

# Inter-head tension of cytoplasmic dynein regulates the coordination between two heads

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**Short Abstract** — Studying the coordination between two heads of a motor protein is crucial to understand the walking mechanism of the motor protein on cytoskeletal tracks. Previous experiments found that inter-head tension of a cytoplasmic dynein was able to regulate the coordination between its two heads. However, the molecular origin is largely unknown. Here we utilized a structure-based coarse-grained model to investigate the conformational changes of a cytoplasmic dynein monomer responding to opposite forces. Our simulation successfully explained the experimental observations and thus provide a molecular basis to understand the walking pattern of cytoplasmic dynein.

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