Microscopic Study of Cardiac Muscle

Experiment 4 - Practical Notes

Name: _____ Roll no.: _____ Date: _____

Aim

To recognise cardiac muscle in prepared histological sections.

Principle

Tissue identification links cell form and tissue arrangement to function. Striated, branching muscle fibres with usually central nuclei and intercalated-disc connections.

Requirements

- Authenticated prepared slides
- Compound microscope and labelled drawing sheet

Procedure

1. Survey

Focus at low power and identify a representative intact region.

2. Examine

Locate branching fibres, striations where visible and intercalated discs on a suitable cardiac slide.

3. Compare

Compare the assigned section with another tissue type and note the differences.

4. Draw

Draw a representative field and label: Branching fibres, central nuclei, striations and intercalated discs.

5. Interpret

Relate the observed structure to coordinated contraction of the heart; structural coupling supports synchronised activity.

Observations and Record

Feature	Observation
Slide / stain / magnification	_____
Cell shape / nuclei	_____
Tissue arrangement / matrix	_____
Diagnostic feature	_____
Structure-function link	_____

Result

The section was recognised as _____ because _____. Magnification: _____.

Precautions

- Start at low power before using higher magnification.
- Do not confuse folds, tears or stain deposits with cell structures.
- Record what is visible rather than copying an atlas drawing as an observation.

Viva Questions and Answers

1. What is the main identifying pattern?

Striated, branching muscle fibres with usually central nuclei and intercalated-disc connections.

2. How does structure relate to function?

Coordinated contraction of the heart; structural coupling supports synchronised activity.

3. Why compare slides?

Comparison reveals which features distinguish one tissue from another.

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