

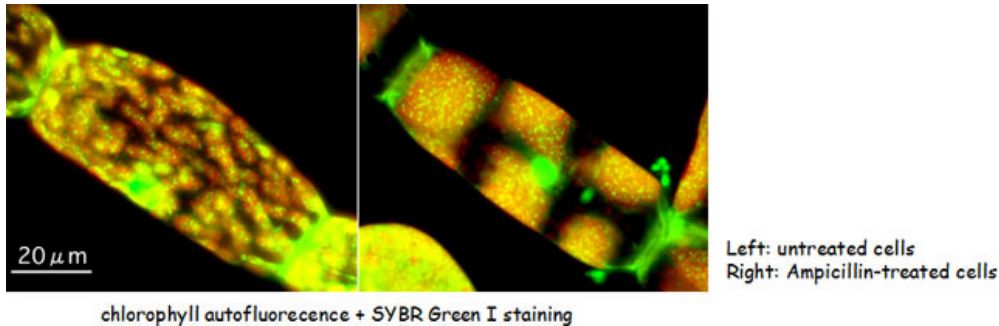
葉緑体分裂機構の進化

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▶ 研究内容

葉緑体は植物細胞内で光合成を行う細胞小器官です。葉緑体は分裂でしか増殖しません。我々の研究室ではコケ植物ヒメツリガネゴケを用いて、葉緑体の分裂に関する研究を行っています。



The endosymbiotic theory states that all plastids are derived from a single cyanobacterial ancestor that possessed a cell wall. Therefore, plastids of the glaucocystophyta, red algae, and green plants, including green algae, have evolved as siblings. Although a small group of algae, the glaucocystophytes, has peptidoglycan-armored plastids, it is thought that the peptidoglycan biosynthetic pathway has been lost from the cells of the green-plant lineage. However, it has been reported that independent antibiotics that prevent bacterial peptidoglycan biosynthesis cause the appearance of macrochloroplasts in the moss *Physcomitrella patens* by inhibiting chloroplast division (Fig).

We isolated all homologous *P. patens* Mur genes that are related to bacterial peptidoglycan biosynthesis. Disruption of the PpMurE gene in *P. patens* results in the appearance of macrochloroplasts, and transformation with the normal gene restores the normal phenotype. These results suggest that the plastidic peptidoglycan synthetic pathway is closely related to plastid division in moss.

▶ キーワード

葉緑体分裂 コケ植物

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