

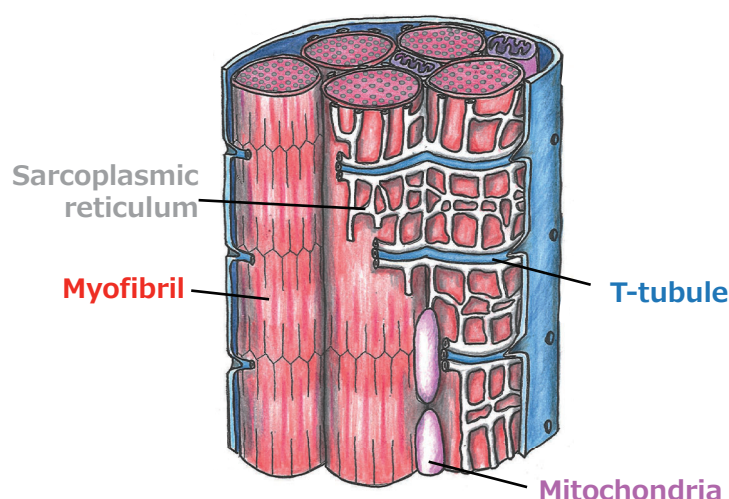


Mechanisms shaping membranous organelles in muscle cells

Cell Biology Center

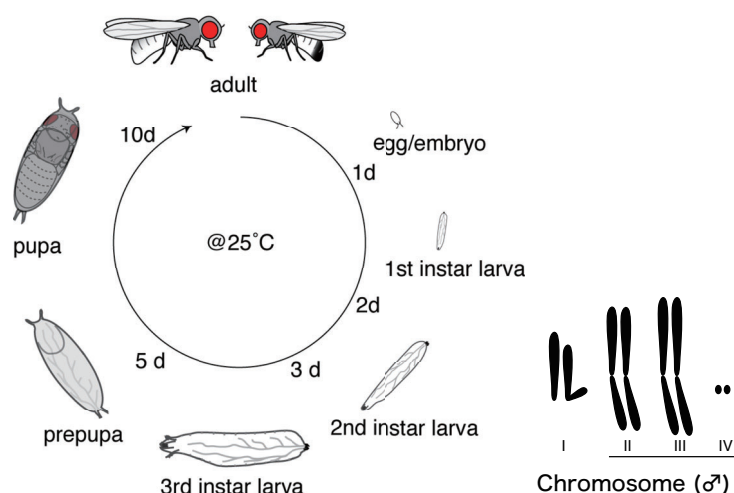
- Mechanisms of T-tubules formation
- Mechanisms of remodeling of muscle cells
- Identification and functional analysis of causative genes for hereditary myopathies using *Drosophila*

Differentiated muscle cells have highly organized membranous organelles, such as Transverse (T)-tubules for contraction. Their roles are established; however, the mechanisms shaping the organelles are largely unknown. Our study aims to elucidate the mechanisms to form and remodel the membranous organelles in muscle cells using *Drosophila* and cultured cells. Further, we are trying to identify causative genes for hereditary human myopathies using fly genetics.



A schematic model of muscle cell

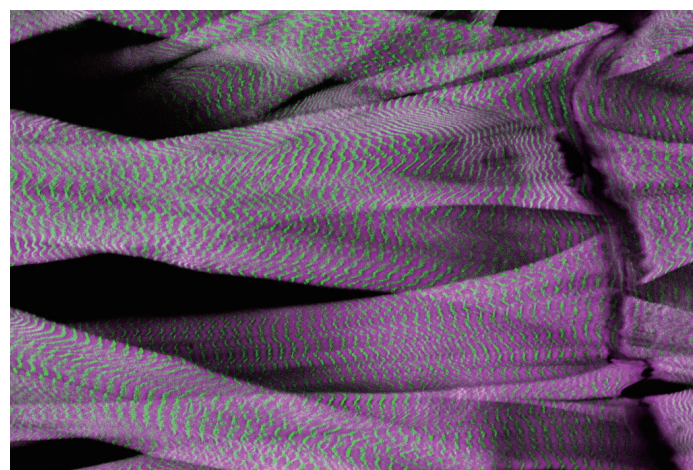
Muscle cells have unique membranous organelles such as T-tubule and sarcoplasmic reticulum.



Drosophila melanogaster

Advantages of fruit fly for the study of muscle cell

- 1) Short life cycle
- 2) Relatively small genome size
- 3) Genetically trackable
- 4) Highly organized muscle cells



Fluorescence microscopy of larval muscle cells

Drosophila has highly developed muscle cells. The transparent fly cuticle enables imaging of muscle cells in the live animals.