

# Muscle Tissue

To move or not to move, that is the  
question

# Muscle Tissue

- Muscle tissue has only 1 function, to *contract*
- When muscle cells contract they get shorter, when they relax they return to their usual length

# 3 Types of Muscle Tissue

1. Skeletal muscle
2. Cardiac muscle
3. Smooth muscle

All three contract the same but differ in how they are built

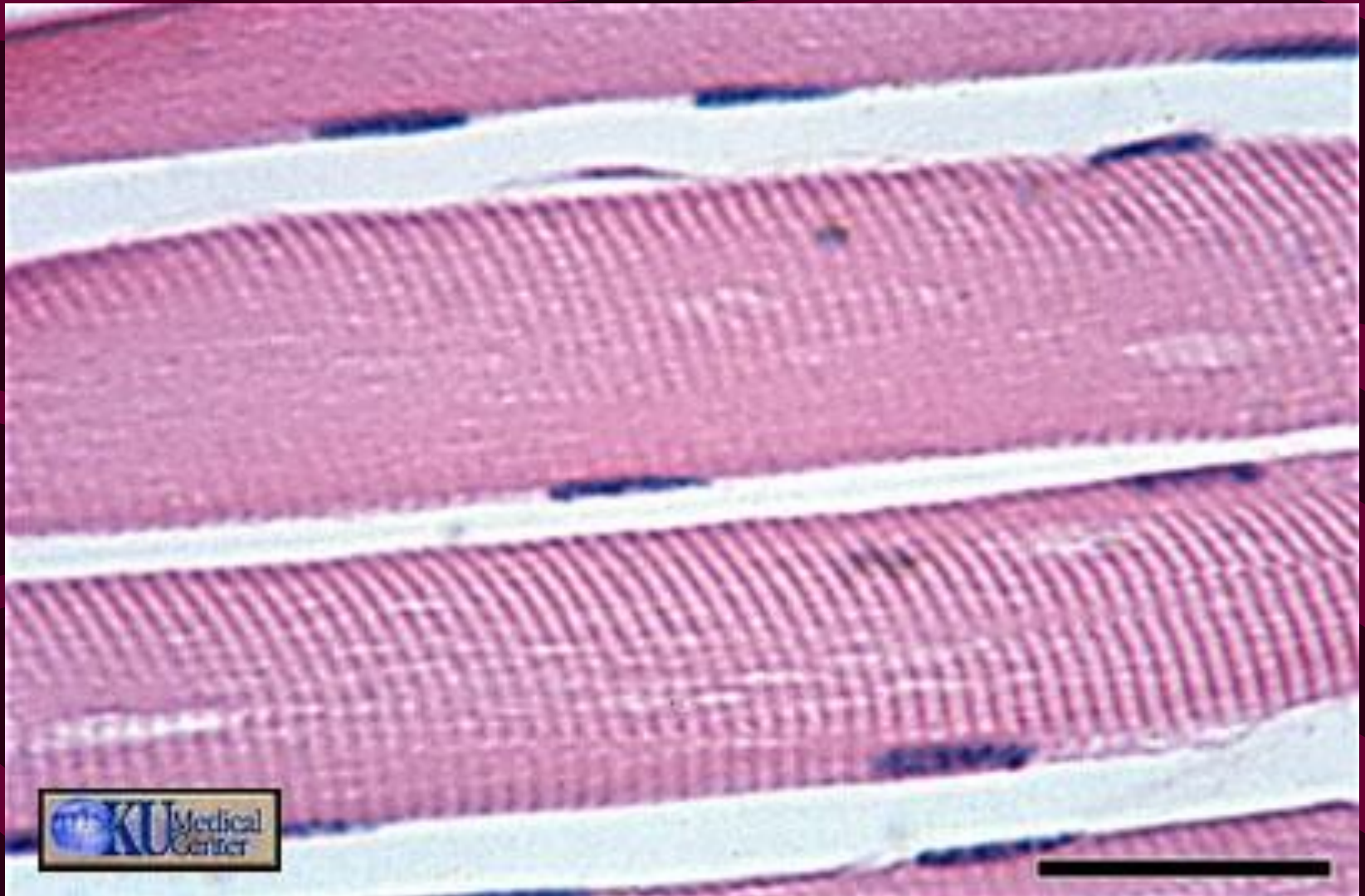
# Skeletal Muscle Tissue

- Are very large cells – some are as long as a foot (0.3 meters)
- Because they are long & skinny, they are often called fibers instead of cells.
- They are *multinucleated* (have more than one nucleus)

# Skeletal Muscle Tissue

- The cells are made out of protein filaments called actin & myosin.
- The filaments are arranged in a banded, or *striated* appearance.
- They are controlled by nerves & the nervous system
- Because of this they are also called striated voluntary muscle.

# Skeletal (Striated) Muscle



# Cardiac Muscle Tissue

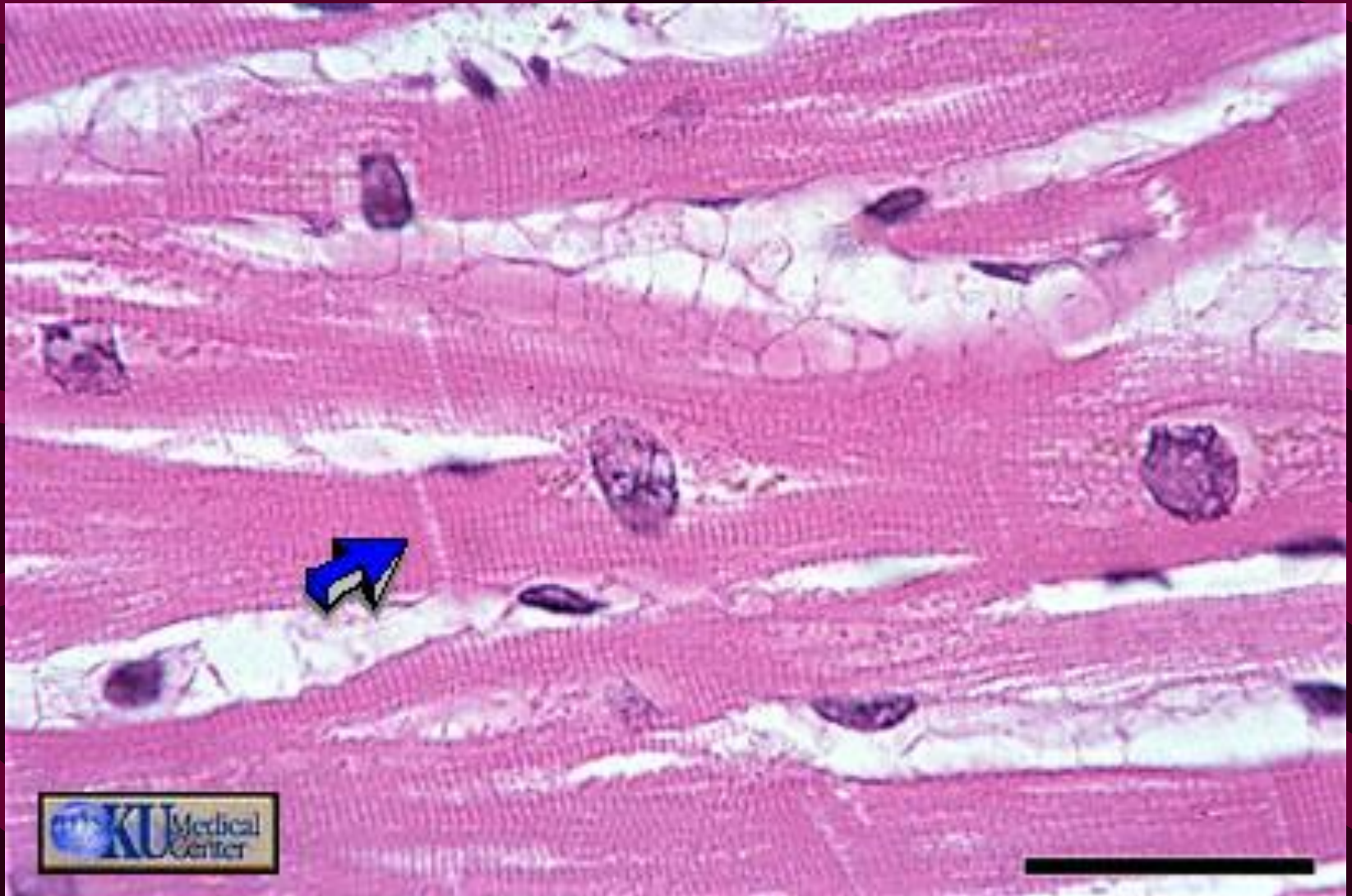
- Located in only 1 place – the heart
- Has only 1 nucleus – in the center of the cell
- This tissue is also striated
- This tissue is very branched. Cells are linked together at special junctions called *intercalated discs*

# Cardiac Muscle Tissue

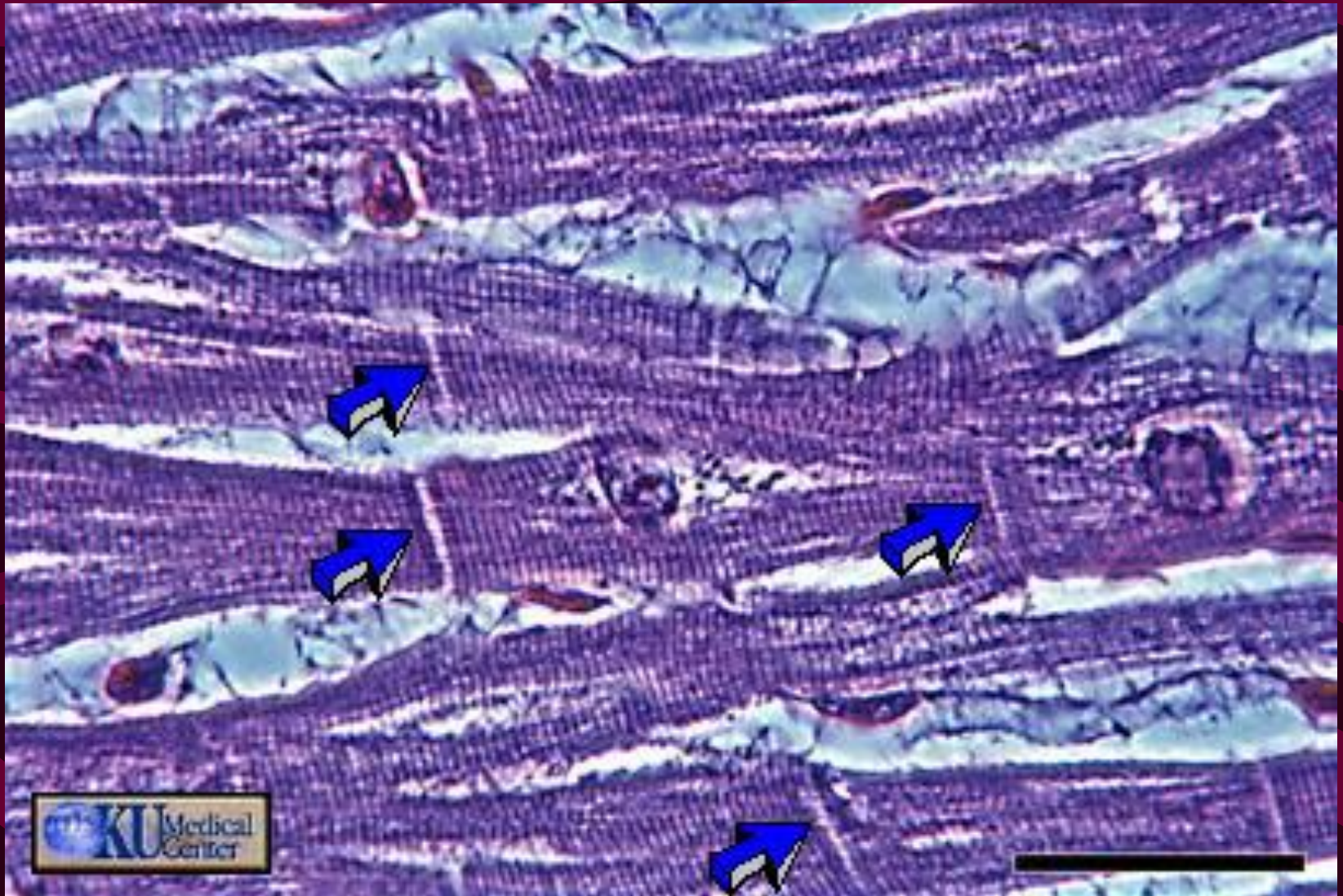
- Does not rely on the nervous system to contract – has special muscle cells called *pacemaker* cells that create a regular contraction rate
- They are also called striated involuntary muscle



# Cardiac Muscle



# Cardiac Muscle (2)



# Smooth Muscle Tissue

- Is located in:
  - a. walls of blood vessels
  - b. around hollow organs like the bladder
  - c. in layers around the respiratory, circulatory, digestive, and reproductive tracts

# Smooth Muscle Tissue

- Has a single nucleus
- The actin & myosin filaments are arranged differently than skeletal or cardiac muscle and there are no striations
- The muscle in the uterus is all smooth muscle

# Smooth Muscle Tissue

- Smooth muscle can contract on its own. It can also be controlled by the nervous system but not with your conscious control
- Thus it is also known as nonstriated involuntary muscle

# Smooth Muscle

