



CHINA WATCH

Chinese, American scientists "light up" lung cancer mutations

WASHINGTON, March 7 (Xinhua) -- Chinese and American scientists have found a new way to identify non-small cell lung cancers (NSCLC), the most common type of lung cancer, non-invasively. In a study reported on Wednesday in the journal *Science Translational Medicine*, the scientists used a radio-labeled chemical tracer to mark certain cancer mutations, which can help determine sensitivity to and the efficacy of a therapy called tyrosine kinase inhibition in NSCLC patients. NSCLC with those mutations can be best treated with drugs called tyrosine kinase inhibitors. The inhibitors can extend median survival time of cancer patients with a mutation in the epidermal growth factor receptor or EGFR protein to greater than two years, more than twice the survival of patients receiving only chemotherapy.

However, it is not easy for clinicians to swiftly tell which cancers have this mutation and are therefore likely to respond to tyrosine kinase inhibition, according to researchers. Although several techniques are currently available to assess EGFR mutations, these methods require biopsied samples and can often fail because of insufficient sample quantities for analysis.

An international team from Harbin Medical University, Fudan University and Stanford University has developed a chemical tracer that can light up EGFR mutations in the tumor cells, so the positron emission tomography (PET) and computed tomography (CT) imaging scans can detect them. "We develop a kind molecular probe called 18F-MPG that can bind specifically with EGFR mutations," Sun Xilin, the paper's lead author at the Fourth Hospital of Harbin Medical University, told Xinhua.

Researchers tested the tracer in animal models with NSCLC and in primary and metastatic tumors from people with the cancer. They found that EGFR mutation detection by labeled PET and CT scans and by traditional biopsy were in agreement nearly 85 percent of the time. In the study, patients with the EGFR mutation, detected by the tracer, lived longer without a progression in their cancers and they responded to tyrosine kinase inhibitors at a higher rate than those without the mutation.

"When we know EGFR mutations, a total of 70 percent of cancer patients respond to the therapy, but only 20 percent respond if we don't know their mutations," Sun said.

First ultra high-voltage clean power line is here!

XINING, March 7 (Xinhua) -- China's first ultra high-voltage power superhighway for transmitting clean energy has been approved, with construction to start in the second half of the year. The 800-kilovolt direct current transmission line will extend 1,600 km across five provinces, from the Qinghai plateau in the northwest to densely populated Henan in central China, according to the State Grid, Qinghai branch. Qinghai has a large solar power capacity, reaching 9.53 million kilowatts at the end of 2017, accounting for 37.5 percent of its total power capacity. Shu Yinbiao, chair of the State Grid, said the power line will use Qinghai's advantage in clean energy resources for industrial upgrades and raise the amount of clean electricity used in Henan.

China to strengthen financing support for Belt and Road Initiative

BEIJING, March 7 (Xinhua) -- China will strengthen financing and tax support to better serve the Belt and Road Initiative, a deputy finance minister said on Wednesday. The Ministry of Finance is forming an international financing cooperation center in a bid to build a long-term, stable, sustainable, risk-controllable and diversified financing system. The ministry will continue to push forward bilateral and multilateral tariff negotiations to promote the building of free trade areas, promote mutual opening up, and soundly implement the tariff concession agreements already signed with countries along the routes.

China will facilitate international tax coordination and cooperation, contribute to eliminating discrimination in tax policy making and implementation, while encouraging more countries to participate in the BEPS (Base Erosion and Profit shifting) project. The Belt and Road Initiative, proposed by China in 2013, aims to build trade and infrastructure networks connecting Asia with Europe and Africa along the ancient Silk Road trade routes to seek common development and prosperity. So far, the initiative has gained support from over 100 countries and international organizations.

Chinese FM calls for mutual trust with India

BEIJING, March 8 (Xinhua) -- Foreign Minister Wang Yi Thursday called mutual trust "an issue that needs to be addressed urgently" between China and India. "With political trust, not even the Himalayas can stop us from friendly exchanges. Without it, not even level land can bring us together," Wang told a press conference on the sidelines of the first session of the 13th National People's Congress.

When China and India, the two largest developing countries in the world, each with a population of more than 1 billion, become modernized, the two countries must do everything to empathize with and support each other, he said.

Chinese and Indian leaders have developed a strategic vision for the future bilateral ties, which is the Chinese "dragon" and the Indian "elephant" must not fight but dance with each other, he said. Stressing that shared understanding between the two countries far outstrips difference and common interests far outweigh frictions, Wang said China is willing and ready to carry on traditional friendship. He said he hopes the two sides will replace suspicion with trust, manage differences through dialogue and build a future through cooperation.

Chinese scientists develop DNA nanorobots to treat cancer

BEIJING, March 2 (Xinhua) -- Chinese scientists said they have successfully created and tested the world's first autonomous DNA nanorobots to combat cancer tumors, paving the way for revolutionary cancer therapy. Scientists from China's National Center for Nanoscience and Technology (NCNST) led the research and cooperated with scientists from Arizona State University in upgrading the design of the nanorobots. The scientific study was published in Nature Biotechnology in February.

A nanorobot refers to a designed system that can perform a specific task at nanoscale dimensions. According to researcher Ding Baoquan, the DNA-based nanorobot has a tube-shaped structure with a diameter of about 19 nanometers and a length of about 90 nanometers.

"The nanorobot is exceptionally small and impossible to see with naked eyes. It is about 5,000 times smaller than the tip of a needle," Ding said. It can travel through the bloodstream searching for tumors. Once it detects a tumor, it will release its load of thrombin directly into the tumor to cut off its blood supply and "starve" the tumor to death.

As the DNA nanorobot is a natural biocompatible and biodegradable material, it is cleared out of the body after it has finished its task.

Nanotechnology has provided new opportunities for medical industry. The research was started five years ago, when NCNST researchers first looked at cutting off the tumor blood supply by using DNA-based nanocarriers. Ding said although the concept of nanorobots for medical use has previously been introduced and experiments conducted in test tubes, this is the first time that experiments have been completed on living organisms with sophisticated biological environments. The research evaluated the nanorobots in mice with tumors. The DNA nanorobots

were injected into mice, and the results showed significant tumor shrinkage and often, complete tumor regression, within days or weeks.

According to scientist Zhao Yuliang, the research team also conducted extensive safety studies of the nanorobots in two different mammals, including the Bama miniature pig, which is physiologically and anatomically similar to humans."Unlike chemotherapy and radiation, the DNA nanorobots are able to treat tumors without harming surrounding healthy tissue. The nanorobots do not accumulate in the brain and thus, do not pose the risk of causing a stroke," Zhao said.

Nie Guangjun, also part of the research team, believes this is a milestone in cancer research, a field that has been striving for decades to develop effective therapies. "Our research shows that DNA-based nanocarriers have been shown to be an effective and safe cancer therapy," Nie said. "We are currently working with a biotech firm to do pre-clinical studies and hope to translate this revolutionary technology into a viable anti-tumor therapeutic," Nie added.

Readers comments and feedback are welcome by Pathfinder Foundation.

(The Pathfinder Foundation and the Xinhua News agency signed an Agreement to jointly publish 'China Watch' a special Compilation of news from China tailor-made for a Sri Lankan readership/audience. Can view on www.pathfinderfoundation.org)