

# Scientists identify genes capable of burning brown fat

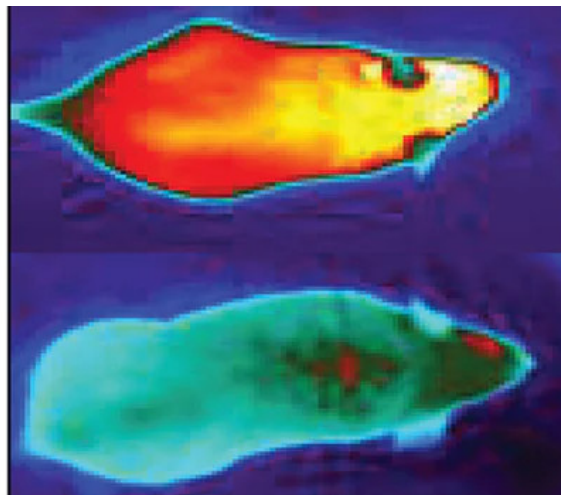
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Scientists used to think that only babies have brown fat and use it as a way to keep warm. But it was discovered in adults in 2009.

In it, brown fat cells have more mitochondria - which are the components of cell energy production compared to white blood cells, and this is what allows them to burn energy more efficiently. Scientists have been searching for an object called "fat transducer", which converts white fat to brown.



Later, Salk scientists studied how to maintain brown fat even when the body is not cold. The team looked at the role of a gene called the gamma receptor (ERR $\alpha$ ) related to estrogen, which is very active in brown fat.

The team found that brown fat cells continuously expressed ERR $\alpha$  activity, while white fat cells failed to express it. The researchers also studied genes other than ERR $\alpha$  that could also be activated and linked to brown fats.

Michael Downes, co-author of the paper, said: "We have discovered factors that are involved in protecting against cold and brown fat formation."

To test the difference between white and brown fat cells, the researchers examined mice that lacked the complete ERR $\beta$  gene. They found that in these mice, brown fat cells were not much different from normal white cells and mice could not regulate their body temperature in cold conditions.

"This not only enhances our understanding of how the body responds to the cold environment but can also provide new insights related to controlling the amount of brown fat in the body, which is relevant to obesity, diabetes and fatty liver disease," Ronald Evans, author of the study.

The study is published in Cell Reports.

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