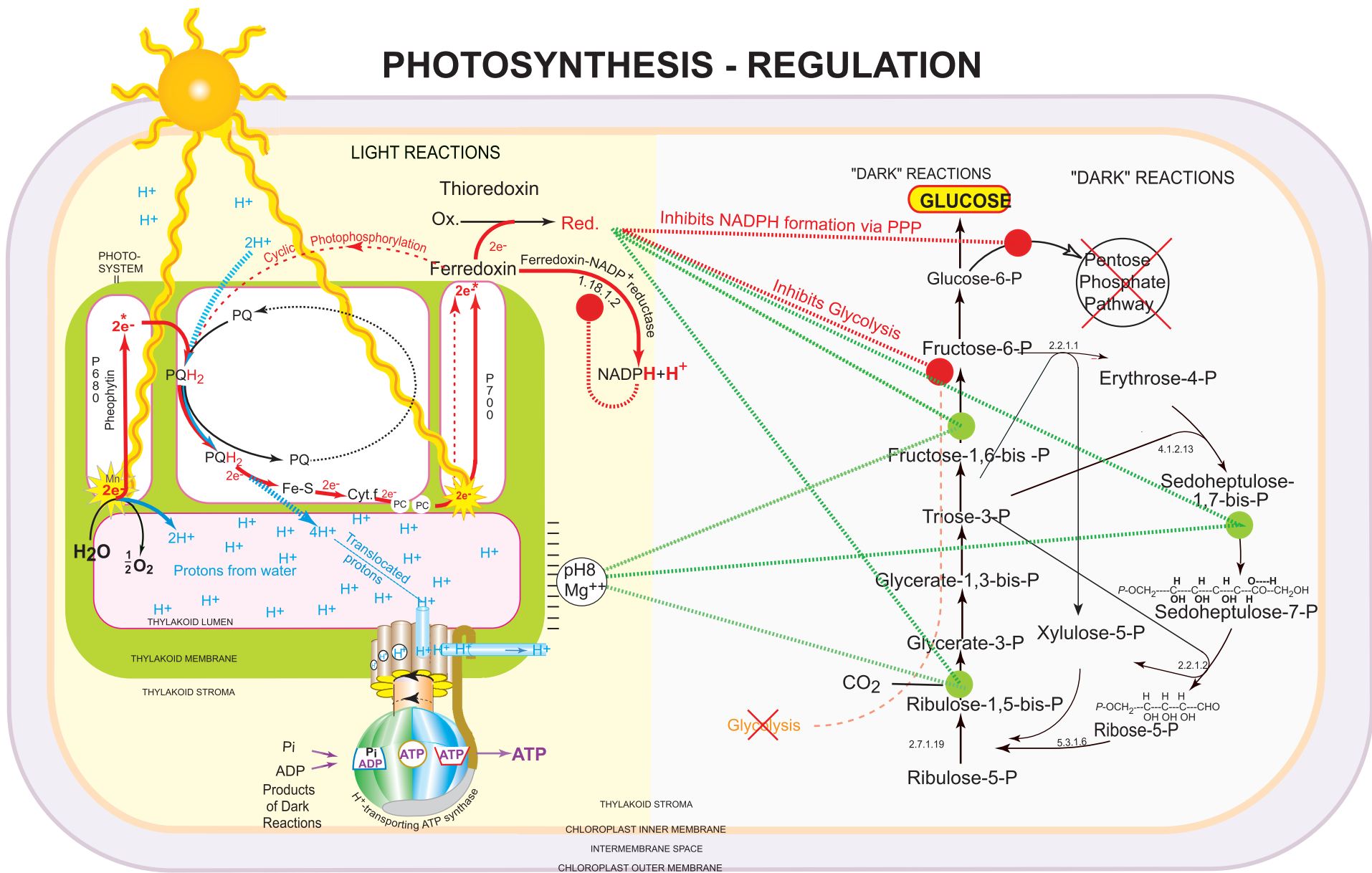


PHOTOSYNTHESIS - REGULATION



Protons translocated across the thylakoid membrane produce a low pH in the lumen and a high (8.0) pH in the chloroplast stroma - and is accompanied by magnesium ions. Each of these factors **ACTIVATE** 3 enzymes in the Calvin Cycle - *ribulose-1,5-bis-P carboxylase*, *fructosebisphosphatase* and *sedoheptulose bisphosphatase*. These 3 enzymes are also activated by reduced thioredoxin, the reduction of which depends on reduced ferredoxin which, in turn, is reduced by light-driven electrons.

Reduced thioredoxin also **INHIBITS** *phosphofructokinase* and *glucose-6-phosphate* and hence (respectively) Glycolysis and the Pentose Phosphate Pathway

Light -driven electron flow is thus responsible for all these regulatory reactions which **activate** the synthesis of glucose and **inhibit** its breakdown