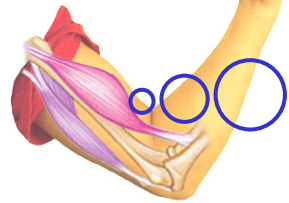


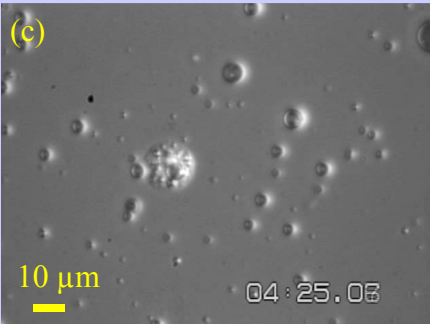
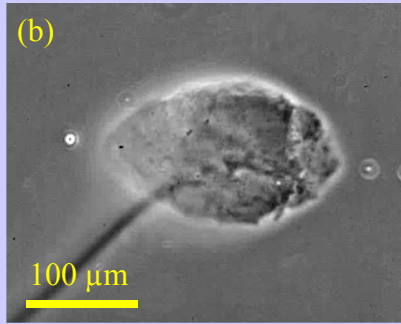
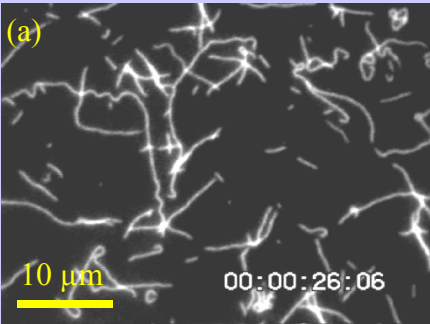
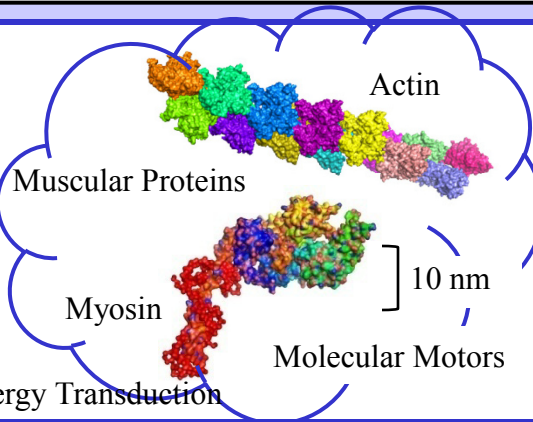
# Functional Analysis of Biological Molecular Motors

Associate Professor **Kuniyuki Hatori**

Skeletal Muscle:  
Biological Machinery



Properties:  
Self-organization, Energy Transduction



- (a) Sliding Movement of Actin Filaments on Myosin
- (b) Contractile Gel Constituted of Actin and Myosin
- (c) Hybrid of Liposome and Proteins

Content:

Actin and myosin proteins, which are fundamental components for muscle contractions, carry out efficient movement with a mechano-chemical energy transduction. These motor proteins can flexibly work on the nanometer scale depending on circumstance. We examine the motile function and mechano-chemical coupling of the motor proteins by the method of reconstituted motility system in vitro. For that analysis, the detection accuracy of position of proteins based on fluorescent images was improved up to nanometer scale. Furthermore, using the function of motor proteins, we attempt to construct artificial contractile gels and to add the motile activity to artificial plasma membranes.

Main Subjects

- (1) Visualization of nanometer objects (by fluorescent labeling)
- (2) Measurement on the nanometer scale (by image analysis)
- (3) Control of micro-transport (by an use of protein function)

Yamagata University Graduate School of Science and Engineering  
Research Interest : Biophysics

E-mail : [khatori@yz.yamagata-u.ac.jp](mailto:khatori@yz.yamagata-u.ac.jp)  
Tel : +81-238-26-3727  
Fax : +81-238-26-3727

