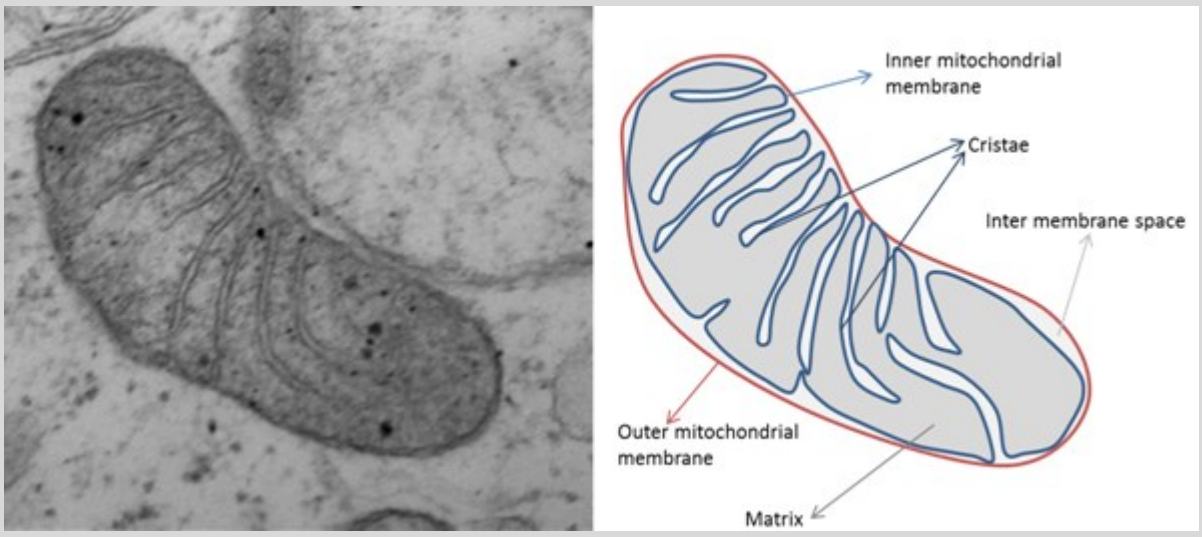
# The structure of mitochondria

## Fact sheet

wellcome trust centre for Mitochondrial Research

Mitochondria have two membranes (protective coverings) one surrounding the other, called the inner and outer mitochondrial membranes. The inner membrane is highly folded and forms structures called cristae, the machinery for energy generation can be found on these cristae. Between the two membranes is a gap called the inter membrane space, while the space at surrounded by the inner mitochondrial membrane is called the matrix. The matrix contains the mitochondrial DNA, the components for the mitochondria to carry out their functions and the machinery needed to make new copies of the mitochondrial DNA.




We think that the mitochondria form networks to allow the contents of the matrix to mix. In cells that are dying or that contain mitochondria which are not functioning properly then the network breaks down and the mitochondria once again take on their 'bean' like appearance. The network reaches to the limits of the cell in all directions, but it varies in appearance in different cells. In brain cells for example around the nucleus the mitochondria form a network but in order to be transported to the end of the nerve which might be far away the mitochondria return to being 'bean' shaped and are transported along a long fibre called an axon. We can record movies of this happening and use measurements of how fast the mitochondria move, how many are moving and in which direction they travel in our research.