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Karen E. Knudsen, PhD, has been named director of the Sidney Kimmel Cancer Center at Thomas Jefferson University in Philadelphia, PA, as well as chair of its department of cancer biology. She has been serving in these roles on an interim basis since January.

An expert in the molecular basis of hormone-dependent prostate cancer, Knudsen aims to prevent and treat the disease. Her studies that identify tumor suppressor and hormone-receptor alterations have uncovered new targets for treating advanced disease and have led to innovative, biomarker-driven clinical trials. In addition, she is editor-in-chief of *Molecular Cancer Research*.

EMBL-EBI

Rolf Apweiler, PhD

EMBL-EBI

Ewan Birney, PhD

Rolf Apweiler, PhD, and **Ewan Birney, PhD,** have been appointed joint directors of the European Molecular Biology Laboratory—European Bioinformatics Institute (EMBL-EBI), effective July 1. The European hub for big data in biology, EMBL-EBI is based on the Wellcome Trust Genome Campus in Hinxton, UK. As part of EMBL, the institute collects, annotates, archives, and shares data from publicly funded life-science experiments with the global scientific community. Apweiler and Birney will continue to lead their respective research groups.

Apweiler is involved in many internal collaborations and initiatives, including the Human Proteome Organization Proteomics Standards Initiative. He has served on the editorial and advisory boards of several journals, and he has published more than 250 papers and book chapters.

Birney played a vital role in annotating the genome sequences of the human, mouse, and other organisms. He led the analysis group for the ENCODE project. His interests include functional genomics and statistical methods to analyze genomic information.

Precision Medicine Path for Prostate Cancer

A mainstay of metastatic prostate cancer treatment is the suppression of hormones that fuel tumor cells. However, almost all men with advanced prostate cancer develop resistance to these androgen-depleting therapies.

Recently, researchers showed that nearly 90% of patients with metastatic castration-resistant prostate cancer (mCRPC) have a genetic alteration that could be targeted by other clinical treatments. The findings suggest individualized approaches for these patients (Cell 2015;161:1215–28).

"This will have a major impact on how we move forward in [treating] this disease," says Johann de Bono, MD, a principal investigator in the study and head of the Division of Clinical Studies at the Institute of Cancer Research in London, UK. "Ninety-nine percent of our trials involve no patient preselection. With this information, we can now subdivide these patients, as we've done with breast and lung cancers."

In this first multicenter, international clinical trial, researchers conducted whole-exome and transcriptome sequencing of bone or soft-tissue biopsy samples from 150 patients living with mCRPC. Results showed that 62.7% of the patients who had a genetic alteration had androgen receptor mutations, a finding in line with current understanding of the disease.

More compelling, researchers found that of the nearly 90% of patients with genetic alterations, 65% had anomalies (other than androgen receptor mutations) that could be targeted by investigational or FDA-approved drugs currently used for other cancers. Among these alterations, almost 23% occurred in DNA repair pathways. For instance, some tumors had BRCA1 or BRCA2 mutations, which, in ovarian and breast cancers, have shown sensitivity to PARP inhibitors, drugs that interfere with DNA repair and prevent tumor cells from dividing.

In addition, researchers mapped more than a half dozen previously unknown genetic changes, such as mutations in the Wnt signaling pathway, which leads to regulation of cell development and migration, and a *PIK3CB* mutation with cancer-activating effects similar to *PIK3CA*. They also found that 8% of patients with mCRPC had germline mutations.

"This is a very important study on a number of fronts," says Karen Knudsen, PhD, director of the Sidney Kimmel Cancer Center at Thomas Jefferson University in Philadelphia, PA, who was not involved in the study. "It's the first large study looking at the incurable stage of the disease, where the unmet clinical need is. The large cohort gives us confidence and a much clearer picture of the drivers of disease, and they've uncovered new potential drivers that are targetable."

When the study is completed, researchers will have mapped and sequenced the tumors of 500 patients with mCRPC. Amassing such data, says de Bono, will lead to more targeted—and more affordable—sequencing.

"It will be critical to follow up with clinical trials that correlate clinical outcomes with molecular alterations," says Arul M. Chinnaiyan, MD, PhD, a senior author on the study and director of the Michigan Center for Translational Pathology at the University of Michigan in Ann Arbor. "The longer-term goal is to have this information ahead of time and be able to direct patients in a more precise way to the best therapy." ■

Cellular Backpackers Deliver Lymphoma Drugs

Researchers have developed a new technique that enlists T cells to ferry chemotherapy drugs into tumors and that improves the efficiency of drug delivery.

Cancer cells can elude chemotherapy by hiding out in lymph nodes and other protected locations. Even if a small amount of drug makes it to these refuges, it may not permeate the tissue to reach the tumor cells inside.

Researchers have tried to overcome these problems by having nanoparticles transport chemotherapy drugs, but not all tumors have the leaky blood vessels that enable the particles to leave the bloodstream and disperse into the tumor.

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Cancer Discovery 2015;5:786.