

## Practice 1

## Basic histological techniques

1. What are the key steps in tissue processing for light and electron microscopy?
2. What is the optimal size of excised tissue sample for light and electron microscopy?
3. What is the purpose of tissue fixation? Explain the term autolysis. What properties an optimal fixative medium should have?
4. Why the embedding of tissues, e.g. into paraffin, is necessary? Explain the abbreviation “FFPE”.
5. How is the device for precise thin cutting of tissues called? What types are used? What is the cryostat and when it is used?
6. What is the thickness of tissue sections for light and electron microscopy?
7. Why it is necessary to stain the tissues sections? What is the equivalent of tissue staining in electron microscopy?
8. Explain the terms “chromophilic”, “chromophobic”, “basophilic”, “acidophilic”, “eosinophilic”.
9. How do the following dyes stain cell structures? Fill in the table:

	cell nucleus	cytoplasm	collagen	erythrocytes	muscle fibers
Hematoxylin – eosin (HE)					
Hematoxylin – eosin – saffron (HES)					
Azocarmine G – Aniline blue – orange G (AZAN)					

10. What is the advantage of tissue impregnation?
11. How a slide of hard tissues (bone, tooth) can be prepared?
12. What is the principle of histochemistry and immunohistochemistry?

Recommended study materials: Presentations from practices and lectures, Atlas of Histology (online), Atlas of Cytology and Embryology (online), Junqueira's basic histology.