

Molecular motor structural changes imaged

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A U.S.-led international team of researchers has shed new light on how tiny molecular motors that transport materials within cells generate energy.

The scientists say their findings might lead to better understanding of, and possibly new treatments for, human disorders caused by faulty molecular motors.

Biologists had previously been unable to capture images of the structural changes that a molecular motor undergoes as it breaks down adenosine triphosphate, the source of energy in all cells.

"In order to visualize the actual structure of the motor molecule bound to a microtubule, we combined the images generated by high-resolution electron microscopy," said study investigator Sharyn Endow, a Duke University cell biologist.

"We were able to see for the first time the actual point at which the molecular motors attach to the microtubule," said Endow. "It is at this juncture that the motor undergoes changes in its structure as it uses ATP to propel itself along the microtubule."

The researchers also included scientists from the National Institute of Advanced Industrial Science and Technology in Japan, and the Medical Research Council's Laboratory of Molecular Biology in the United Kingdom.

The study is reported in the journal *Molecular Cell*.

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