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First made-in-Singapore cancer drug enters clinical testing

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A made-in-Singapore cancer drug has advanced into clinical trials, charting a milestone in Singapore's biomedical sciences initiative that will go towards improving the lives of cancer patients in Singapore, and worldwide. The Agency for Science, Technology and Research (A*STAR) and Duke-National University of Singapore Graduate Medical School (Duke-NUS) today announced the start of a Phase I clinical trial of novel cancer drug candidate, ETC-159. This is the first publicly-funded drug candidate discovered and developed in Singapore to advance into first-in-human trials, and will target a range of cancers. Overall, cancer is the leading cause of death in Singapore, accounting for 30 percent of deaths in 2013. Cancer has also resulted in 8.2 million deaths world-wide .

ETC-159 targets a number of cancers including colorectal, ovarian and pancreatic cancers which contribute to a significant proportion of Singapore's cancer burden. These cancers are linked to a group of cell signalling pathways known as Wnt signalling, that have been identified to promote cancer growth and spread when elevated or dysregulated. As ETC-159 is an inhibitor of these pathways, it could suppress cancer proliferation and prevent cancer progression.

This drug candidate therefore offers a promising novel and targeted cancer therapy that could shape future cancer therapeutic strategies.

ETC-159 was discovered and developed through a collaboration between A*STAR's Experimental Therapeutics Centre (ETC), Drug Discovery

and Development (D3) unit and Duke-NUS since 2009. This was based on the discovery work of Prof David Virshup from Duke-NUS, who has continued to contribute to the development of the drug candidate.

The Phase I clinical trial will evaluate the safety and tolerability of ETC-159 in advanced solid tumours of up to 58 patients. The first patient was dosed on 18 June 2015.

Dr Benjamin Seet, Executive Director of A*STAR's Biomedical Research Council, said, "This breakthrough, which closely follows local company MerLion Pharmaceuticals' recent success in obtaining FDA approval for one of its drugs, marks an inflection point in Singapore's biomedical sciences initiative. Despite the protracted process of drug discovery and development, I am confident that we will see more locally developed drugs in the pipeline being tested and implemented."

Prof Ranga Rama Krishnan, Chairman of the National Medical Research Council (NMRC), Singapore, said, "The first dosing of a drug developed by A*STAR based on a scientific discovery by Duke-NUS researchers, is an example of the terrific and exciting progress that has been made when different entities come together to work on a common problem. This will lead to developing new treatments that can benefit patients in Singapore and beyond."

Prof Alex Matter, Chief Executive Officer of ETC and D3 said, "The discovery and subsequent development of this drug candidate marks a major breakthrough in cancer therapeutics. It also demonstrates the world-class drug discovery and development capabilities we have built up at ETC and D3, complemented by valued partners like Duke-NUS. We will continue to strengthen these capabilities and partnerships to continue developing a pipeline of promising drug candidates and advancing them into the clinic."

Prof David Virshup, inaugural Director of the Programme in Cancer and Stem Cell Biology at Duke-NUS, said, "As the drug candidate provides a targeted cancer therapy, it could potentially minimise side effects and make cancer treatments more bearable for cancer patients. This is a major milestone that was made possible by Singapore's ongoing investment in basic and translational biomedical research to address unmet medical needs. It is fitting that Singaporeans might be the first to benefit from this Singapore-developed drug."

A*STAR's ETC and Duke-NUS are the primary drivers of the discovery and development of the drug candidate. D3 joined the collaboration in 2013 to bring the project forward to achieve proof of concept in humans.

D3 has obtained ethics and regulatory approval for this trial from the SingHealth Centralised Institutional Review Board (CIRB) and the Singapore Health Sciences Authority (HSA) respectively. The first two sites for the trial are the National Cancer Centre Singapore (NCCS) and the National University Hospital (NUH), Singapore. Trial sites in the United States will be opened as the trial progresses.

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