DARK REACTIONS

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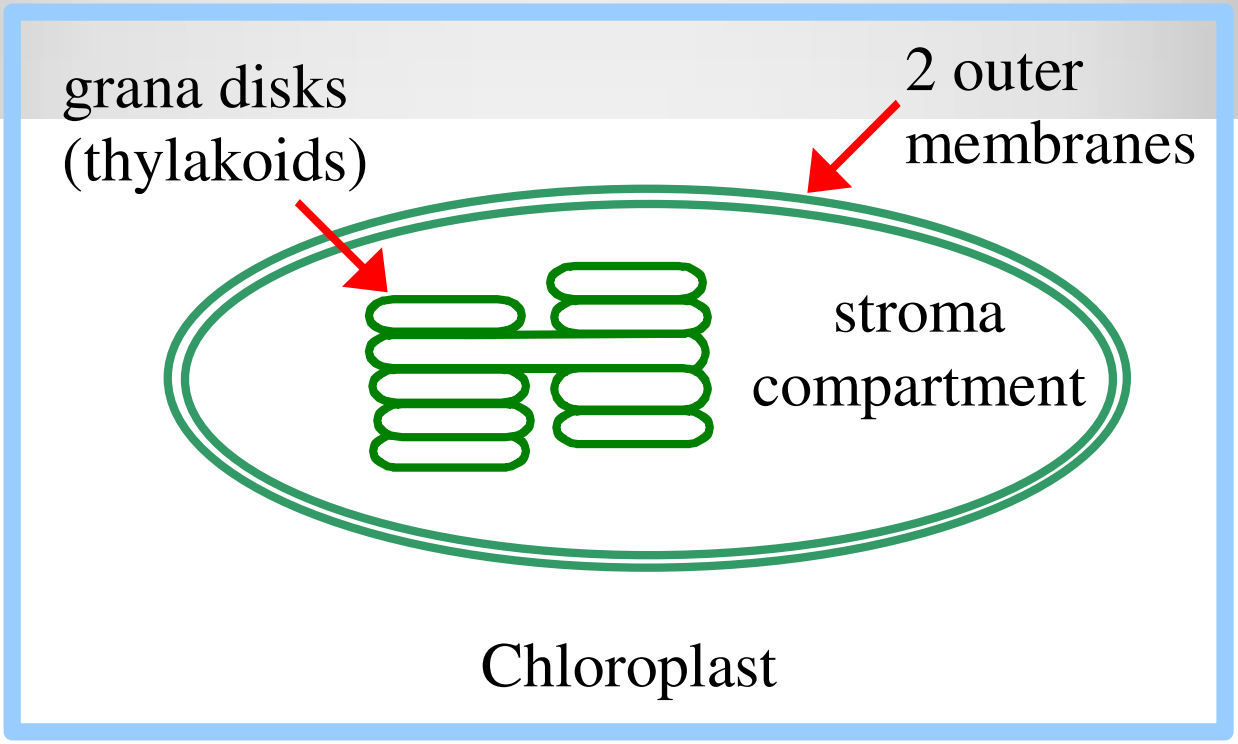
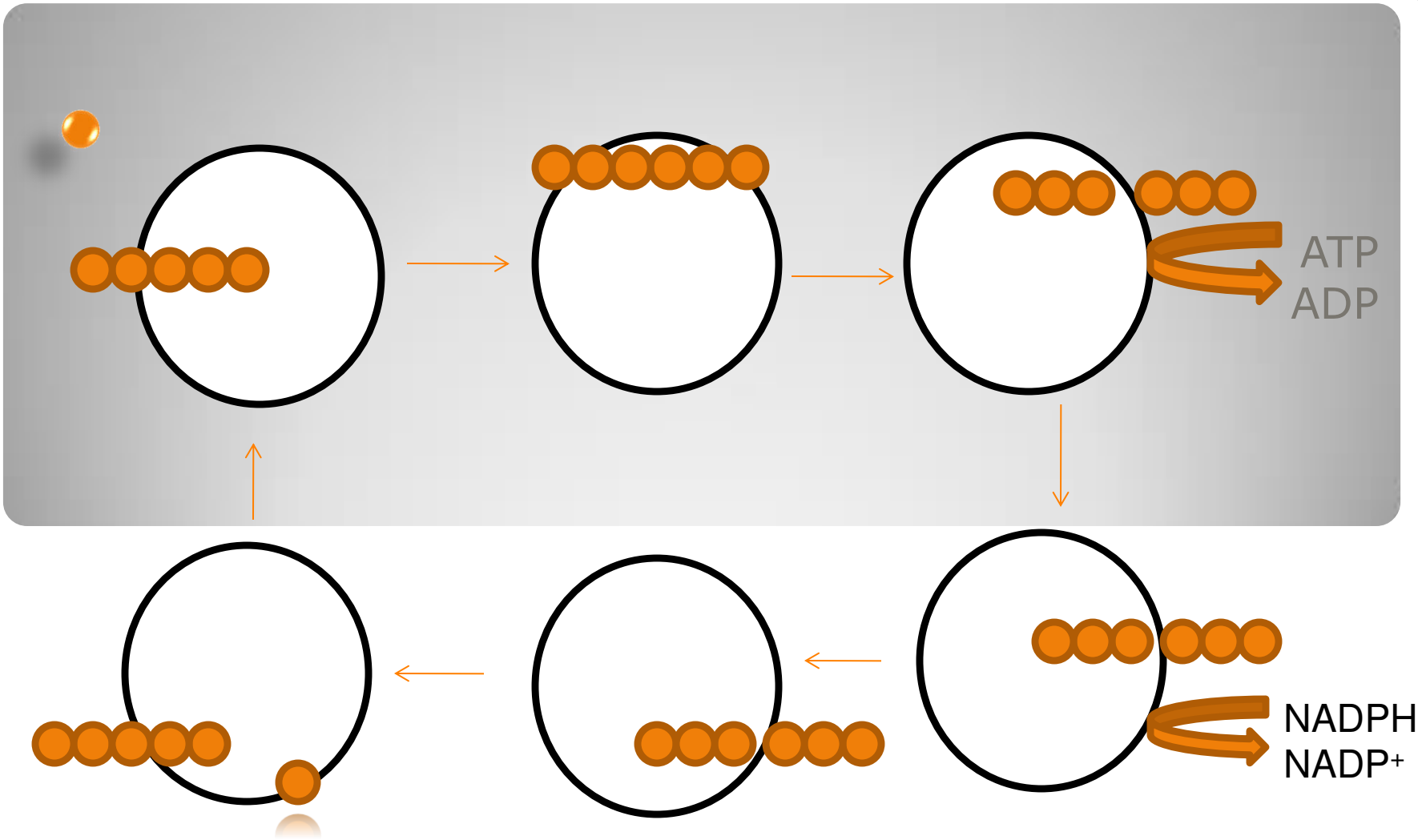
The Light-Independent Reaction




ATP
ADP
NADPH
NADP+

18 molecules of ATP
12 molecules of NADPH
One molecule of NADPH ~ 3 molecules of ATP

3 x 12 NADPH = 36 ATP
36 ATP + 18 ATP = 54 ATP

OVERALL REACTION

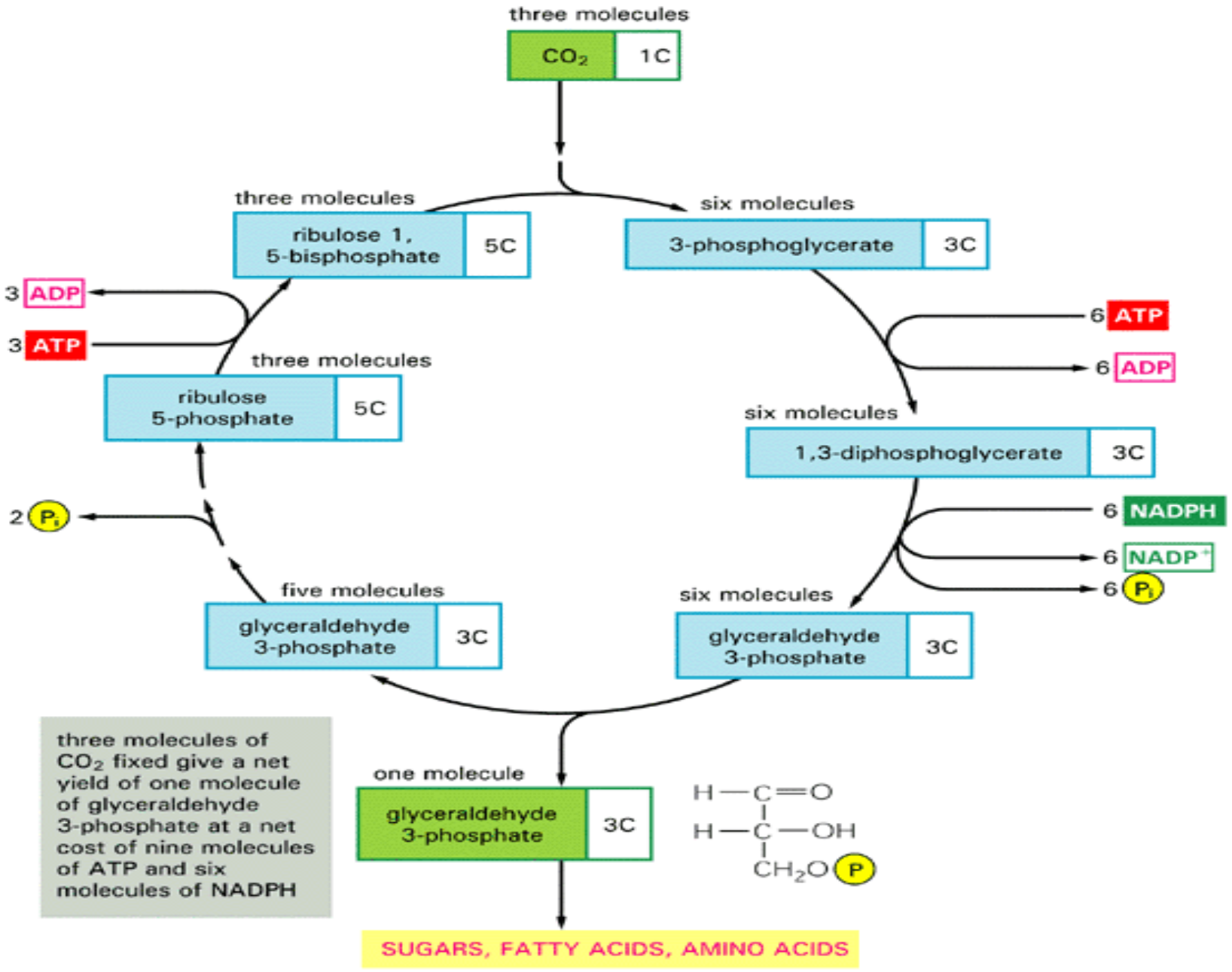
$6\ CO_2 + 12\ NADPH + 12\ H_2O + 18\ ATP$

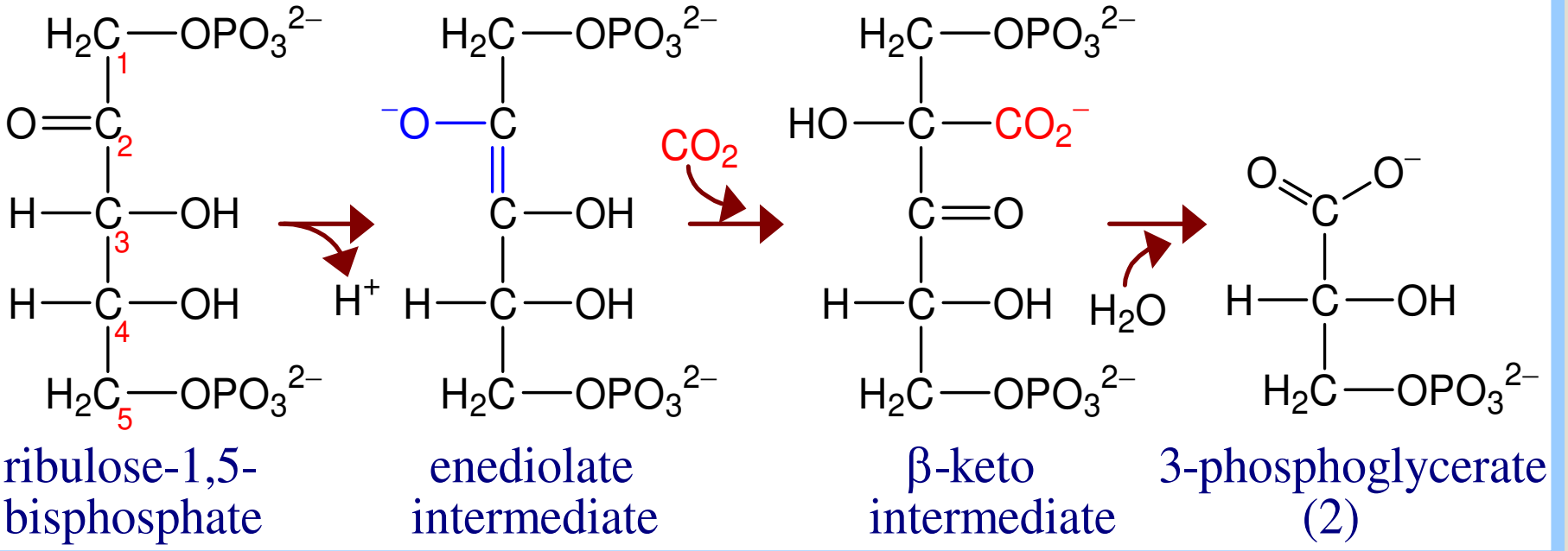
$C_6H_{12}C_6 + 12\ NADP^+ + 18\ ADP + 18\ P_i + 6\ H_2O + 6\ O_2$

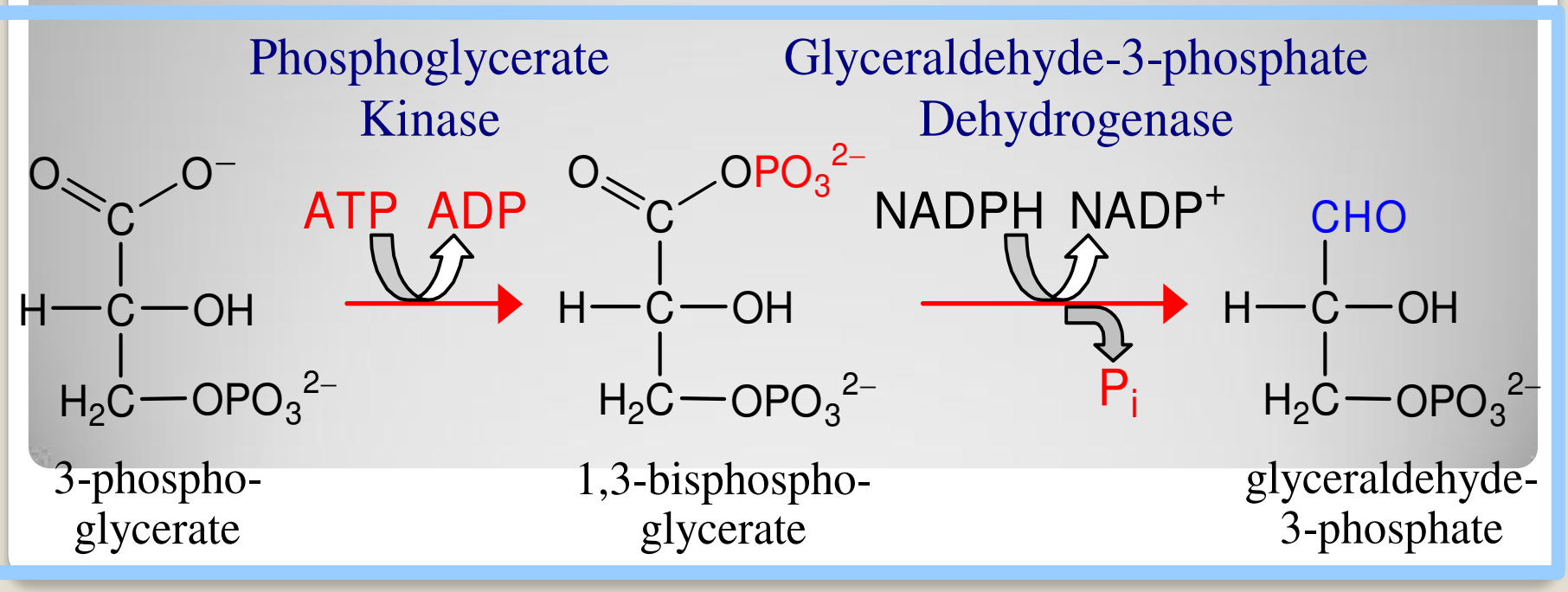
C_3 Carbon Fixation (C_3 Plants)

Carbon fixation is a process by which the atoms of atmospheric carbon dioxide are made available to organisms in the form of energy-rich molecules such as glucose

CALVIN CYCLE(C_3 FIXATION)




ribulose-1,5-bisphosphate
enediolate intermediate
β-keto intermediate
3-phosphoglycerate (2)
H+
CO2
H2O


Phosphoglycerate Kinase
Glyceraldehyde-3-phosphate Dehydrogenase
ATP ADP
NADPH NADP+
Pi
3-phospho-glycerate
1,3-bisphospho-glycerate
glyceraldehyde-3-phosphate

REFFERENCES

http://www.iscid.org/encyclopedia/Rubisco
http://en.wikipedia.org/wiki/C3_carbon_fixation
http://en.wikipedia.org/wiki/Calvin_cycle

http://www.rpi.edu/dept/bcbp/molbiochem/MBWeb/mb2/part1/16-calvin.ppt#295,27,Slide 27