Table 1 Stoichiometries of photons, electrons, protons and ATP in photosynthetic reactions at maximum efficiency, excluding photorespiration and CCMs considered in Table 1

Process	Value
Photon energy reaching reaction centre per photon absorbed by antenna pigments	1
Electron transferred through PSI per photon reaching PSI reaction centre	1
Electron transferred through PSII per photon reaching PSII reaction centre	0.8
Absorbed photons needed to transfer four electrons from H_2O to $2NADP^+$	9
Protons transferred from stroma/cytosol to thylakoid lumen per electron transferred from H_2O to CO_2	3
Absorbed photons needed to transfer 12 protons from stroma/cytosol to thylakoid lumen in electron transferred from H_2O to CO_2	9
Protons transferred from thylakoid lumen to stroma/cytosol per ADP phosphorylated (observed value; 4.67 needed from structural biology of CF_OCF_1 ATP synthase with 14 c subunits per three ADP binding sites)	4
ADP phosphorylated per 12 protons transferred from thylakoid lumen to stroma/cytosol per nine photons in non-cyclic electron flow	3
ATP needed per nine photons in assimilating one CO_2 by the Calvin-Benson cycle at CO_2 saturation	2
NADPH needed per nine photons in assimilating one CO_2 by the Calvin-Benson cycle at CO_2 saturation	2
Protons moved per electron cycled round cyclic electron flow in PSI using one photon	4
ADP phosphorylated per electron cycled round cyclic electron flow in PSI using one photon	1