

# New mitochondrial control mechanism discovered

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Scientists have discovered a new component of mitochondria that plays a key part in their function. The discovery, which is presented in the journal *Cell Metabolism*, is of potential significance to our understanding of both inherited and age-related diseases.

Mitochondria are normally called the cell's power plants since they convert the energy in our food into a form that the body can use. To work properly, the [mitochondria](#) have to form new proteins, which they do in their ribosomes.

A group of researchers at Karolinska Institutet and the Max Planck Institute for Biology of Ageing has discovered that a protein called MTERF4 combines with another [protein](#) called NSUN4 to form a complex that controls the formation and function of the mitochondrial ribosomes. In mice lacking MTERF4 no functional ribosomes are formed, leading to a reduction in energy production.

"Reduced mitochondrial function is involved in several inherited diseases, normal ageing and age-related diseases," says Professor Nils G?ran Larsson, who co-led the study with Professor Claes Gustafsson. "Fundamental knowledge of how mitochondrial function is regulated can therefore be of great clinical significance in the future."

The research group previously discovered similar regulation mechanisms in the mitochondria that were found to be related to the development of [diabetes](#).

**More information:** Yolanda Cámara, Jorge Asin-Cayuela, Chan Bae Park, Metodi D. Metodiev, Yonghong Shi, Benedetta Ruzzenente, Christian Kukat, Bianca Habermann; Rolf Wibom, Kjell Hultenby, Thomas Franz, Hediye Erdjument-Bromage, Paul Tempst, B. Martin Hallberg, Claes M. Gustafsson & Nils-Göran Larsson, MTERF4 regulates translation by targeting the methyltransferase NSUN4 to the mammalian mitochondrial ribosome, *Cell Metabolism*, online 3 May 2011. [www.cell.com/cell-metabolism/](http://www.cell.com/cell-metabolism/)

Provided by Karolinska Institutet

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