**Bacterial Flagella; Morphology, Assembly and Torque-Generating**

**Abstract**

Bacterial flagellum is a rotary nanomachin with a diameter of 45 nm that is located in cellular membrane and is used for movement in adjacent environment. The development of the first cellular motility apparatus has been accomplished during the first billion years of evolution as evidence by the high complexity of its structure for adaptation with environment. Unlike eukaryotic flagella that use a whip-like action to move whole cell, movement of a bacterial cell is generated by rotation of the filament. In the past researches, most of the flagella components and their functions are specified, whereas mechanisms of torque generation and rotation are unclear. A special apparatus assumes translocation and assembly of flagella components, which has homology with type III secretion system. For bacterial movement, the motors are energized by the transmembrane potential of specific ions, most commonly the proton motive force or the sodium motive force. The objective of this paper is to discuss the recent finding by modern techniques during recent decades.

Key Words: Nanomachin, Swimming, Basal body, Hook, Filament

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