

Origin and Evolution of Oxygenic Photosynthesis

Masayo Iwaki [1], Shigeru Itoh [1], Hirozo Oh-oka [2]

[1] Natl. Inst. Basic Biol., [2] Dept. Bio., Grad. Sch. Sci., Osaka Univ.

Photosynthesis has affected the environment of the earth since the very beginning of the history of life. The early stage of photosynthesis was performed by anoxygenic photosynthetic organisms; green bacteria and purple bacteria. Their photosynthetic reaction centers evolved into photosystems I and II. Cyanobacteria and plant chloroplasts have both reaction centers in their cells. The photosystem II reaction center can make molecular oxygen using water and light energy. The origin and evolution of photosynthesis will be discussed based on their functions and molecular structures.