Single particle cryo-EM analysis of spirochete periplasmic flagella

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Treponema denticola is a Gram-negative, anaerobic, and motile oral spirochete that has been associated with periodontal diseases such as early periodontitis, necrotizing ulcerative gingivitis, and acute pericoronitis. *Treponema denticola* exhibit motility powered by periplasmic flagella, which contribute to biofilm formation and pathogenic interactions within the oral microbiome. To elucidate the structural mechanisms underlying flagellar-mediated motility and biofilm formation, we employed single-particle cryo-EM to resolve a 3Å reconstruction of *Treponema denticola* flagella. Our structure provides key insights into assembly, stability and dynamics of these filaments. By analyzing these native flagellar filaments, we aim to uncover structural insights into the mechanisms by which these bacteria interact with each other, interact with the host, and contribute to biofilm development.