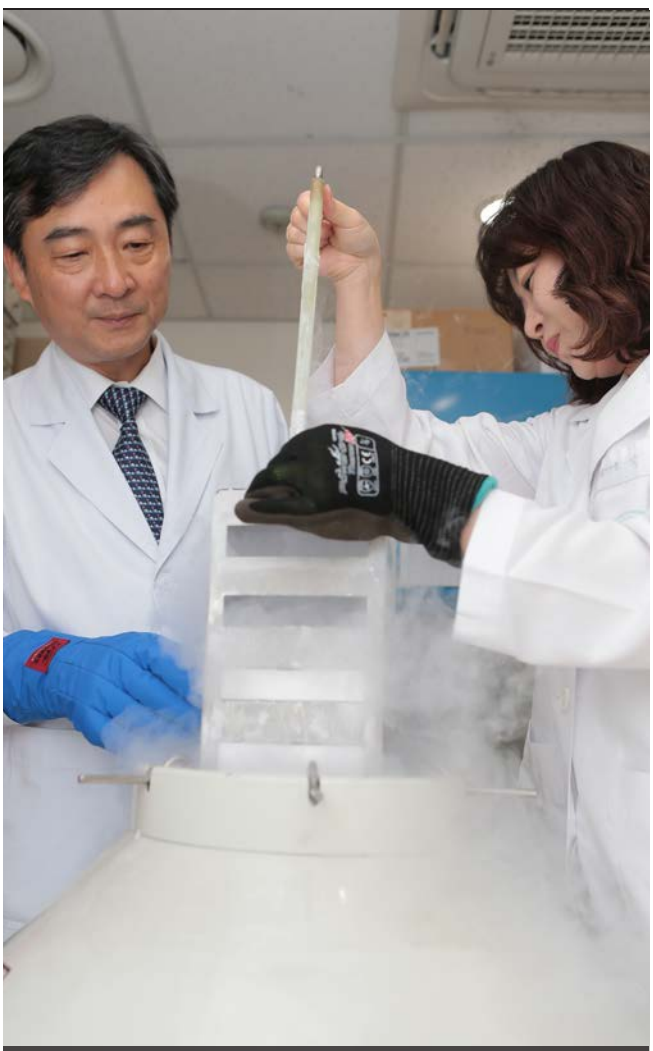
Building a 10,000-genome cancer database

Mapping the cancer genomes of South Koreans will help the development of PRECISION CANCER TREATMENTS.



Registered cancer patient samples, including tissue, plasma, and peripheral blood mononuclear cells (PBMC), are banked after cancer genomic screening analysis.

Up to ten thousand South Korean cancer patients will have their genome sequenced within the next five years. The resultant genetic database will improve patient access to relevant clinical trials, and fast-track the development and use of precision cancer medicine.

The Korean Cancer Precision Medicine Diagnosis and Treatment Enterprise (K-MASTER), operated by Korea University, is funded by the South Korean government to support three key goals: genomic sequencing of cancers, clinical trials for South Korean cancer patients, and the development of a cancer genomics database.

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In the 18 months since its launch, K-MASTER (an acronym describing the consortium's approach to cancer treatment) has already collected cancer tissue and blood samples from around 2,000 patients through 52 participating hospitals.

The genomic sequencing scans for any of 385 known genes associated with cancer, while genomic analysis of circulating tumour DNA looks for other tumour-specific variations in plasma. The analysis also homes in on inherited cancer-related mutations that South Korean patients might have a propensity for.

"We are looking for specific germline changes as well, so we can identify genetic predispositions in our Korean cancer patients which are not usually found in other ethnic populations," says Yeul Hong Kim, director of the K-MASTER programme.

One of the consortium's aims is to match cancer patients to an appropriate clinical trial. K-MASTER is already involved in 16 clinical trials, which include testing new drugs targeted at specific cancer mutations, but also providing access for South Korean patients to cancer drugs that are approved in other countries, but not yet licensed domestically.

"We can collect the genomic profiling data at the same time as the clinical trial data and use it to build up a large database," Kim says. "With this database, we can generate new treatment methods for new targets, and identify new biomarkers that can be applied in precision medicine."

Such a resource will be valuable within South Korea, and beyond. K-MASTER is already collaborating with a number of international pharmaceutical companies, as well as renowned research organisations, including the American Association for Cancer Research, and the Dana-Farber Cancer Institute, to share the genomic profiling data and advance the development of diagnostic technologies and treatments.

K-MASTER has also attracted the attention of South Korean cancer patient support groups, who have been eager to participate in the data collection and clinical trials, Kim says. "It's at an early stage, but we are hoping to deliver interesting new findings by the end of this year."

K-MASTER
Cancer Precision Medicine Diagnosis and Treatment Enterprise

http://k-master.org/eng.php