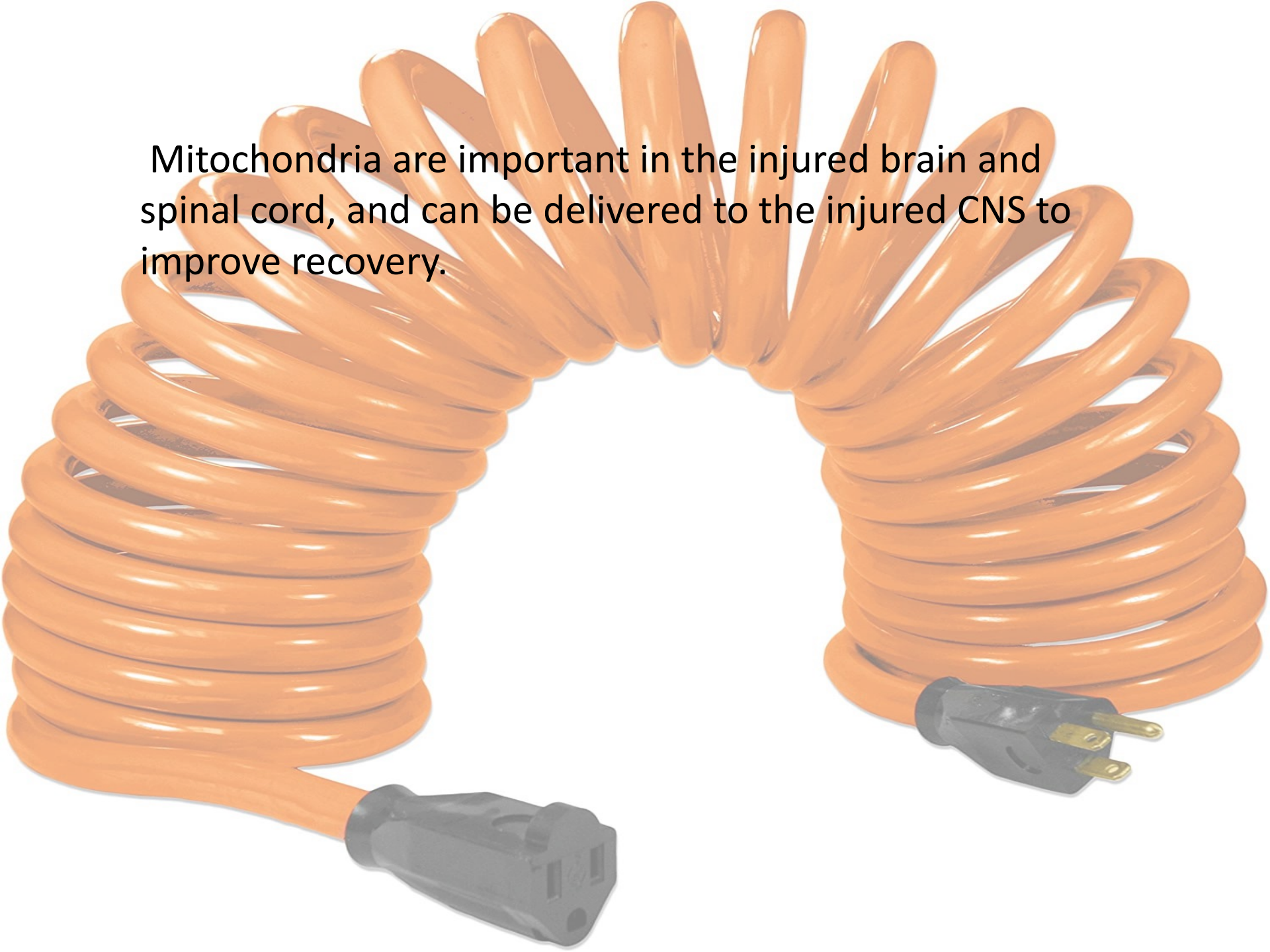


# Delivery of mitoceuticals or respiratory competent mitochondria to sites of neurotrauma

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Mitochondria are important in the injured brain and spinal cord, and can be delivered to the injured CNS to improve recovery.



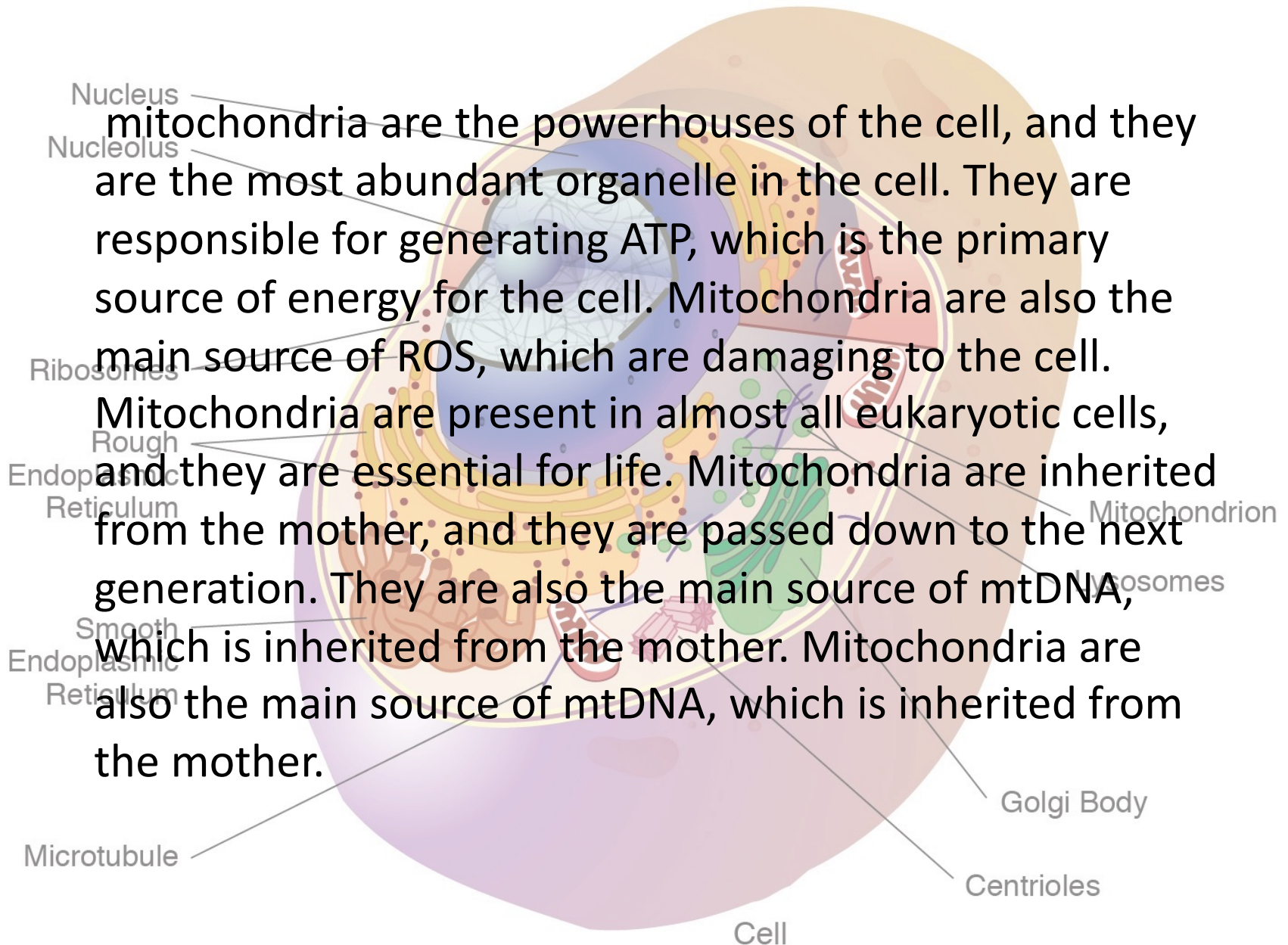
pioglitazone is neuroprotective in SCI, but not TBI.



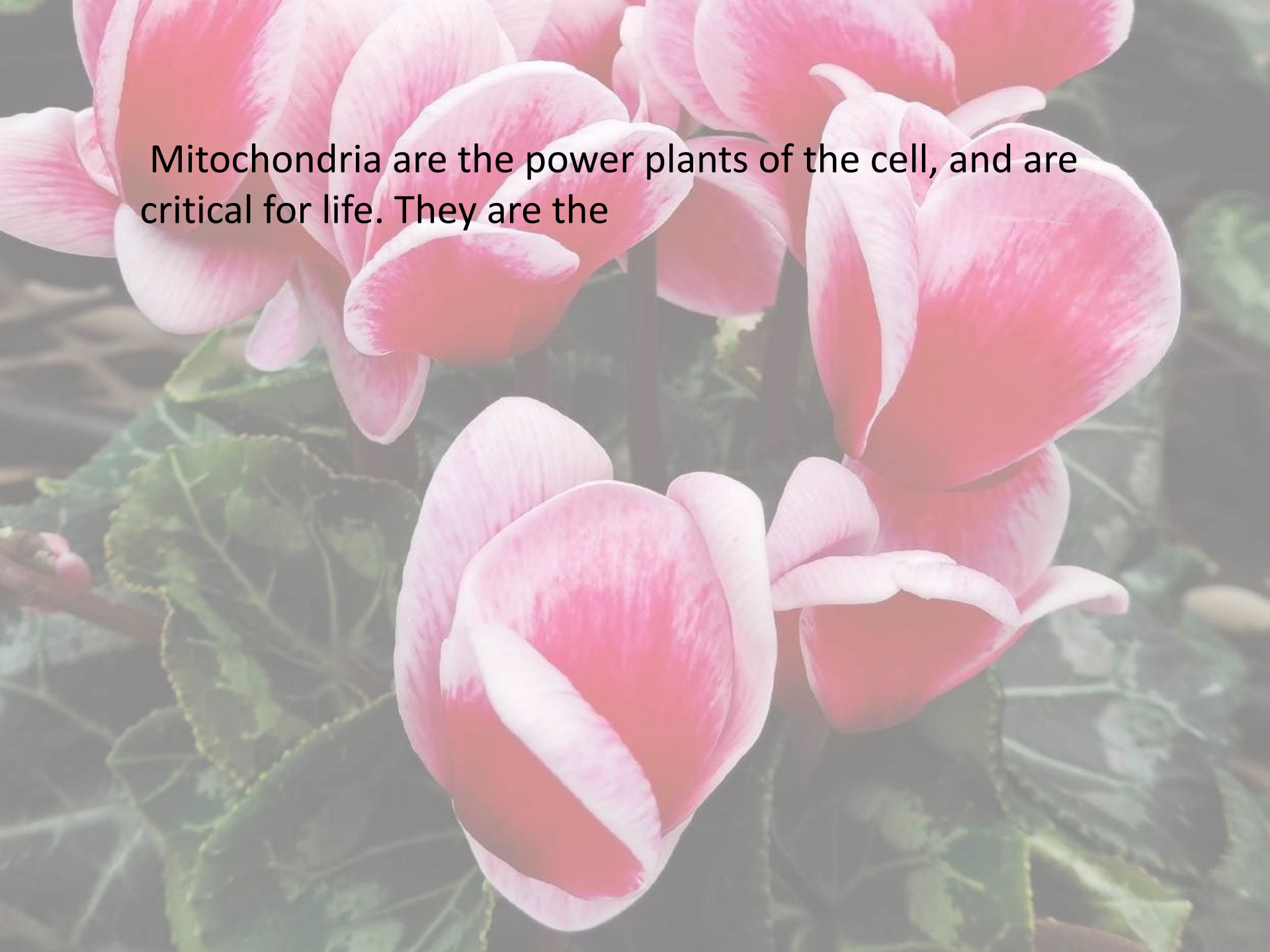


Mitochondria are a promising therapeutic for spinal cord injury, but there are still many questions to be answered.

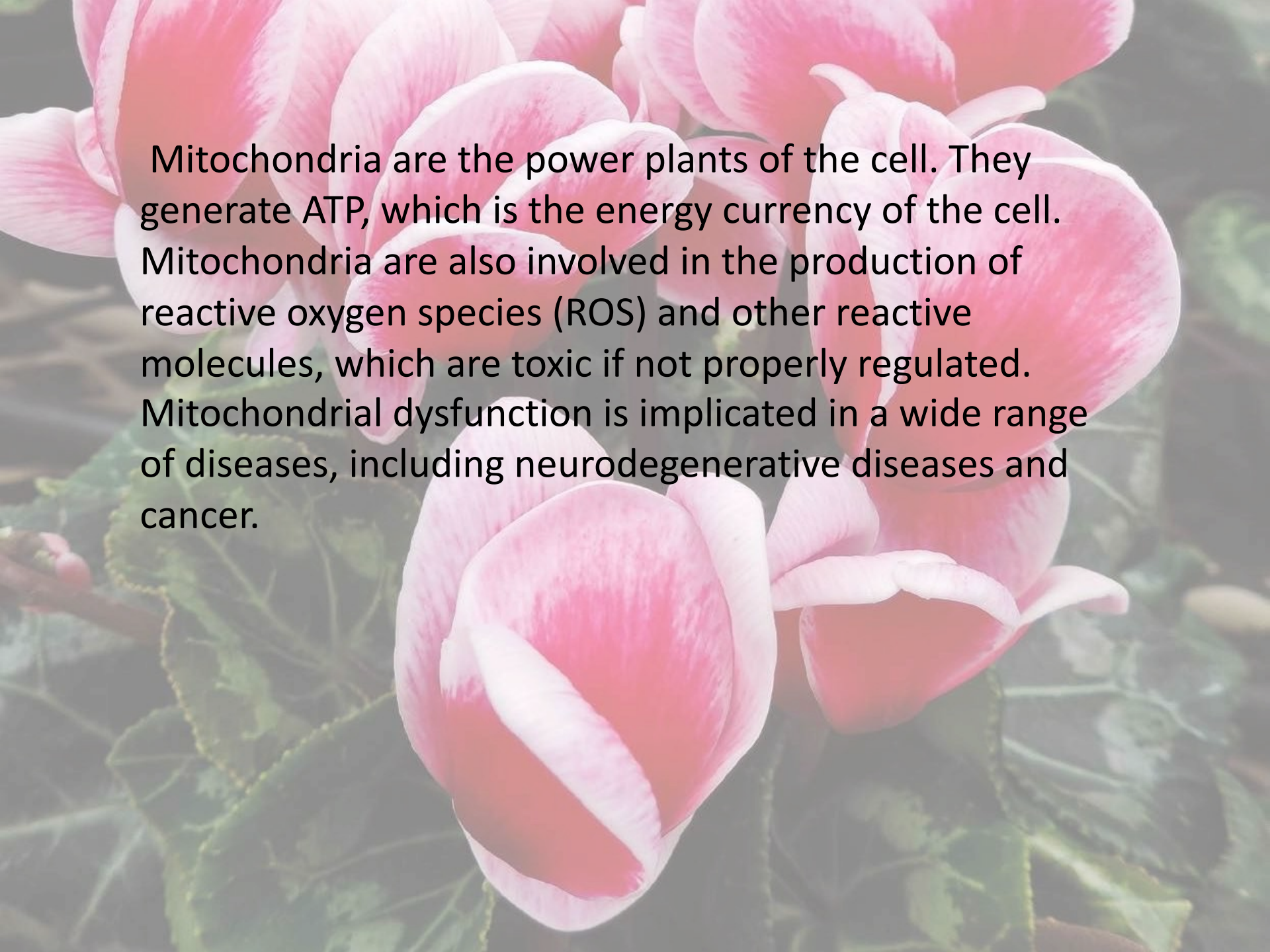






A close-up photograph of several pink lotus flowers in various stages of bloom. The petals are a vibrant pink with some darker variegation. The background is a soft-focus green, showing the leaves of the lotus plant. The overall lighting is bright and natural.

Mitochondria are the power plants of the cell, and are critical for life. They are the

The background of the slide features a close-up photograph of several pink flowers, possibly peonies, with soft, layered petals. The flowers are in various stages of bloom, with some showing deep pink centers and lighter pink outer edges. The background is slightly blurred, focusing attention on the text.

Mitochondria are the power plants of the cell. They generate ATP, which is the energy currency of the cell. Mitochondria are also involved in the production of reactive oxygen species (ROS) and other reactive molecules, which are toxic if not properly regulated. Mitochondrial dysfunction is implicated in a wide range of diseases, including neurodegenerative diseases and cancer.



Nucleus  
Cell's control center

Mitochondrion  
Produces energy for cells to use  
by breaking down substances  
during oxidative metabolism.

DNA  
Contains coded information  
that passes on the simple  
inherited characteristic.

Golgi complex  
It packages and  
distributes molecules  
made in the cell.

Endoplasmic reticulum  
Smooth and rough  
move and store materials  
made by the cell.

Ribosome  
Protein  
producing factories.  
Proteins produce  
chemical messages  
that run a cell.

Lysosome  
Where digestion of  
nutrients takes place.

Vacuole  
Storage area from fats  
and other substances.

Cytoplasm  
Jelly-like fluid between  
membrane and the nucleus.  
This is where all the organelles  
(little organs) are found.

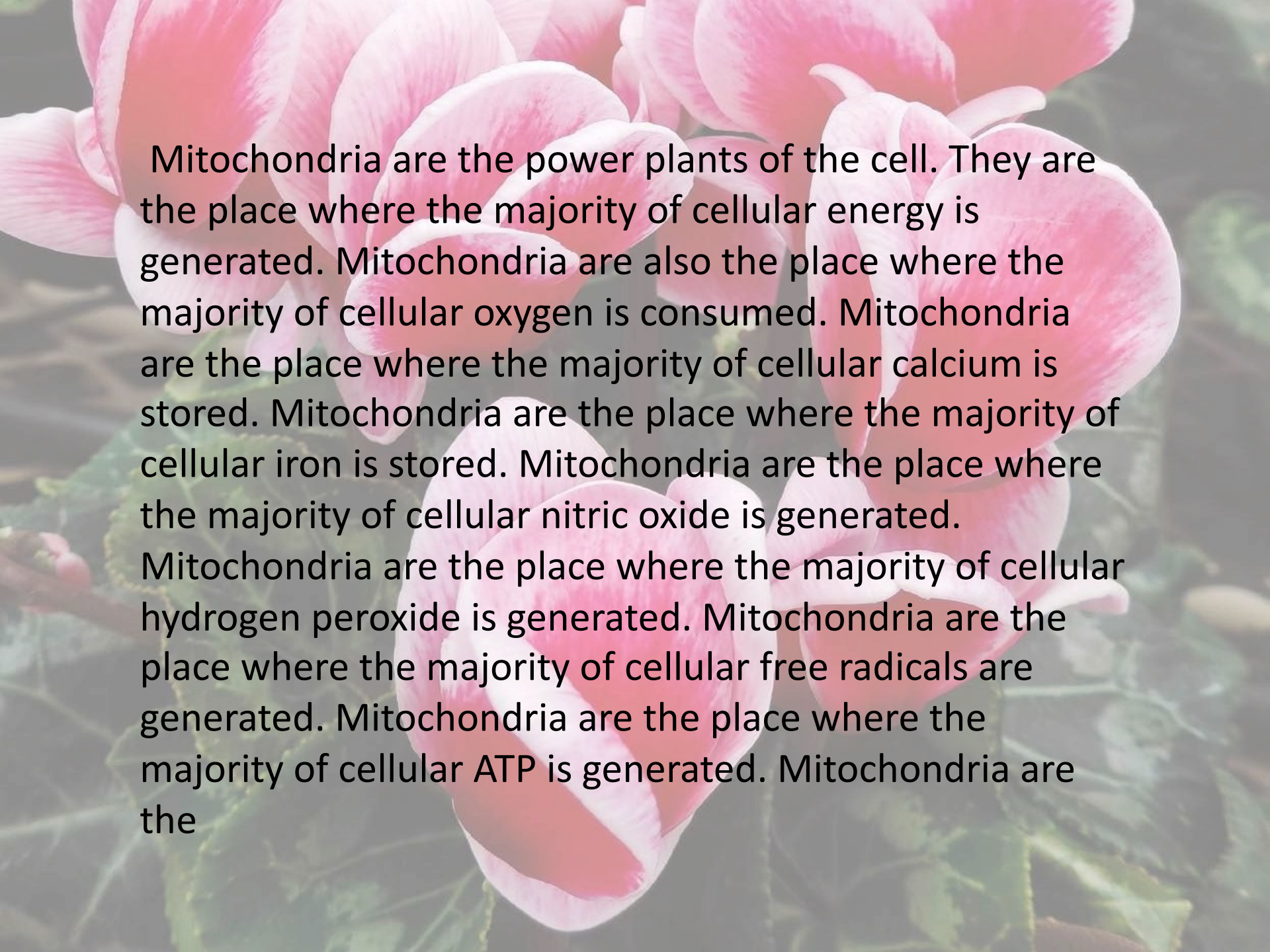
Peroxisome  
Organelle that contains  
enzymes that carry out  
particular reactions, such  
as detoxifying potentially  
harmful molecules.

Cell membrane  
Made up of a double layer of fatty material. It  
allows some materials to pass into and out the cell at  
thousands of places across the surface. It allows foods  
to pass into the cell and waste to pass out of the cell.

Centriole  
Tiny organs that help the cell divide.

Mitochondria are the powerhouses of the cell, and they are the most abundant source of free radicals in the cell. In the case of a spinal cord injury, the mitochondria are damaged, and the free radicals produced by the mitochondria are responsible for the secondary damage that occurs to the surrounding cells. In this paper, the authors show that injecting mitochondria into the spinal cord can reduce the secondary damage. This is a very cool paper, and I would like to see it move forward. I think the authors need to go back and revise the Introduction and Discussion to make it clear that they are not claiming that this is a cure, but rather that this is a promising therapy that needs to



A background image of several pink roses in various stages of bloom, with green leaves visible. The text is overlaid on this image.

Mitochondria are the power plants of the cell. They are the place where the majority of cellular energy is generated. Mitochondria are also the place where the majority of cellular oxygen is consumed. Mitochondria are the place where the majority of cellular calcium is stored. Mitochondria are the place where the majority of cellular iron is stored. Mitochondria are the place where the majority of cellular nitric oxide is generated. Mitochondria are the place where the majority of cellular hydrogen peroxide is generated. Mitochondria are the place where the majority of cellular free radicals are generated. Mitochondria are the place where the majority of cellular ATP is generated. Mitochondria are the