Scientists have successfully managed to identify a molecular pathway that is responsible for converting unhealthy white fat into energy-burning beige fat.

The new study is done by researchers led by the School of Medicine at The University of Texas Health Science Center at San Antonio. The researchers also found that a protein, Grb10, serves as the on-off switch for mTORC1 signalling and the 'beigeing' of fat.

They added that cold stress stimulates Grb10 and it causes the body to burn energy.

"We know that if we want to keep our body lean, we have to get rid of extra nutrients in the body, which means burning more energy," said senior author Feng Liu, professor of pharmacology at the UT Health Science Center and director of the Metabolic Syndrome Research Center at Xiangya Second Hospital, Central South University, in Changsha, China.

Liu added that understanding how beigeing is controlled is so very important because if we can improve energy expenditure, we can reduce obesity.

Adipose (fat) tissues are important regulators of metabolism and these tissues include white adipose tissue and brown adipose tissue. Too much deposit of white adipose tissue is associated with obesity and metabolic diseases such as type 2 diabetes.

"Normally when we eat something, we store it in white fat. For the extra food we eat, it is better to release it, not store it," said co-author Lily Dong, professor of cellular and structural biology at the UT Health Science Center.

The study is published in the journal Cell Metabolism.