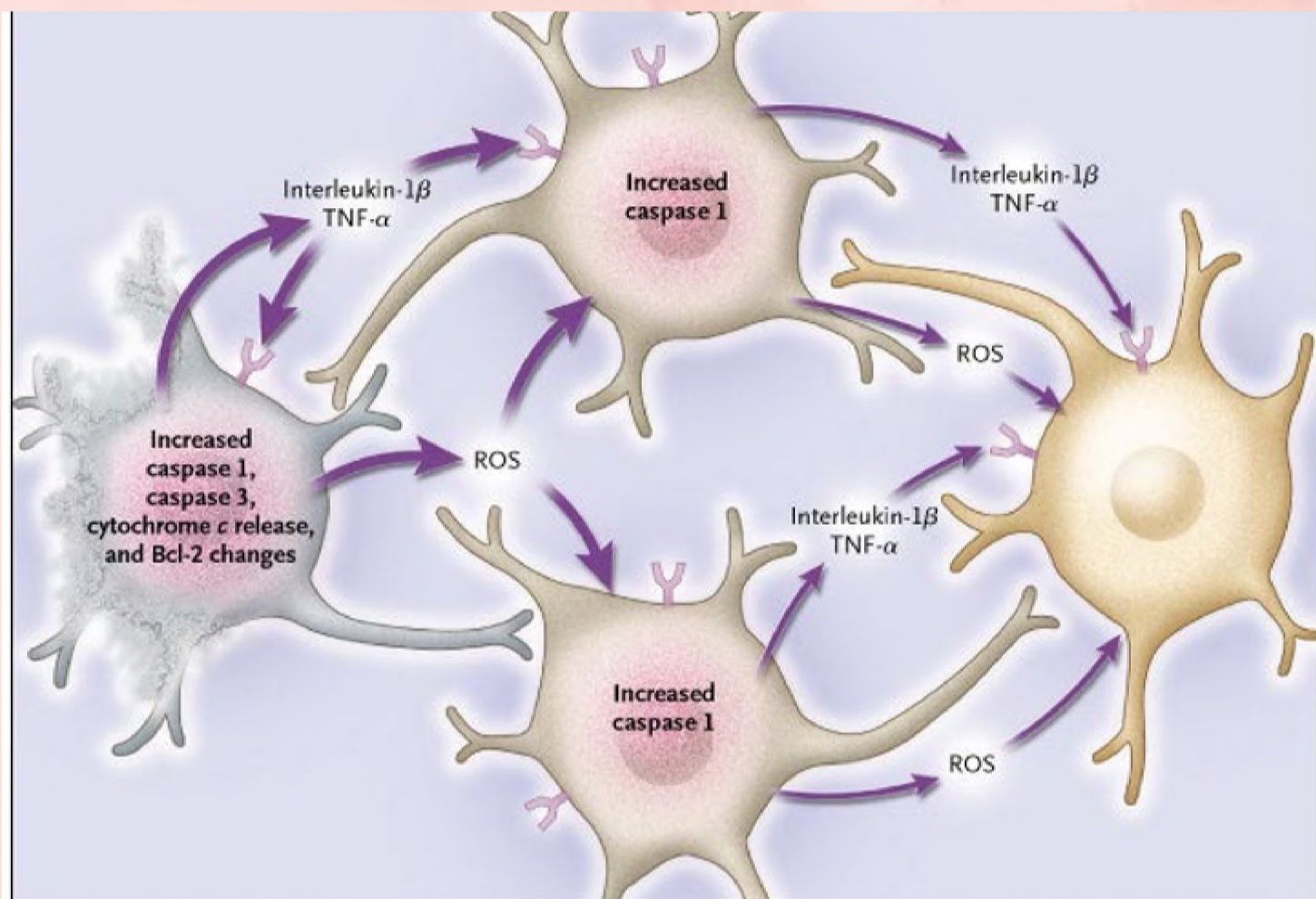
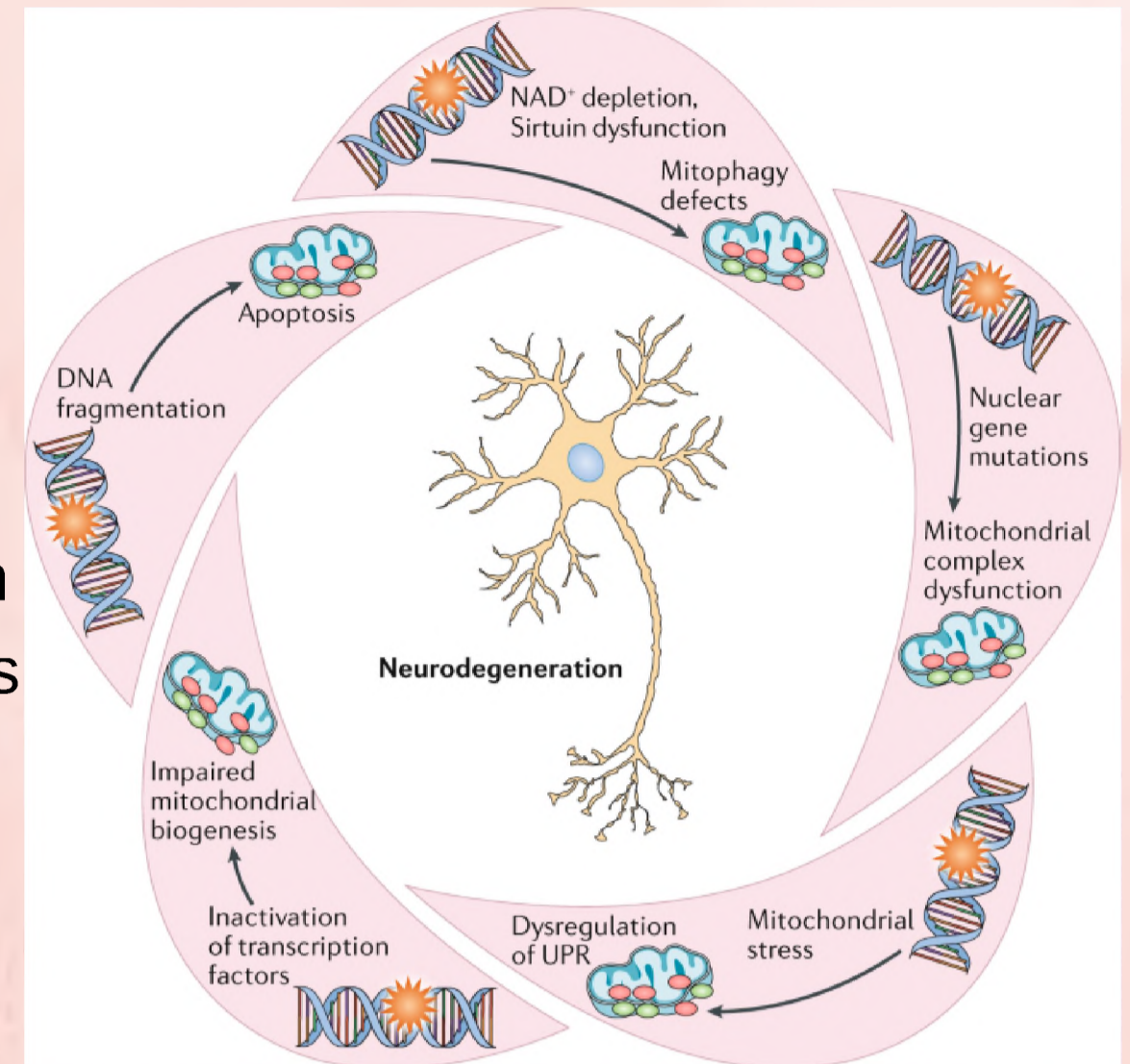


apoptosis in neurodegenerative disease

The disordered apoptosis is due to too much apoptosis happening in the body. Generally it is caused by oxidative stress, disturbed calcium homeostasis, mitochondrial dysfunction as well as defective activation of caspases.

These disorders lead to the loss of neuronal cells, which then as consequence lose their activity. The loss of neuronal cells happens by over-activated intrinsic and extrinsic signalling pathways as well as triggered uncontrolled- disordered apoptosis.



Cascade of apoptosis in neurons:

The neuron, that is about to die, releases pro-apoptotic factors that affect not only itself, it also affects neighbouring cells. Because these cells have the same genetic predisposition as their dying neighbours and the pro- apoptotic factors initiate the cell- death cascade.

What are the steps of dysfunctions in the body that lead to neurodegenerative diseases?

1. Molecular changes lead to an imbalance in the neuronal environment and the disruption of mitochondrial functions.
2. Mitochondrial dysfunction triggers and increases the production of reactive oxygen species (ROS) and lipid peroxidation.
3. Neuronal apoptosis occurs due to molecular changes and synapse disruption.
4. Synapse disruption in large scale leads to circuit changes.
5. Circuit changes affect different subsets of neurons in specific cerebral areas.

