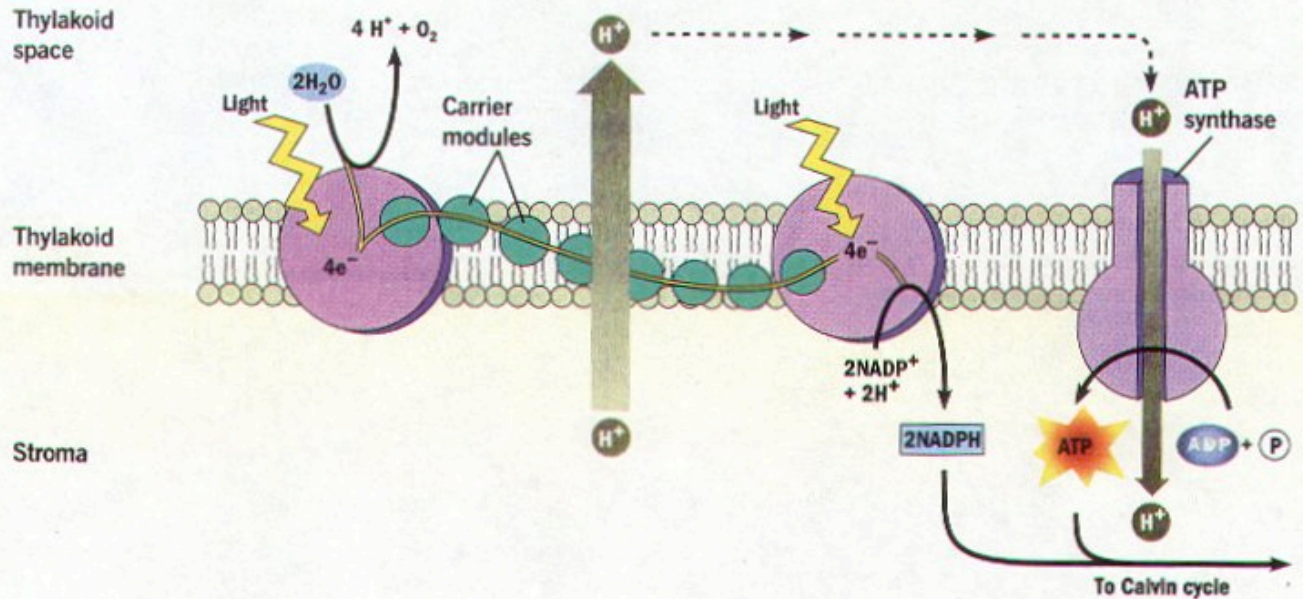


Light-dependent Reactions



Photosystem II

Photosystem II uses sunlight to split water molecules into hydrogen ions (H^+), oxygen (O_2) and energized electrons (e^-). Most of the O_2 diffuses into the air. The electrons enter the electron transport chain.

Electron transport

Energized electrons are shuttled from Photosystem II across carrier molecules. The carrier molecules use the electrons' energy to actively transport H^+ ions from the stroma into the thylakoid space.

Photosystem I

Using the sun's energy, energy-depleted electrons are reenergized in Photosystem I. The energized electrons are used to produce NADPH, a molecule that will later be used to make glucose.

ATP synthesis

The high H^+ ion concentration in the thylakoid space creates a concentration gradient. H^+ ions diffuse back into the stroma through a membrane protein, ATP synthase. The energy released by the flow of H^+ ions converts ADP to ATP.