

Spudich Lab: The Myosin Family of Molecular Motors - How They Work and Their Roles In Vivo

Background:

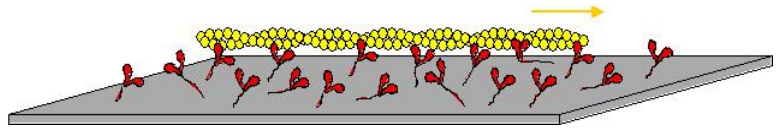
- Where there is life, there is movement
- Cell & developmental biology is spatial and temporal organization
- Organization is driven largely by molecular motors

Primary Questions:

- Roles of molecular motors in vivo
 - The human heart & hypertrophic and dilated cardiomyopathies
 - Membrane trafficking & other cellular processes
 - Spatial and temporal cellular organization
- Transduction of chemical energy of ATP hydrolysis into mechanical movement
 - Myosin II, V, VI and others

Systems:

- Mammalian cultured cells
- Drosophila



Major Approaches:

- Protein expression & purification
- In vitro motility
- Single molecule biochemistry - Laser trapping, TIRF, gold nanoparticles
- Genetics and molecular genetics
- Fluorescent probes for in vivo spatial/temporal localization