Peroxisomes

- Have a single membrane
- Have a *crystalloid core*
- Extremely rich & highly concentrated enzymes that carry out specific aspects of oxidative reactions
- High concentrations of the proteins can form crystals

Peroxisome biogenesis

- **Peroxisomes derive from precursor vesicles that pinch off from ER**
- Transmembrane proteins have been synthesised on ER membrane, similar to secretory proteins
- Proteins find inside peroxisome: synthesised in cytoplasm and imported into the peroxisome
- Many diseases associated with peroxisome disfunction (usually concerning import of the proteins into peroxisome)
- Peroxisome can grow and divide by fission
- Approximately 0.2 to 1µm in diameter
- DO NOT CONTAIN DNA OR RIBOSOMES
- Most peroxisomal proteins are encoded in the nucleus, translated in cytoplasm and then imported
- All peroxisomes contain enzymes that use molecular oxygen to oxidise various substrates
- Reactions produce H_2O_2, which is broken down to water by catalase
- Important for the metabolism of long-chain fatty acids
- Peroxisomes perform crucial steps in the synthesis of certain lipids. E.g. Cholesterol, plasmalogens, bile acids
- Break down of excess purines (AMP, GMP) to uric acid