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CINJ Study Shows Addiction to Life-Saving, Self-Digestion Process Can Aid Cancer Cells in Tumor Growth

A team of investigators at The Cancer Institute of New Jersey (CINJ), Rutgers University, and Princeton University, have determined that cancer cells are "addicted" to a self-preservation process known as autophagy. They also showed that the inhibition of that process could prove to be a valuable treatment approach for aggressive cancers. Autophagy is a cellular self-cannibalization process where cells eat themselves to survive starvation. Senior author of the study, [Eileen White, PhD](#) who is the associate director for basic science at CINJ and adjunct professor of surgery at UMDNJ-Robert Wood Johnson Medical School and a professor of molecular biology and biochemistry at Rutgers University, and her collaborators previously discovered that cancer cells can take advantage of the autophagy survival pathway to aid their growth into tumors. In this new study, Dr. White and colleagues have found that cancer cells induce autophagy and this self-cannibalization process enables the growth of the most aggressive tumors. The latest research, which appears online and in the March print editions of *Genes & Development*, focuses on cancer genes known as H-ras and K-ras that are activated in many aggressive cancers with poor prognoses. These cancers, which are acutely sensitive to autophagy inhibition, have high levels of autophagy that provide cancer cells with sufficient nutrition to survive by recycling parts of themselves. In collaboration with the [Joshua Rabinowitz](#) and [Hilary Collier](#) laboratories at Princeton University, investigators were able to show that autophagy in these aggressive cancers provides fuel to the powerhouses of the cell, the mitochondria. By spurring the mitochondria to generate a steady supply of energy for tumor cells, autophagy keeps those cells alive and growing. These tumor cells are "addicted" to autophagy to support the metabolism of cancer cells. By identifying that this autophagy "addiction" is prevalent in cancers with Ras mutations, such as lung, pancreatic and colon, a metabolic vulnerability of cancer cells is revealed – a vulnerability the authors say can be utilized for cancer therapy. This finding suggests that patients with these poor-prognosis cancers may benefit from treatment that targets autophagy inhibition but, further exploration needs to be done.

Apple's iPad Makes its Debut at The Cancer Institute of New Jersey

To better serve patients and the greater community, The Cancer Institute of New Jersey's (CINJ) Resource and Learning Center (RLC) is incorporating the Apple iPad and Barnes & Noble NOOK™ electronic reader into its information arsenal. The RLC provides information to patients, family members and the community on a variety of cancer topics, such as clinical trials; prevention; diagnosis and treatment; research; and nutrition through varied media, such as books, magazines, DVDs and CD ROMs. Now this information can also be accessed in a more portable manner, with the addition of the iPads and NOOKs. The iPads are loaded with books, music, and videos to provide reliable, relevant and current information about all aspects of cancer as well as for entertainment. The NOOKs contain books and magazines providing a quick divergence in the waiting room or hours of entertainment during treatment. CINJ's medical librarian Janet Lasin, MLS, BS, says the devices especially enhance services for those who are less mobile by allowing for the library to come to them should they be unable to come to the Resource and Learning Center. The devices were purchased with support from Johnson & Johnson and the Karma Foundation.

March is National Colorectal Cancer Awareness Month

According to the American Cancer Society, nearly 143,000 new cases of the disease were diagnosed in the United States last year with about 4,430 new cases in New Jersey. Colorectal cancer is the third most common type of cancer in the nation and is the third leading cause of cancer death among both men and women. While the exact cause of most colorectal cancers is not known, risk factors include poor diet, lack of exercise, and having

polyps in the colon or rectum areas. Those over age 50 also are at increased risk. Beginning at age 50, it is recommended that both men and women undergo periodic colonoscopies, fecal occult blood tests and/or other screenings that can detect colorectal cancer. According to the Centers for Disease Control and Prevention, if everyone aged 50 or older were screened regularly, as many as 60 percent of deaths from this cancer could be avoided. Studies show that colorectal cancer may be prevented by maintaining a healthy weight, eating a diet rich in fruit and vegetables, keeping physically active and limiting the use of alcoholic beverages.



ROBERT WOOD JOHNSON
MEDICAL SCHOOL
University of Medicine & Dentistry of New Jersey

195 Little Albany Street • New Brunswick, NJ • Office of Communications 732/235-9891 • www.cinj.org



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