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RESEARCH NOTES

E-CIGARETTES MAY POSE MORE HARM THAN BENEFIT

New research from Dartmouth's Norris Cotton Cancer Center, conducted with other centers nationally and published in the journal *PLOS ONE*, has found that e-cigarette use currently represents more harm than benefit at the population level.

While e-cigarettes are marketed as a tool to help adult smokers quit smoking, they only marginally increase the number of adults who succeed, and e-cigarettes may facilitate cigarette smoking initiation and cause substantial harm to adolescents and young adults once they are introduced to nicotine, says principal investigator Samir Soneji, PhD, associate professor at The Dartmouth Institute for Health Policy and Clinical Practice.

"We need to close the regulatory gaps that make e-cigarettes appealing to adolescents and young adults by reducing the availability of kid-friendly flavors and issuing product standards that reduce the level of known toxins and carcinogens in e-juice," he says. [Read more: dartgo.org/e-cigstudy](http://dartgo.org/e-cigstudy)

BACTERIA USE MEMORY TO FORM BIOFILMS

An international group of researchers, including George O'Toole, PhD, a professor of

microbiology and immunology at Geisel, has discovered that bacteria use multigenerational memory to form biofilm communities.

The surprising findings, published in the *Proceedings of the National Academy of Sciences*, have important implications for understanding treatment-resistant infections, especially those caused by *Pseudomonas aeruginosa*—a strain of bacteria that forms biofilms in the airways of cystic fibrosis patients and causes persistent infections that can be deadly.

"We did not anticipate that the microbes could use a previous interaction with a surface to prime themselves for the next time they encounter a surface," says O'Toole, the study's collaborating senior author, who worked with investigators from UCLA and Oxford University on the effort. "They seem to remember that earlier encounter." [Read more: dartgo.org/bacteria_memory](http://dartgo.org/bacteria_memory)

NEW INSIGHTS ON CELL SIZING AND DIVISION

A recent study by Geisel researchers, featured in the *Journal of Cell Biology*, reveals new details about the process of cell cycle progression. Lead author James Moseley, PhD, describes how his team was able to track an elusive protein, Wee1, at the cell surface and determine how it helps to regulate cell size and division.

"It turns out that Wee1 transiently visits these spots called nodes, but it does so in a very size-dependent manner—as the cell gets

bigger, it visits them much more frequently," he says. "That fits perfectly with a lot of the biochemistry and genetics work our lab has been doing to understand that Wee1 is getting inhibited or 'turned off' at these structures. This is what allows the cell to enter into cell division." [Read more: dartgo.org/wee1](http://dartgo.org/wee1)

GEISEL JOINS VASCULAR DISEASE RESEARCH NETWORK

The Geisel School of Medicine and Dartmouth-Hitchcock are partnering with Brigham and Women's Hospital (BWH) as one of four centers in a new American Heart Association (AHA)-funded research network launched this year with the goal of unlocking some of the mysteries behind vascular disease.

Supported by a four-year, \$3.7-million grant from the AHA, the Dartmouth/BWH center will focus on peripheral artery disease and critical limb ischemia, seeking new ways to help identify patients who are at risk and improve outcomes for patients who suffer from these conditions.

Geisel faculty members Mark Creager, MD, the Anna Gundlach Huber Professor in Medicine, and Philip Goodney, MD, associate professor of surgery and of health policy and clinical practice, will help lead this effort. [Read more: dartgo.org/vascular_network](http://dartgo.org/vascular_network)

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