detection of tumor products may provide a novel paradigm for colorectal cancer screening. See article by Roy and colleagues (beginning on page 1111) for more information.



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