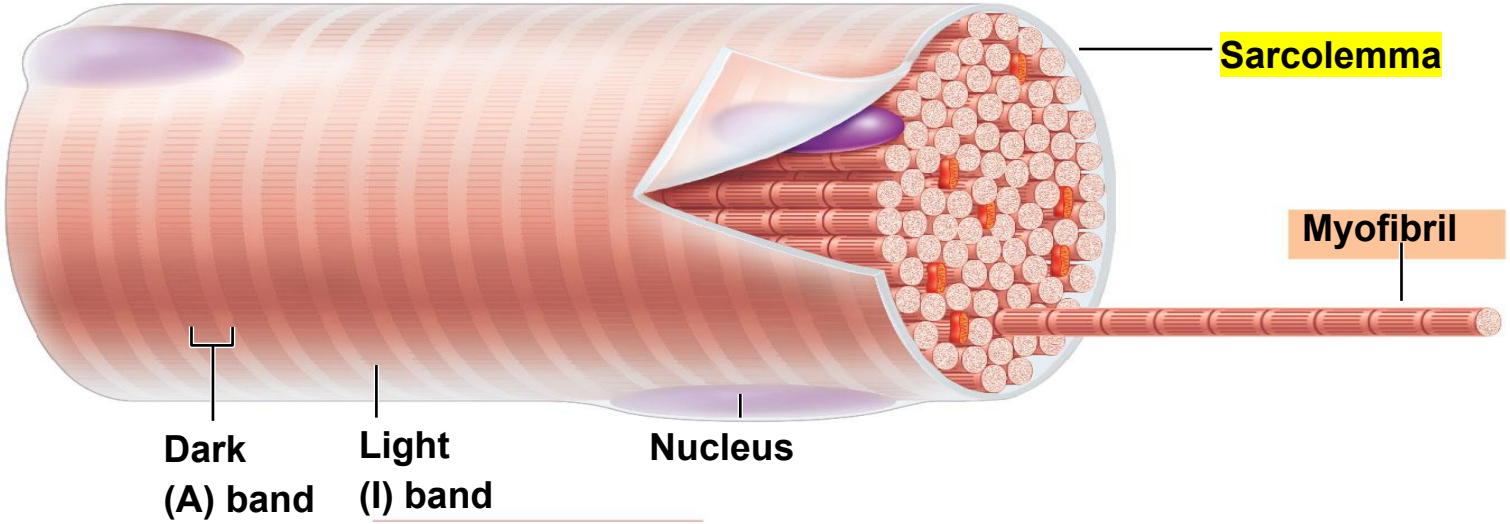
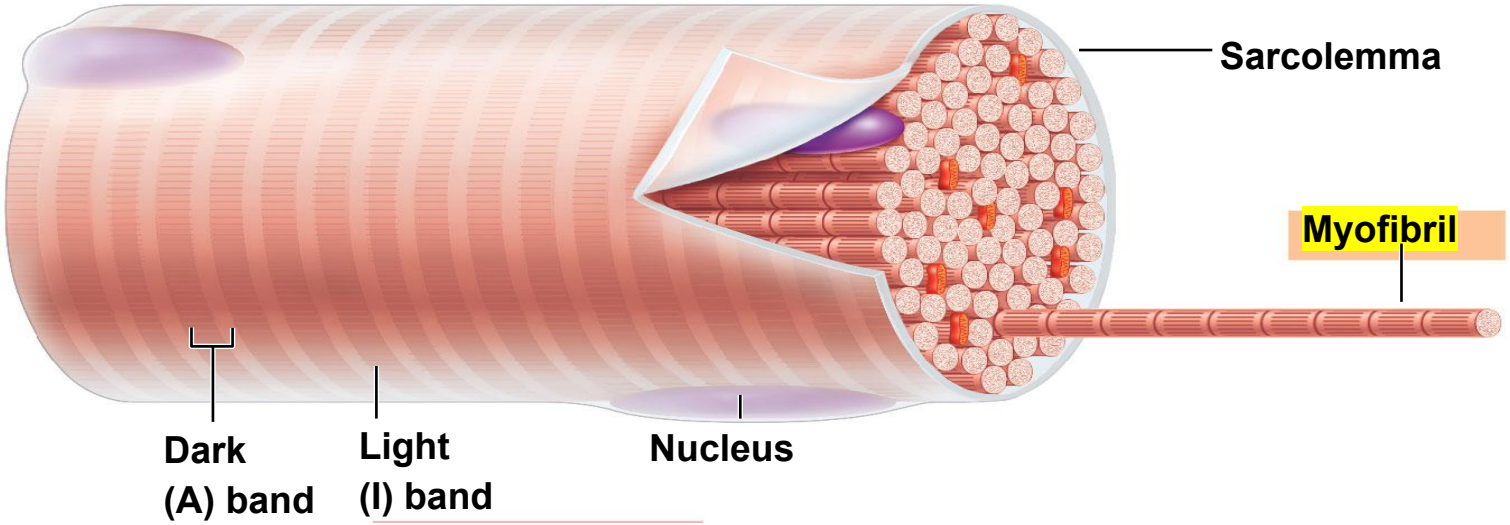
Microscopic Anatomy of Skeletal Muscle

- Sarcolemma: **specialized plasma membrane that surrounds entire muscle fiber**



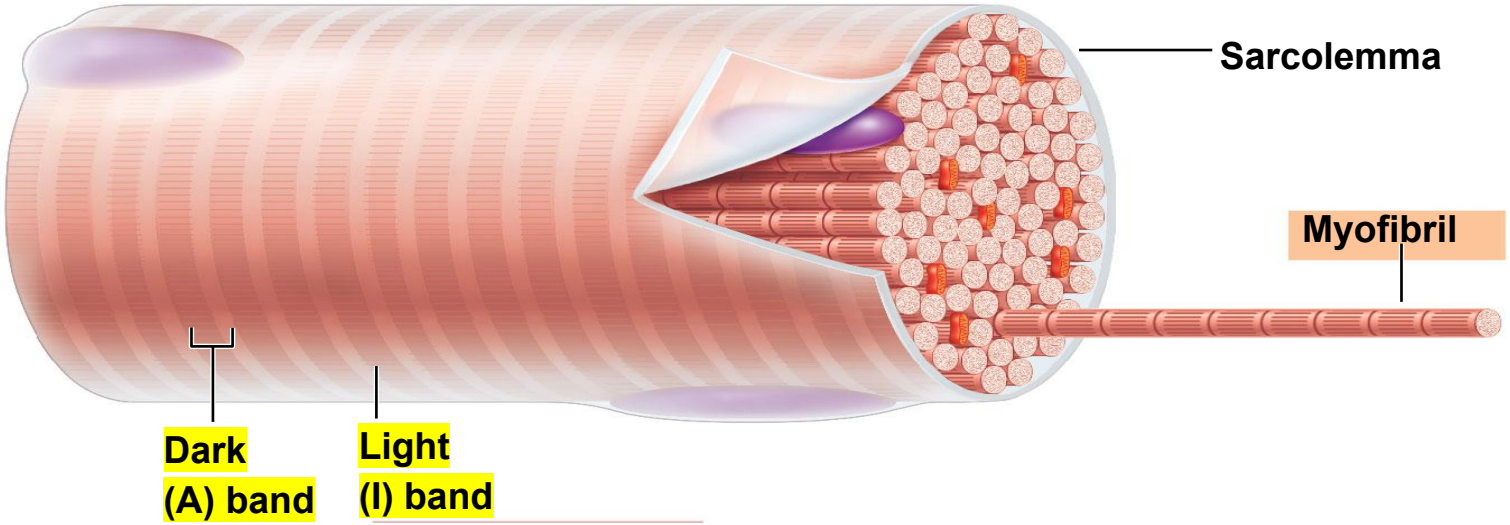
Microscopic Anatomy of Skeletal Muscle

- Myofibrils: **long organelles inside muscle cell**



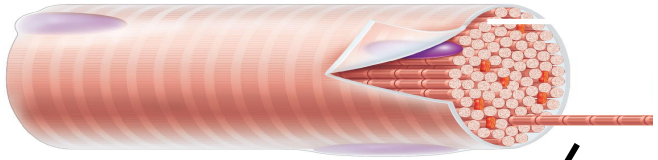
Microscopic Anatomy of Skeletal Muscle

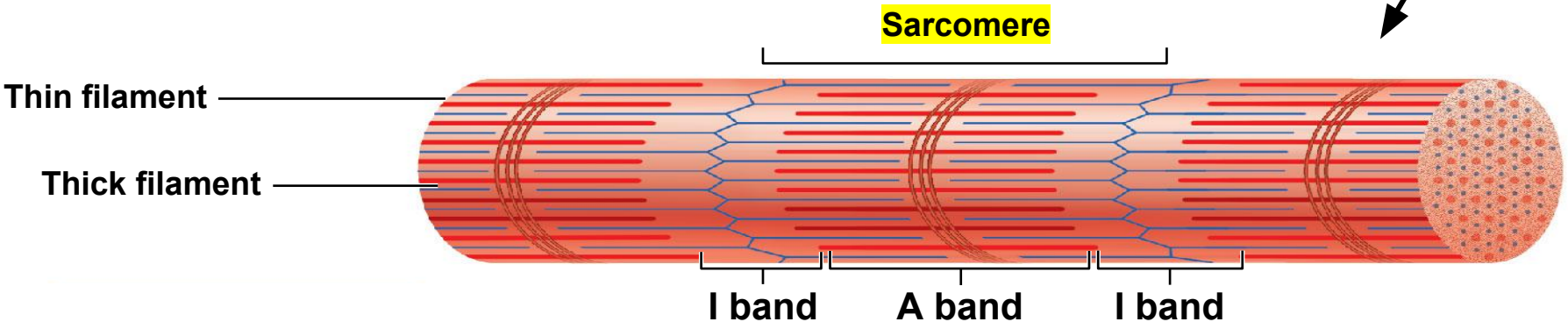
- Light (I) bands and dark (A) bands **give the muscle its striated (banded) appearance**



Microscopic Anatomy of Skeletal Muscle

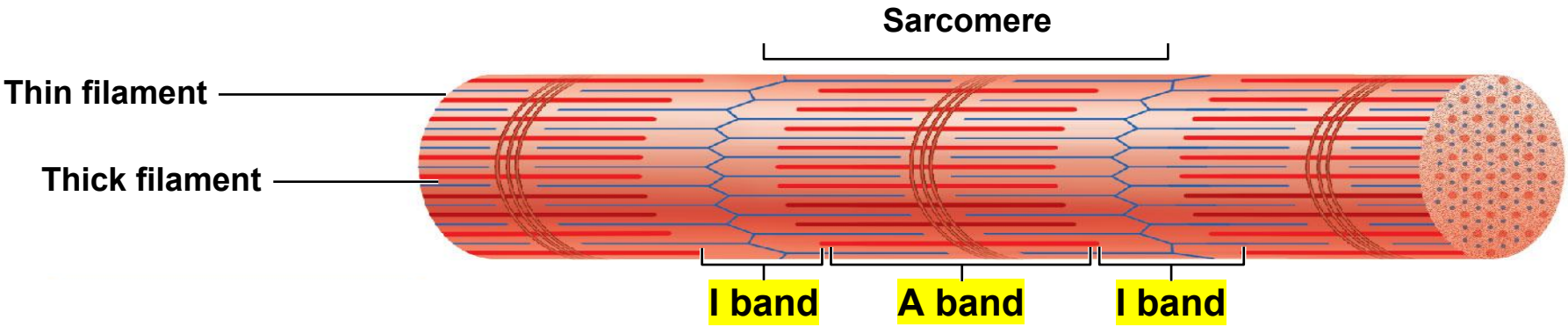
- Sarcomere: **contractile unit of a muscle fiber**
  - **Structural and functional unit** of skeletal muscle





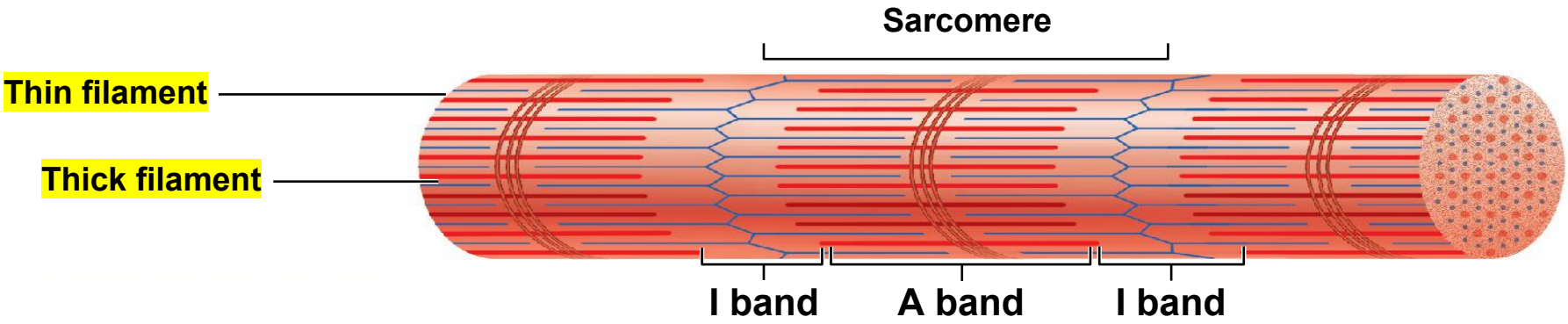
Microscopic Anatomy of Skeletal Muscle

- Banding pattern of myofibrils
  - **I band** = **light band**
    - Contains only **thin filaments**
  - **A band** = **dark band**
    - Contains the **entire length of the thick filaments**



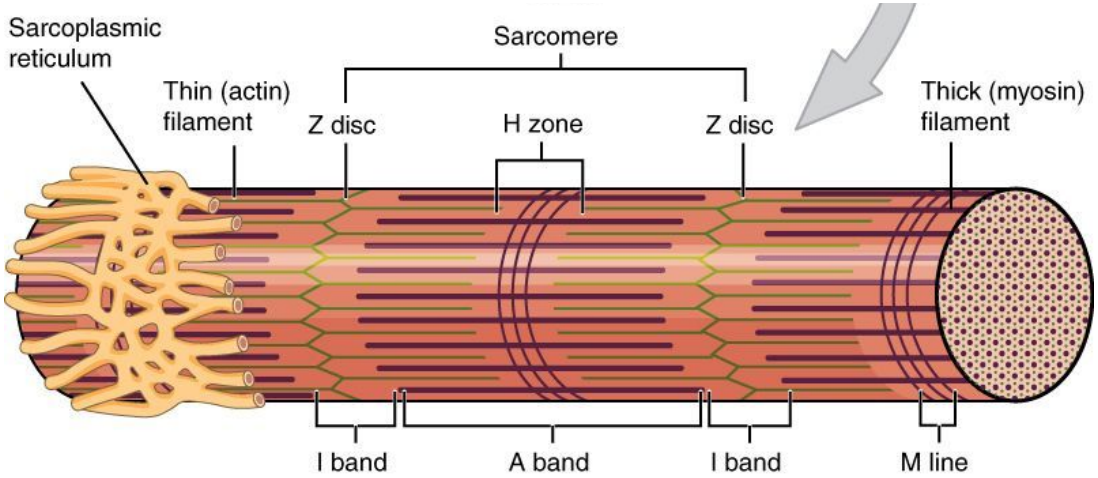
Microscopic Anatomy of Skeletal Muscle

- Organization of the sarcomere
  - **Myofilaments** produce banding (striped) pattern
    - **Thick filaments** = **myosin filaments**
    - **Thin filaments** = **actin filaments**



Microscopic Anatomy of Skeletal Muscle

- Sarcoplasmic reticulum: **specialized smooth endoplasmic reticulum**
  - **Surrounds the myofibril**
  - **Stores and releases calcium**



Microscopic Anatomy of Skeletal Muscle

- Thick filaments = **myosin filaments**
  - Composed of the protein **myosin**
  - Contain **ATPase enzymes** to split ATP to **release energy for muscle contractions**
  - Possess projections known as **myosin heads**
  - Myosin heads are known as **cross bridges** when they **link thick and thin filaments during contraction**

Microscopic Anatomy of Skeletal Muscle

- Thin filaments = **actin filaments**
  - Composed of the protein **actin**