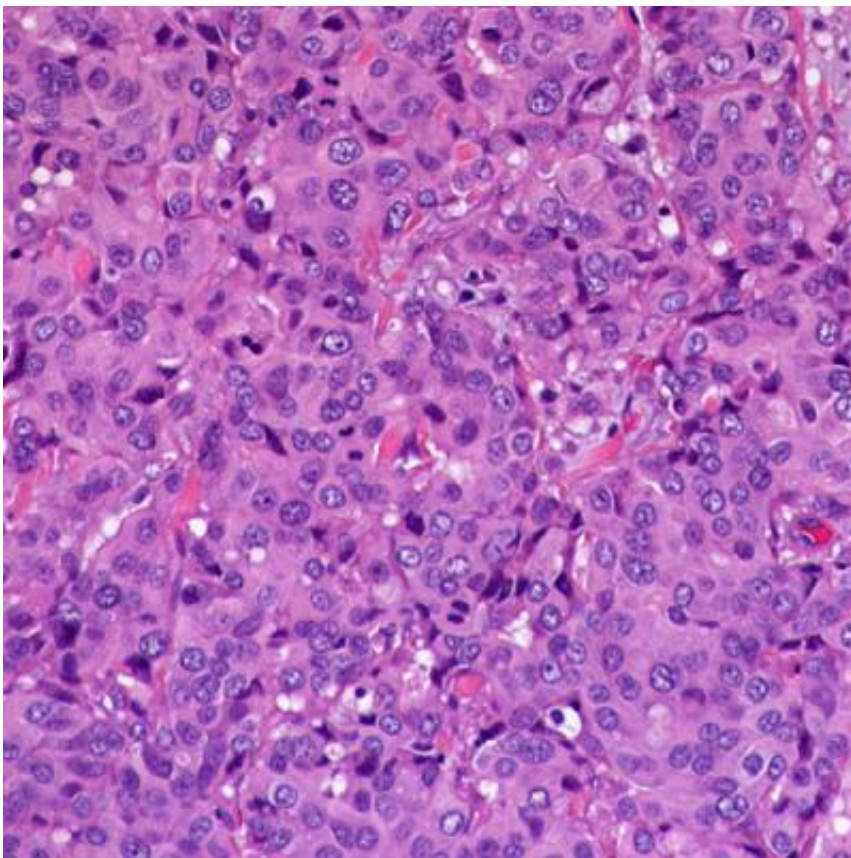# Second-most common breast cancer subtype may benefit from personalized treatment approach

February 26 2014

Invasive ductal carcinoma (IDC) cells (blue/purple) fill the entire image, as they have formed a large lump or mass in the patient's breast. Credit: UPCI

The second-most common type of breast cancer is a very different

disease than the most common and appears to be a good candidate for a personalized approach to treatment, according to a multidisciplinary team led by University of Pittsburgh Cancer Institute (UPCI) scientists.

Invasive lobular carcinoma, which is characterized by a unique growth pattern in breast tissue that fails to form a lump, has distinct genetic markers that indicate there may be benefits from drug therapies beyond those typically prescribed for the more common invasive ductal carcinoma. The results will be published in the March 1 issue of the journal *Cancer Research*.

Patients with invasive lobular carcinoma are typically treated through surgical removal of the cancer, followed by chemotherapy or hormone therapy or both, usually with the estrogen-mimicking drug tamoxifen or estrogen-lowering aromatase inhibitors, the same as patients with invasive ductal carcinoma.

"However, recent analyses have shown that a subset of patients with lobular carcinoma receive less benefit from adjuvant tamoxifen than patients with ductal carcinoma," said senior author Steffi Oesterreich, Ph.D., professor at UPCI, a partner with UPMC CancerCenter, and director of education at the Women's Cancer Research Center. "Our study, the largest of its kind, indicates an issue with the estrogen receptors inside lobular carcinoma cells and points to a potential target for drug therapy in future clinical trials, which we are developing."
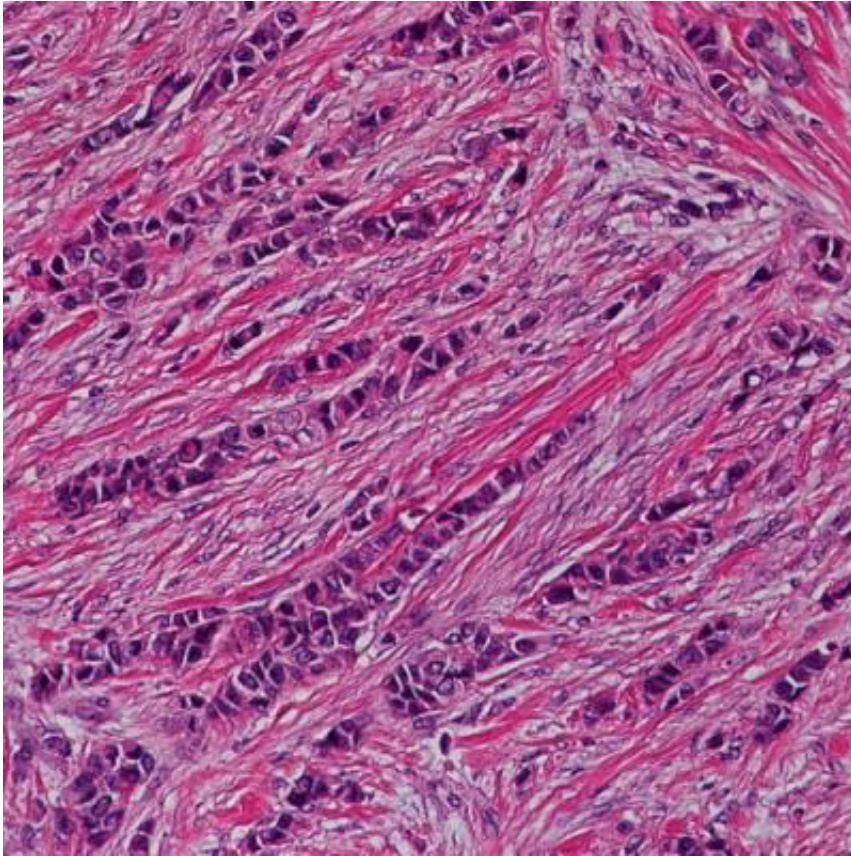
Invasive lobular carcinoma (ILC) cells (blue/purple) invade healthy breast tissue (pink) in the characteristic 'single-file' manner, and do not form an easily detectable lump or mass. Credit: UPCI

The UPCI study, funded by the Breast Cancer Research Foundation and the U.S. Department of Defense, included collaborations across multiple disciplines, ranging from biostatistics and biomedical informatics to pathology and human genetics, in order to produce results with the potential for rapid translation into clinical therapies.

"In addition to its potential clinical implications, the study highlights the need for more and better models mimicking invasive lobular cancer that can be used for laboratory studies," said lead author Matthew Sikora, Ph.D., a postdoctoral associate at UPCI.

"Because lobular carcinomas account for only 10 to 15 percent of breast cancers, while ductal carcinomas make up nearly 80 percent, lobular carcinomas are a less attractive option for laboratory study," said Dr. Sikora. "However, 30,000 women in the U.S. are diagnosed with lobular carcinoma every year, so there is a great need for further study of this disease."

Provided by University of Pittsburgh Schools of the Health Sciences