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Experimental Study on the Euglena gracilis for Micro-Transportation using a Phototatic Control[1] JIHOON KIM, Sungkyunkwan University, VU DAT NGUYEN, Enjet, Inc., DOYOUNG BYUN, Sungkyunkwan University — Recently, there has been growing interests in micro or nano-scale biological organisms for the micro-robotics to develop actively controlled micro or nano-level machines. The Euglena gracilis is a genus of unicellular protists, whose body size ranges from 30 to 70 μm. The Euglena gracilis contains an eyespot, a primitive organelle that filters sunlight into the light-detecting, photo-sensitive structures. It actively swims at the base of the flagellum. In this study, we investigated the controllability of Euglena gracilis for transporting a structure attaching itself. When a LED light is detected, the Euglena gracilis accordingly adjust its position to enhance photosynthesis. Using the phototactic control, we achieved the efficient transportation of a micro-structure.

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