

Seminar 2016

Movement of Cilia and Flagella Driven by Coordinated Molecular Motors



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The beating patterns of sperm flagella and the breast-stroke like swimming of ciliates are driven by the molecular motor dynein. This motor generates sliding forces between adjacent microtubule doublets within the axoneme, the motile cytoskeletal structure. To create regular, oscillatory beating patterns, the activities of the dyneins must be coordinated both spatially and temporally. It is thought that coordination is mediated by stresses or strains that build up within the moving axoneme, but it is not known which components of stress or strain are involved, nor how they feed back on the dyneins. To answer this question, we measured the beating patterns of isolated, reactivated axonemes of the unicellular alga *Chlamydomonas*. We compared the measurements in wildtype and mutant cells with models derived from different feedback mechanisms. We found that regulation by changes in axonemal curvature was the only mechanism that accords with the measurements.

Friday May 6, 2016

2:30 PM

Laufer Center Lecture Hall 101

Hosts: Ken Dill and Jason Wagoner

Refreshments following seminar in Laufer Hub 110



Stony Brook University

For special accommodations please call 631.632.5400