

# The battle for the mitochondrion!

- Oxygen is vital for aerobic respiration, the process that converts dietary fat and sugar into the cellular fuel ATP!

- During aerobic respiration, oxygen can accept an electron from complex I, forming the superoxide radical

- Normally, free radical formation is controlled by various compounds known as antioxidants, which are capable of stabilizing and deactivating free radicals

- The superoxide and hydroxyl radicals are unstable, and can react with and damage proteins, lipids and DNA
- Accumulation of cellular damage may lead to a wide range of human diseases and can even contribute to ageing!

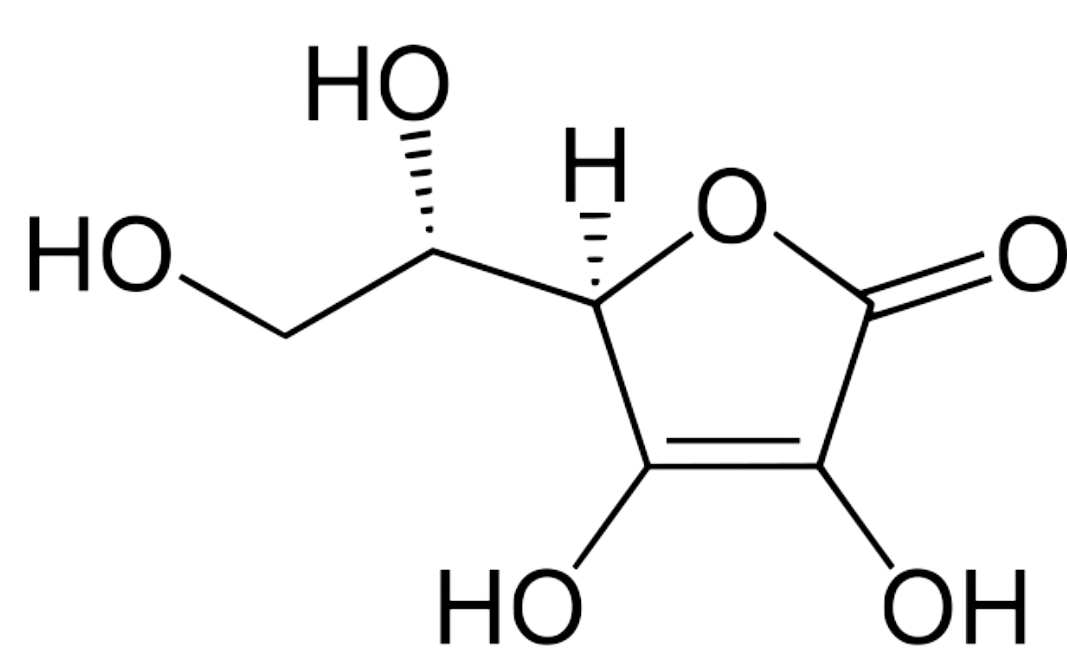
- Cells have an enzyme called superoxide dismutase that converts superoxide into hydrogen peroxide

- When hydrogen peroxide comes into contact with iron ions or ultraviolet light, it can split into hydroxyl radicals, which are the most damaging of all the radicals

- Other cellular enzymes, such as catalase and glutathione peroxidase, convert hydrogen peroxide into harmless water

- Two of the most common antioxidants are vitamins C and E
- Both protect your cells from the damage caused by free radicals!

Vitamin C



Vitamin E

