

Circadian Synthesis of Light-Harvesting-Chlorophyll-Proteins in *Euglena gracilis* Is under Translational Control

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Two proteins with apparent molecular masses of 17 and 24 kD that are synthesized in a circadian manner in the phytoflagellate *Euglena gracilis*, were recognized as proteins belonging to the family of light-harvesting-chlorophyll-proteins (LHCPs) of class I (17 kD) and of class II (24 kD). Identification was achieved by N-terminal sequencing of the proteins isolated from two-dimensional polyacrylamide gels and by detection with an anti-LHCP II serum. While it was found that the total amount of LHCPs remains almost constant, when *Euglena* is grown under diurnal conditions (12 h light and 12 h dark), we could show that the amount of newly synthesized 17 and 24 kD proteins varies about 20-fold with a maximum of synthesis in the light phase. In contrast, the analysis of the mRNA levels at different times revealed only minor differences in the stationary concentration of the LHCP specific mRNA, indicating that the control of LHCP synthesis is at the translational level. Principally, the same finding was obtained using inhibitors of transcription. Thus, it is concluded that the expression of LHCPs in *Euglena gracilis* in contrast to that of higher plants is primarily regulated at the translational level.

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