

Possible Therapeutic Solution To Inhibit Obesity Gene



Scientists from the National University of Singapore (NUS) have identified several potent inhibitors that selectively target FTO, the fat mass and obesity-associated gene. The FTO-specific inhibitors could pave the way for the development of anti-obesity drugs and could provide individuals who are genetically predisposed to obesity a therapeutic solution.

The research was conducted by Assistant Professor Esther Woon from the Department of Pharmacy at the NUS Faculty of Science, along with colleagues from the Institute of Molecular and Cell Biology (IMCB) at the Agency for Science, Technology and Research (A*STAR), as well as Nanyang Technological University. The findings have been published in *Chemical Science*.

People who are obese are predisposed to a host of other medical conditions including Type 2 diabetes, cardiovascular diseases and cancer. According to estimates, nearly 58 percent of the world's population will be obese by 2030.

Despite these statistics, there is currently no effective treatment for obesity. While healthy eating habits and an active lifestyle are considered to be important measures to combat obesity, it is evident that these efforts alone are insufficient as far as controlling the obesity epidemic is concerned. That is because there could be underlying genetic influences that program a person's size and appetite.

The FTO gene is believed to be strongly linked to obesity. Genome-wide studies conducted with children and adults across all major ethnic groups show that people with certain variations of the FTO gene are 70 percent more likely to become obese.

There is no doubt that a therapeutic gap exists since there is no safe and effective drug for the long term treatment of obesity. In this particular experiment, the research team discovered several novel and potent FTO inhibitors that were able to selectively target FTO over other proteins. An innovative drug discovery strategy called Dynamic Combinatorial Mass-Spectrometry was used by combining the permutation power of dynamic combinatorial chemistry and the sensitivity of protein mass-spectrometry.

According to Asst. Prof. Woon, "Such remarkable selectivity is rarely achieved and is the 'holy grail' in drug discovery, as it potentially translates to significantly reduced side effects. This is demonstrated by the promising activities and low cytotoxicity of some of these inhibitors in cells."

This research can open doors for the development of anti-obesity drugs and treatments. The FTO inhibitors represent a potential new class of anti-obesity drugs and can target the genetic cause of obesity. The research team has already filed a patent for the inhibitors through the NUS Industry Liaison Office.

Source: Science Daily

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