Molecular motors: Ratchet Model

Gianluca Lattanzi
Amos Maritan

International School for Advanced Studies (SISSA)
Istituto Nazionale di Fisica della Materia
The Abdus Salam International Center for Theoretical Physics
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Motor Proteins

Large proteins found in all living cells.

Chemical Transducers: they transduce chemical energy into mechanical work.

ATP hydrolysis reaction:

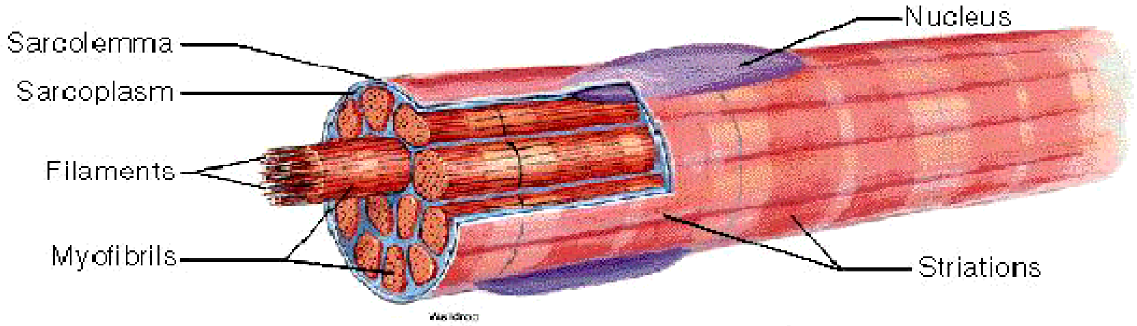
$$ATP \rightarrow ADP + P$$

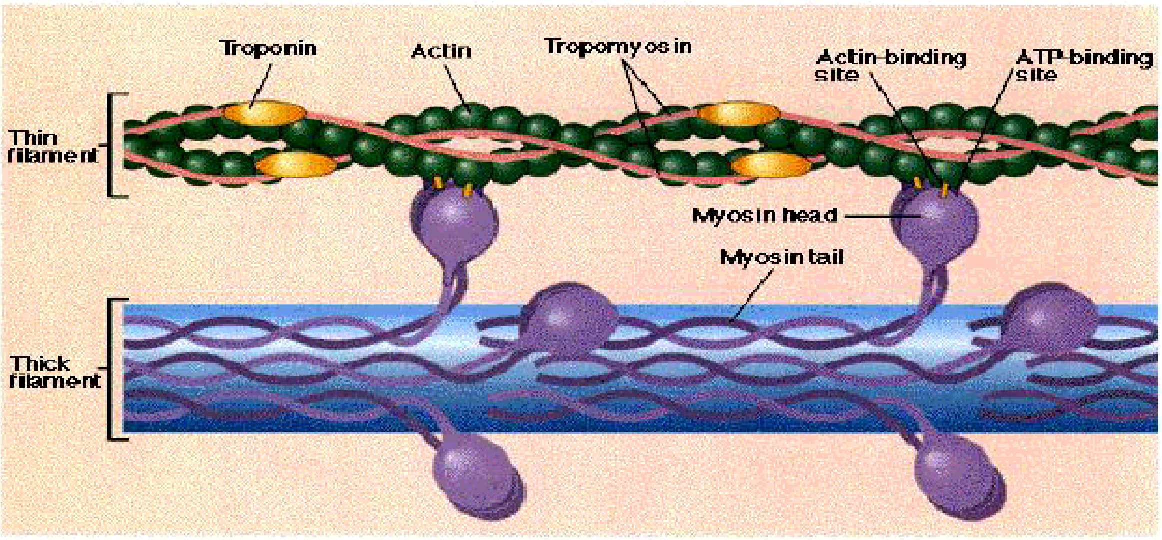
$$\Delta G \simeq 60\ pN \cdot nm \simeq 15 K_B T$$

Functions:

- cell motility
- contraction of muscles
- material transport
- cell division

Myosin: Muscle Contraction





Kinesin: Material Transport