SRI LAKSHMI NARAYANA INSTITUTE OF MEDICAL SCIENCES

Osudu, Agaram Village, Villianur commune, Kuduppakkam Post, Pudhucherry-605 502

Date: 16/09/2021

From

Dr. Somashekar I Tolanur
Professor and Head,
Department of Anatomy,
Sri Lakshmi Narayana Institute of Medical Sciences,
(BIHER University),
Puducherry-2.

To

The Dean,
Sri Lakshmi Narayana Institute of Medical Sciences,
(BIHER University),
Puducherry-2.

Sub: Permission to conduct value-added course: Histology & Histomorphometry for undergraduate Medical students – reg.

Dear Madam,

With reference to the subject mentioned above, the department proposes to conduct a value-added course titled: "Histology & Histomorphometry for undergraduate Medical students" of 2021-2022 batch. We solicit your kind permission for the same.

Kind Regards,

FOR THE USE OF DEAN'S OFFICE

Names of Committee members for evaluating the course:

The Dean: **Dr. Jayalakshmi. G**
The HOD: **Dr. Somashekar I Tolanur**
The Expert: **Dr. B. Rajesh**

The committee has discussed about the course and is approved.

Dean
(Sign & Seal)

Dr. G. JAYALAKSHMI, BSC., MBBS., DTCD., M.D.,
DEAN
Sri Lakshmi Narayana Institute of Medical Sciences
Osudu, Agaram, Kuduppakkam Post,
Villianur Commune, Puducherry - 605502.

Subject Expert
(Sign & Seal)

HOD
(Sign & Seal)

PROF & HOD OF ANATOMY
SRI LAKSHMI NARAYANA INSTITUTE OF MEDICAL SCIENCES
Osudu Agaram Village, Pondicherry-605 502

OFFICE OF THE DEAN

Sri Lakshmi Narayana Institute of Medical Sciences

OSUDU, AGARAM VILLAGE, VILLIANUR COMMUNE, KUDAPAKKAM POST,
PUDUCHERRY - 605 502.

[Recognised by Medical Council of India, Ministry of Health letter No. U/12012/249/2005-ME (P -II) dt. 11/07/2011]
[Affliated to Bharath University, Chennai - TN]

Circular

23.09.2021

Sub: Organizing Value-added Course on "Histology & Histomorphometry for undergraduate Medical students" – Reg.

With reference to the above mentioned subject, it is to bring to your notice that Sri Lakshmi Narayana Institute of Medical Sciences, Puducherry affiliated to Bharath Institute of Higher Education and Research University is organizing a value added course on "Histology & Histomorphometry for undergraduate Medical students" during October 2021 for Ist year M.B.B.S students (2021 – 2022 Batch). The course content for the same is enclosed below."

Dean
(Dr.G Jayalakshmi)

Dr. G. JAYALAKSHMI, BSC., MBBS., DTCD., M.D.,
DEAN
Sri Lakshmi Narayana Institute of Medical Sciences
Osudu, Agaram, Kudapakkam Post,
Villianur Commune, Puducherry - 605502.

Encl: Copy of Course content

COURSE CONTENT

Particulars	Description
Course Title	Histology & Histomorphometry for undergraduate medical students
Course Code	HIS01
Objective	1. Introduction 2. Outline of methods employed in histology 3. Fixation 4. Dehydration, clearing, and embedding 5. Microtomy 1. Parts & principles of Microtome 2. Types of Microtome 6. General outline of the theory and practice of staining 7. Mounting media 8. 'Type' staining methods 9. Dark-ground illumination 10. Methods for special organs, tissues 11. Microscopy 1. Principle, parts and its functions of compound microscope 2. Handlining of Microscope 12. Histomorphometry 1. What is histomorphometry 2. Measurement methods 3. Manual 4. Micrometers - Ocular Micrometer and Stage Micrometer 5. Computerized 13. Photomicrography
Further learning opportunities	Immuno histochemistry
Key Competencies	On successful completion of the course the students will have skill in tissue procurement, fixation, processing, Microtomy, staining, Microscopy & morphometry
Target Student	1st MBBS Students
Duration	30hrs Every October 2021
Theory Session	10hrs
Practical Session	20hrs
Assessment Procedure	Multiple choice questions

Course Proposal

Course Title:

Histology & Histomorphometry for undergraduate Medical students

Course Objective:

1. To introduce Histological techniques & Histomorphometry to I MBBS students
2. To learn Histology slides with better understanding and orientation

Course Outcome:

Gain knowledge on Histology & Histomorphometry for undergraduate Medical students

Course Audience: 1st year MBBS

Course Coordinator: Dr.Somashekar I Tolanur

Course Faculties with Qualification and Designation:

1. Dr. B Rajesh, M.Sc., Ph.D, Professor/Anatomy
2. Ms. Santhi V M.Sc, Assistant Professor/Anatomy

Course Curriculum/subtopics with schedule (30 hours)

Sl.No	Date	Topic	Time	Hours	Faculty Name
1.	03.10.2021	Introduction - Outline of methods employed in histology	2-4p.m	2	Ms. V. Santhi
2.	04.10.2021	Fixation	4-6p.m	2	Dr. B Rajesh
3.	05.10.2021	Dehydration, clearing, and embedding	4-6p.m	2	Ms. V. Santhi
4.	06.10.2021	Microtomy- Parts & principles of Microtome Types of Microtome	4-6p.m	2	Ms. V. Santhi
5.	07.10.2021	General outline of the theory and practice of staining	4-6p.m	2	Dr. B Rajesh
6.	08.10.2021	Mounting media	4-6p.m	2	Ms. V. Santhi
7.	10.10.2021	'Type' staining methods	2-4p.m	2	Ms. V. Santhi
8.	11.10.2021	Dark-ground illumination	4-6p.m	2	Dr. B Rajesh
9.	12.10.2021	Methods for special organs, tissues	4-6p.m	2	Ms. V. Santhi
10.	13.10.2021	Microscopy	4-6p.m	2	Dr. B Rajesh
11.	14.10.2021	Principle, parts and its functions of compound microscope	4-6p.m	2	Ms. V. Santhi
12.	15.10.2021	Handlining of Microscope	2-4p.m	2	Ms. V. Santhi
13.	17.10.2021	Histomorphometry	4-6p.m	2	Ms. V. Santhi
14.	18.10.2021	Micrometers - Ocular Micrometer and Stage Micrometer	4-6p.m	2	Dr. B Rajesh
15.	19.10.2021	Computerized morphometry	4-6p.m	2	Dr. S Shanthini
			Total Hours	30	

REFERENCE BOOKS:

1. Histological Techniques, H. M. CARLETON
2. Bancroft's Theory and Practice of Histological Techniques by Kim S Suvarna & Christopher Layton & John D. Bancroft
3. Principles and Techniques in Histology, Microscopy and Photomicrography by Singh D.R.
4. HISTOLOGICAL TECHNIQUES A PRACTICAL MANUAL by K. LAKSHMINARAYANAN
5. Histopathology Techniques And Its Management by Ramadas Nayak
6. Manual of Histological Techniques by Santosh Kumar Mondal

VALUE ADDED COURSE

1. Name of the programme & Code

Histology & Histomorphometry for undergraduate Medical students (Code – HIS01)

2. Duration & Period

30 hrs & October 2021

3. Information Brochure and Course Content of Value Added Courses

Enclosed as Annexure- I

4. List of students enrolled

Enclosed as Annexure- II

5. Assessment procedures:

MCQ Questions - *Enclosed as Annexure- III*

6. Certificate model

Enclosed as Annexure- IV

7. No. of times offered during the same year:

1 time - October 2021

8. Year of discontinuation: 2022

9. Summary report of each program year-wise

Value Added Course - October 2021					
Sl. No	**Course Code**	**Course Name**	**Resource Persons**	**Target Students**	**Strength & Year**
1	Code – HIS01	Histology & Histomorphometry for undergraduate Medical students	Dr. B Rajesh Ms. Santhi	Ist M.B.B.S (2021– 2022 batch)	20 / October 2021

10. Course Feed Back

Enclosed as Annexure- V

RESOURCE PERSONS

1. **(Dr. B Rajesh)**

2. **(Ms. Santhi)**

COORDINATOR
(Dr. Somasekar I Tolanur)

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SRI LAKSHMI NARAYANA INSTITUTE OF MEDICAL SCIENCES
Osudu Agaram Village, Pondicherry-605 502

Annexure- II

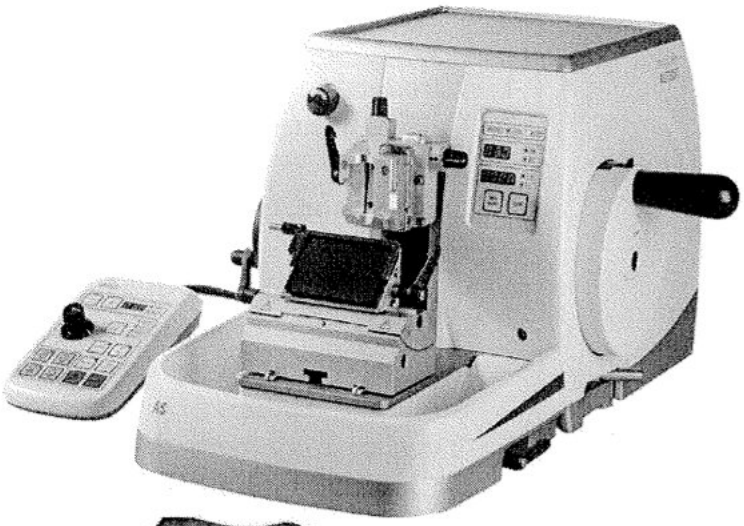
VALUE ADDED COURSE

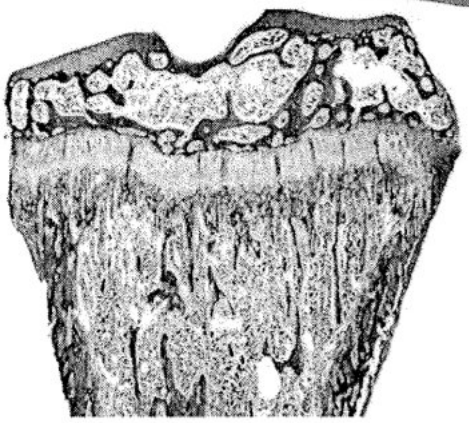
Histology techniques for undergraduate medical students HIS01

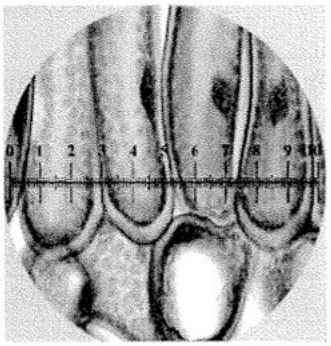
List of Students Enrolled- October 2021

Sl. No.	Name of the Student	Reg. No
1	AARTHI.A	U16MB251
2	ABILASHA.K	U16MB252
3	ABITHA RAJLIN	U16MB253
4	ADAPALA PRIYANKA	U16MB254
5	ADHITHAYA RAJ .N	U16MB255
6	AJAY .N	U16MB256
7	AKSHYA .R	U16MB257
8	ALLARI KARTHIK ABHIROOP	U16MB258
9	AMAL ASHOK	U16MB259
10	AMIRTHAVARSHNI .R	U16MB260
11	ANANYA SHARMA	U16MB261
12	ANGALAKUDURU DEEPCHAND	U16MB262
13	ANJAN BANERJEE	U16MB263
14	ANWESHA CHATTERJEE	U16MB264
15	ARCHANA .A	U16MB265
16	ARCHITHA.A	U16MB266
17	ARIVUMATHI .R	U16MB267
18	ARJUN.S	U16MB268
19	ASHVANTH KUMAR .A	U16MB269
20	ASMITHA S.V	U16MB270

Histology & Histomorphometry for undergraduate Medical students







PARTICIPANT HAND BOOK

Department of Anatomy
S L I M S

INTRODUCTION

The human body consists of two basic components: cells and extracellular materials which are the products of cells. The discipline of histology is primarily concerned with the microscopic examination of these two components and how they are organized into various tissues and organs of the body. In its broader aspect, the word histology is used as if it were a synonym for microscopic anatomy, because its subject matter encompasses not only the microscopic structure of tissues but also that of the cell, organs, and organ systems.

Methods used by histologists to study microscopic anatomy are to be discussed in this lecture. this involves the cutting of tissues into very thin slices or sections. This process has the advantage-in contrast to (1) and (2)-that the relations of the cells to one another in an organ are not disturbed. Even minute details, such as the passage of a white blood-corpuscle through the wall of a capillary blood-vessel, are accurately preserved.

Obviously, however, the interpretation of sections demands experience. The mere fact that tissues are being studied in such thin slices (usually of 5 to 10 f-t in thiGkness) gives them a peculiar appearance. But with practice the interpretation of such images becomes. easy, while the accuracy of the method is such that nearly all research and routine work in histology is accomplished by one of the sectional methods. [The micron, usually abbreviated to fL, is the standard unit of measurement in microscopy. 1 fL = 1/1000 of a millimetre, i.e., 1/25,000 of an inch.]

To prepare tissues for sectioning there are three methods in common use: the Paraffin, the Celloidin, and the Freezing methods. In the first, the tissues are permeated with molten paraffin, which is then allowed to solidify by cooling. In the second, the object is impregnated with solutions of increasing strength of celloidin (a purified form of guncotton). Finally, the celloidin is caused to' set'-usually .by exposure to chloroform or its vapour. With either of these methods the end result is the same: the tissue is permeated by a medium of such a consistency as to enable thin sections to be cut, attached to slides, stained, and mounted. The object is then ready for examination with the microscope. In the third-the freezing-method, the tissues are frozen to a suitable degree of consistency. They are then sectioned. Sometimes they are permeated, before being frozen, with gelatine or gum arabic. The tissues are finally stained and mounted.

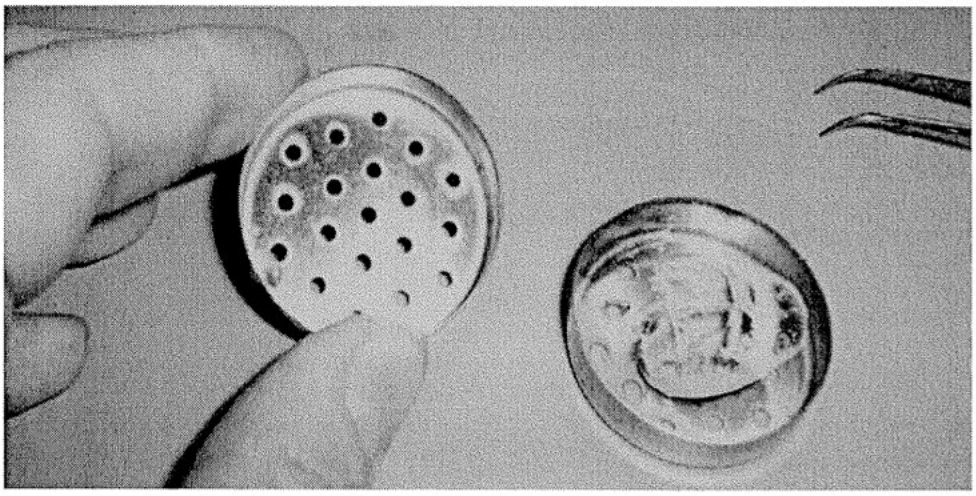
TISSUE PREPARATION FOR LIGHT MICROSCOPY

Steps required in preparing tissues for light microscopy include the following stages:

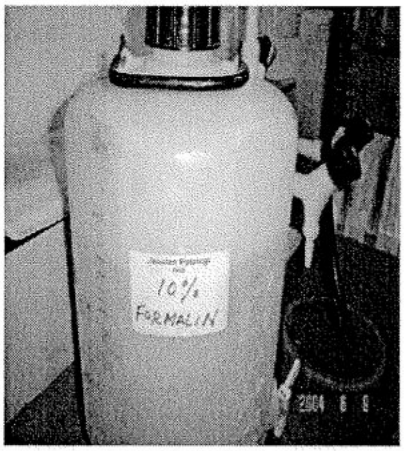
- tissue sampling,
- fixation,
- dehydration and clearing,
- embedding,
- sectioning,
- mounting and staining the sections.

TISSUE SAMPLING

Tissue blocks (tissue samples cut <1cm in each dimension) may be obtained through biopsy (diagnostic sampling), surgical excision, or postmortem dissection.



FIXATION:

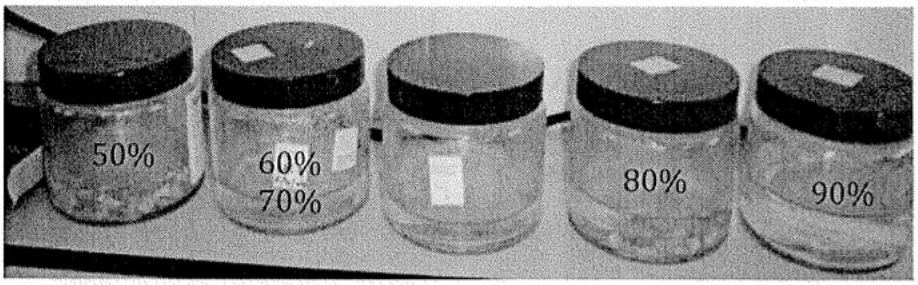


- the most common fixative agents in light microscopy used in surgical and general pathology as well as biomedical research is 10% neutral buffered formalin (4% aqueous solution of formaldehyde),
- fixatives cross-link proteins thus maintaining life-like image of the tissue,
- the resulting coagulation of tissue proteins has a hardening effect on soft tissues.
- fixatives also lock into position a number of carbohydrate- and fat- containing macromolecules that otherwise would be lost during tissue processing,
- fixation needs to be rapid enough to curtail release from dead cells of enzymes capable of digesting tissue constituents.

DEHYDRATION:

- the collected tissues, once fixed, are then dehydrated in graded solutions of alcohol or other dehydrating agents,

- because a large fraction of the tissue is composed of water, a graded series of alcohol baths, beginning with 50% alcohol and progressing in graded steps to 100% alcohol, are used to remove water (dehydration),



CLEARING:

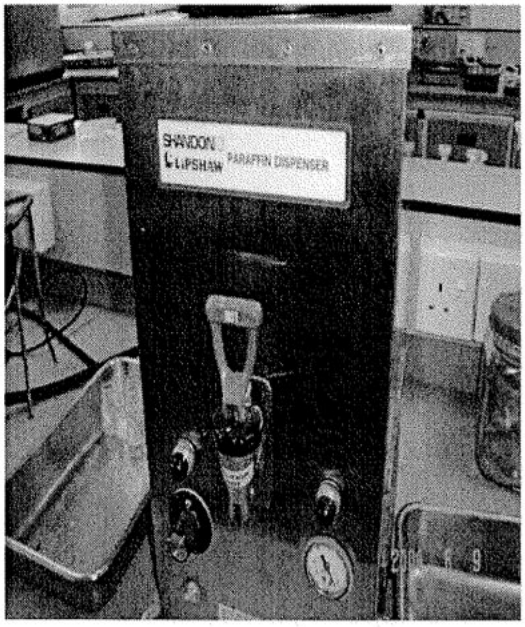
as with dehydrating agents, there are a number of clearing reagents, the selection of which is dependent largely on the embedding medium chosen,

xylene is routinely used for clearing tissues. The alcohol-permeated block is passed through several changes of this solvent to replace alcohol with xylene,

in paraffin embedding tissues are treated with xylene or toluene, chemicals that is miscible with melted paraffin,

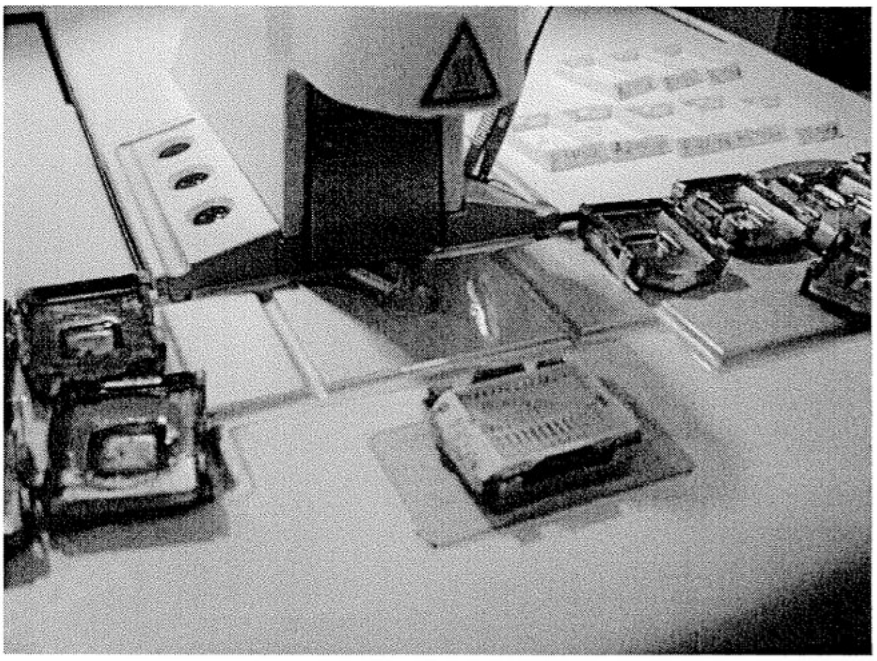
this process is known as clearing since the tissue becomes transparent in xylene and other clearing reagents.

CLEARING:



- In order to distinguish the overlapping cells in a tissue and the extracellular matrix from one another, the histologist must embed the tissues in a proper medium and then slice them into thin sections,
- for light microscopy the usual embedding medium is paraffin,
- paraffin embedding replaces tissue water with paraffin wax, enabling the block to be cut readily,
- the xylene-permeated block is passed through several changes of warm paraffin wax, which is soluble in xylene.

EMBEDDING:

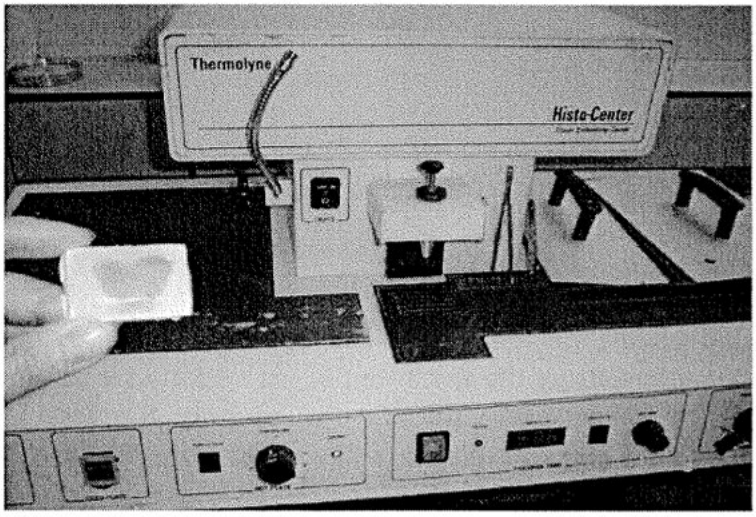


EMBEDDING:

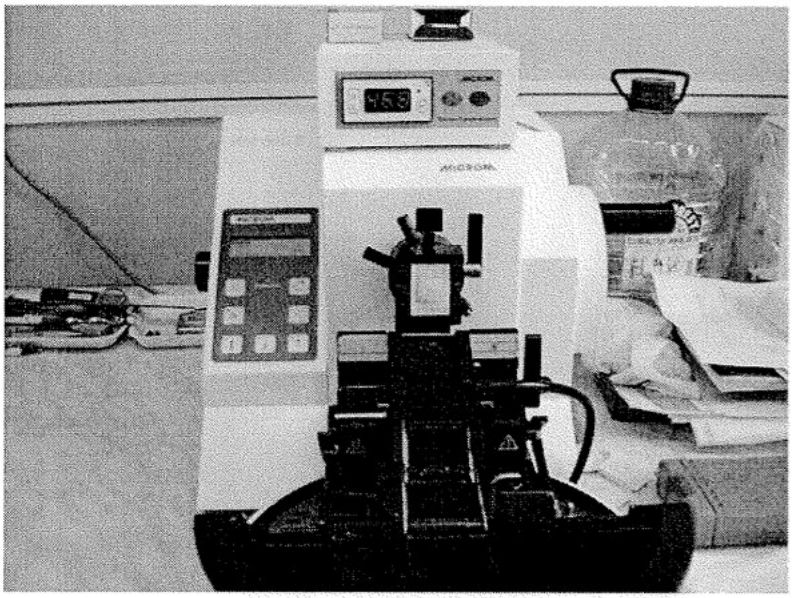
AUTOMATIC TISSUE PROCESSOR

SECTIONING:

after the formed paraffin blocks together with the contained tissues are trimmed of excess embedding material, they are mounted for sectioning on a cutting device called a microtome.

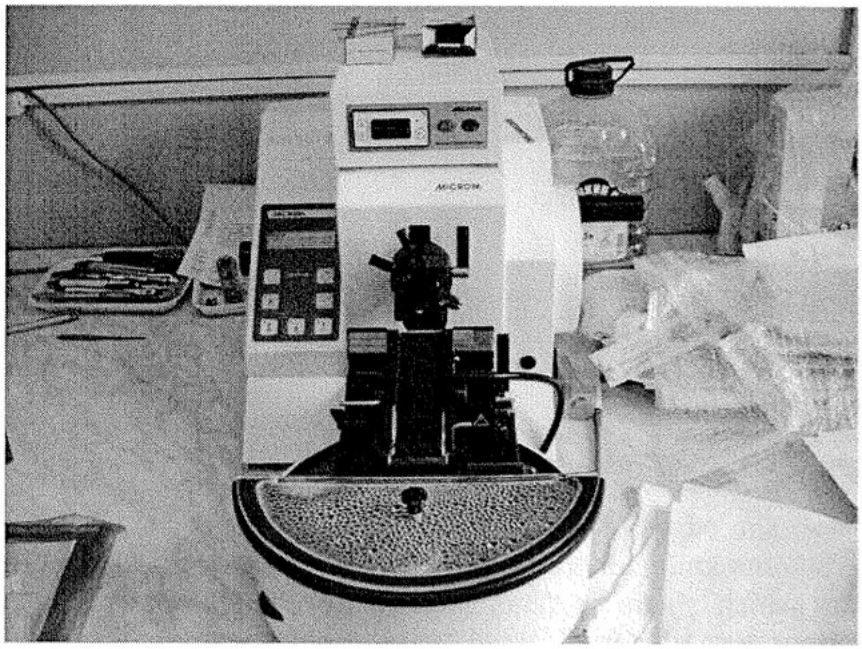


SECTIONING:

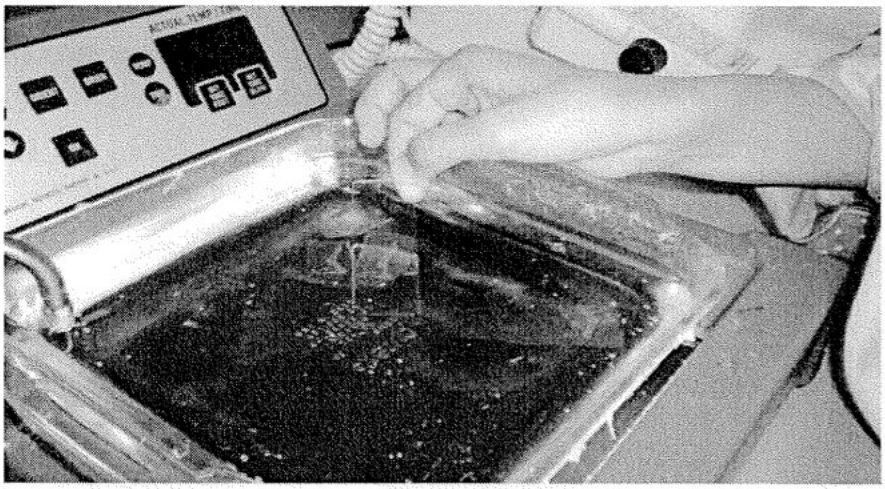


Disposable blades are used in the modern microtomes

SECTIONING:



SECTIONING:



... and mounted onto the surface of clean glass microscopic slides.
Paraffin sections mounted (places) on glass slides are then stained by water-soluble stains that
permit differentiation of the various cellular components.

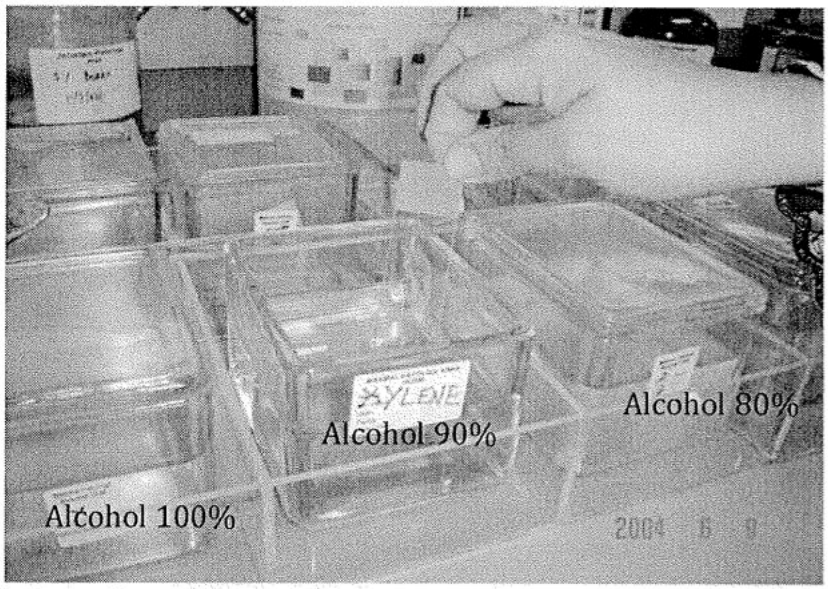
SECTIONING:

- sectioning can also be performed on specimens frozen either in liquid nitrogen or on the rapid-freeze bar of a
- cryostat,

- these sections are mounted by the use of quick-freezing mounting medium and sectioned at subzero temperatures by means of a precooled steel blade,

the sections are placed on precooled glass slides, permitted to come to room temperature, and stained with specific dyes (or treated for histochemical or immunocytochemical studies).

STAINING:



and then through descending strengths of alcohol solutions to water, as most of the dyes used are in acqueous solutions.

MOUNTING AND STAINING:

although various types of stains have been developed for visualization of many components of cells and tissues, they may be grouped into three classes:

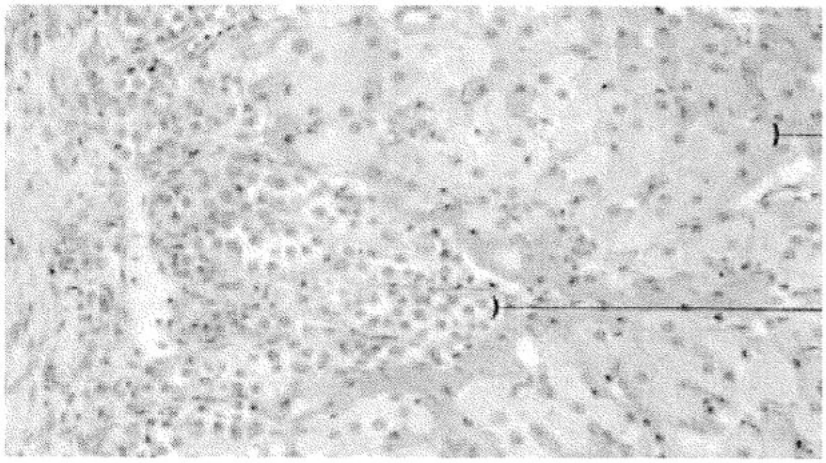
stains that differentiate between acidic and basic components of the cell,

specialized stains that differentiate fibrous components of the extracellular matrix,

metallic salts that precipitate on tissues forming metal deposits on them.

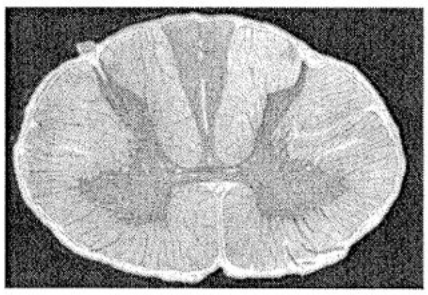
STAINING:

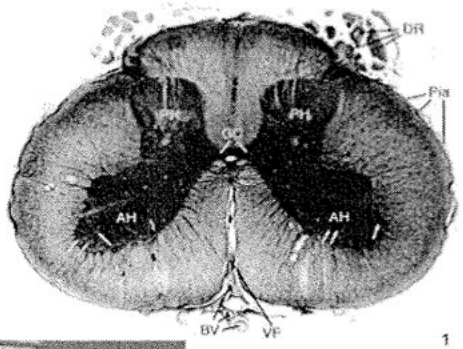
- eosin is an acid that dyes the basic components of the cell a pinkish color,
- because many cytoplasmic constituents have a basic pH, regions of the cytoplasm stain pink; these elements are said to be acidophilic.

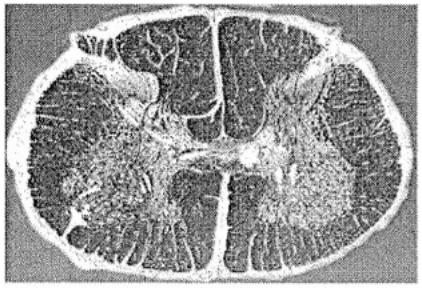


STAINING:

- many other stains are also used in preparation of specimens for histologic study.







Silver stain	Black: reticular fibers
Iron hemotoxylin	Black: striations of muscle, nuclei, erythrocytes
Periodic acid-Schiff	Magenta: glycogen and carbohydrate rich molecules
Wright & Giemsa stains	Used for differential staining of blood cells Pink: erythrocytes, eosinophil granules; purple: leukocyte nuclei, basophil granules; blue: cytoplasm of monocytes and lymphocytes

STAINING:

- after staining, the section is passed through alcohol solutions of increasing strength, absolute alcohol and xylene.
- it is then covered with mounting medium dissolved in xylene.

Assessment Procedure

Multiple choice questions based assessment after successful completion of theory and practical sessions

Sri Lakshmi Narayana Institute of Medical Sciences

Value added course on Anatomy

Histology & Histomorphometry for undergraduate Medical students

MCQs and Answers

1. which of the following can be used as fixatives?
(a) 10% natural buffered Formalin
(b) Bouin's fluid
(c) Carnoy's fluid
(d) all of the above

2. what should be the ratio between the volume of the tissue and the fixative
(a) 1 ratio 5
(b) 1 : 10
(c) 1 ratio 20
(d) 1 ratio 100

3. what is the usual concentration of the commercial formaldehyde available
(a) 7 to 10%
(b) 17 to 27%
(c) 37 to 40%
(d) 40 to 50%

4. which is the most commonly used fixative in clinical practice?
(a) 10% natural buffered Formalin
(b) Zenkres fluid
(c) Bouins fluid
(d) Cornoy's fluid

5. Bouins fluid is yellow because of the presence of –
(a) chloroform
(b) picric acid
(c) formaldehyde
(d) Iodine

6. Of the following..... is a components of Zenkar's fluids ?
(a) mercuric chloride
(b) potassium dichromate
(c) sodium sulphate
(d) all of the above

7. which of the following acid may be used for decalcification ?
(a) 25% sulfuric acid
(b) 5% nitric acid
(c) 20% hydrochloric acid
(d) 30% orthophosphoric Acid

8. Tissue Processing Unit are also known as ?
(a) HistoKinette
(b) Histomat
(c) Histobath
(d) Histoform

9. Paraffin embedded sections of tissue are cut by:
(a) Electron beams
(b) Sharp knife
(c) Laser
(d) Microtome

10. How thick are paraffin embedded sections that has been cut ?
(a) 5-8 uM
(b) 5-8 nM
(c) 3-4 mm
(d) 3-4 cm

11. How can you achieve better resolution in microscopy ?
(a) Using paraffin-embedded sections
(b) Using thinner resin-embedded sections
(c) Using formaldehyde-embedded sections
(d) Using a mixture of paraffin and resin

12. What are epoxy resin sections stained with after being cut with a microtome ?
(a) Blue trichrome
(b) Hematoxylin and eosin
(c) Sudan III
(d) Toluidine blue

13. What staining is best for lipid detection ?
(a) Sudan III IV
(b) Berlin blue
(c) Feulgens nuclear reaction
(d) Colloid gold

14. What method is used for: observation of unstained structures in dark field or using phase contrast (tissue cultures)
(a) Electron microscopy
(b) Transmission EM
(c) Light microscopy
(d) Autoradiography

15. What is the temperature of the paraffin the tissue is placed in ?
(a) 76 c
(b) 35 c
(c) 56 c
(d) 70 c

16. What color will Haemotoxylins stain the nuclei ?
(a) Red
(b) Dark purple
(c) Greenish blue
(d) Reddish

17. When using Nissl staining Nissl substance in the CNS get the following color:
(a) Red
(b) Blue
(c) Greenish
(d) Purple

18. When using Nissl staining in the CNS nuclei get the following color:
(a) Dark
(b) Reddish
(c) Greenish blue
(d) Yellow

19. Whats a general tissue staining ?
(a) Haematoxylin and eosin(HE)
(b) Toluidine blue
(c) Masson's trichrome
(d) Sudan IV and eosin

20. In Neurohistology: What of the following is used to stain Myelin sheaths
(a) Sudan III
(b) Canada balsam
(c) Cresyl violet
(d) Best carmien

Sri Lakshmi Narayana Institute of Medical Sciences

Value added course on Anatomy

Histology & Histomorphometry for undergraduate Medical students

Question Number	Answer
1.	D
2.	C
3.	C
4.	A
5.	B
6.	D
7.	D
8.	A
9.	D
10.	A
11.	B
12.	D
13.	A
14.	C
15.	C
16.	B
17.	A
18.	C
19.	A
20.	C

Sri Lakshmi Narayana Institute of Medical Sciences

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Histology & Histomorphometry for undergraduate Medical students

A. ARCHITHA - Reg. No: 1b

MCQs and Answers

19/20

1. which of the following can be used as fixatives?
(a) 10% natural buffered Formalin
(b) Bouin's fluid
(c) Carnoy's fluid
(d) all of the above

D

2. what should be the ratio between the volume of the tissue and the fixative
(a) 1 ratio 5
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(d) 1 ratio 100

A

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D X

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(d) Iodine

B

6. Of the following..... is a components of Zenkar's fluids ?
(a) mercuric chloride
(b) potassium dichromate
(c) sodium sulphate
(d) all of the above

D

7. which of the following acid may be used for decalcification ?
(a) 25% sulfuric acid
(b) 5% nitric acid
(c) 20% hydrochloric acid
(d) 30% orthophosphoric Acid

D

8. Tissue Processing Unit are also known as ?
(a) HistoKinette
(b) Histomat
(c) Histobath
(d) Histoform

A

9. Paraffin embedded sections of tissue are cut by:
(a) Electron beams
(b) Sharp knife
(c) Laser
(d) Microtome

D

10. How thick are paraffin embedded sections that has been cut ?
(a) 5-8 uM
(b) 5-8 nM
(c) 3-4 mm
(d) 3-4 cm

A

11. How can you achieve better resolution in microscopy ?
(a) Using paraffin-embedded sections
(b) Using thinner resin-embedded sections
(c) Using formaldehyde-embedded sections
(d) Using a mixture of paraffin and resin

B

12. What are epoxy resin sections stained with after being cut with a microtome ?
(a) Blue trichrome
(b) Hematoxylin and eosin
(c) Sudan III
(d) Toluidine blue

D

13. What staining is best for lipid detection ?
(a) Sudan III IV
(b) Berlin blue
(c) Feulgens nuclear reaction
(d) Colloid gold

A

14. What method is used for: observation of unstained structures in dark field or using phase contrast (tissue cultures)
(a) Electron microscopy
(b) Transmission EM
(c) Light microscopy
(d) Autoradiography

C

15. What is the temperature of the paraffin the tissue is placed in ?
(a) 76 c
(b) 35 c
(c) 56 c
(d) 70 c

C

16. What color will Haemotoxylins stain the nuclei ?
(a) Red
(b) Dark purple
(c) Greenish blue
(d) Reddish

B

17. When using Nissl staining Nissl substance in the CNS get the following color:
(a) Red
(b) Blue
(c) Greenish
(d) Purple

A

18. When using Nissl staining in the CNS nuclei get the following color:
(a) Dark
(b) Reddish
(c) Greenish blue
(d) Yellow

C

19. Whats a general tissue staining ?
(a) Haematoxylin and eosin(HE)
(b) Toluidine blue
(c) Masson's trichrome
(d) Sudan IV and eosin

A

20. In Neurohistology: What of the following is used to stain Myelin sheaths
(a) Sudan III
(b) Canada balsam
(c) Cresyl violet
(d) Best carmien

C

Sri Lakshmi Narayana Institute of Medical Sciences

Roll No: 20
Asmitha V

Value added course on Anatomy

Histology & Histomorphometry for undergraduate Medical students

MCQs and Answers

17/20

1. which of the following can be used as fixatives?
(a) 10% natural buffered Formalin
(b) Bouin's fluid
(c) Carnoy's fluid
(d) all of the above

D

2. what should be the ratio between the volume of the tissue and the fixative
(a) 1 ratio 5
(b) 1 : 10
(c) 1 ratio 20
(d) 1 ratio 100

A ✗

3. what is the usual concentration of the commercial formaldehyde available
(a) 7 to 10%
(b) 17 to 27%
(c) 37 to 40%
(d) 40 to 50%

C

4. which is the most commonly used fixative in clinical practice?
(a) 10% natural buffered Formalin
(b) Zenkres fluid
(c) Bouins fluid
(d) Cornoy's fluid

A

5. Bouins fluid is yellow because of the presence of –
(a) chloroform
(b) picric acid
(c) formaldehyde
(d) Iodine

B

6. Of the following..... is a components of Zenkar's fluids ?
(a) mercuric chloride
(b) potassium dichromate
(c) sodium sulphate
(d) all of the above

D

7. which of the following acid may be used for decalcification ?
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(d) 30% orthophosphoric Acid

C ✗

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(c) Cresyl violet
(d) Best carmien

C

Annexure 5

Student Feedback Form

Course Name: "Histology & Histomorphometry for undergraduate Medical students"

Subject Code: HIS01

Name of Student: Amal Ashok **Roll No.:** 09

We are constantly looking to improve our classes and deliver the best training to you.

Your evaluations, comments and suggestions will help us to improve our performance:

Sl. No.	Particulars	1	2	3	4	5
1	Objective of the course is clear				✓	
2	Course contents met with your expectations					✓
3	Lecturer sequence was well planned					✓
4	Lectures were clear and easy to understand					✓
5	Teaching aids were effective				✓	
6	Instructors encourage interaction and were helpful				✓	
7	The level of the course					✓
8	Overall rating of the course	1	2	3	4	(5)

**** Rating: 5 – Outstanding; 4 - Excellent; 3 – Good; 2– Satisfactory; 1 - Not-Satisfactory***

Suggestions if any:

Signature of Student
Date: 26/10/2016

Annexure 5

Student Feedback Form

Course Name: "Histology & Histomorphometry for undergraduate Medical students"

Subject Code: HIS01

Name of Student: Akshaya R. **Roll No.:** 07

We are constantly looking to improve our classes and deliver the best training to you.

Your evaluations, comments and suggestions will help us to improve our performance:

Sl. No.	Particulars	1	2	3	4	5
1	Objective of the course is clear				✓	
2	Course contents met with your expectations				✓	
3	Lecturer sequence was well planned				✓	
4	Lectures were clear and easy to understand					✓
5	Teaching aids were effective					✓
6	Instructors encourage interaction and were helpful					✓
7	The level of the course				✓	
8	Overall rating of the course	1	2	3	(4)	5

**** Rating: 5 – Outstanding; 4 - Excellent; 3 – Good; 2– Satisfactory; 1 - Not-Satisfactory***

Suggestions if any:

Signature of Student
Date: 28/10/16

Date: 03-11-2021

From

Dr. Somasekar I Tolanur
Professor and Head,
Department of Anatomy,
Sri Lakshmi Narayana Institute of Medical Sciences,
(BIHER University),
Puducherry - 2.

To

The Dean,
Sri Lakshmi Narayana Institute of Medical Sciences,
(BIHER University),
Puducherry - 2.

Sub: Completion of value-added course: Histology & Histomorphometry for undergraduate Medical students – **Reg.**

Dear Sir,

With reference to the subject mentioned above, the Department of Anatomy has conducted the value-added course on Histology & Histomorphometry for undergraduate Medical students during October 2021 for 1st year MBBS Students (2021-2022 Batch). We solicit your kind action to send certificates for the participants whose list is attached with this letter. Also I am attaching the photographs captured during the conduct of the course.

Kind Regards,

Encl: Participants List

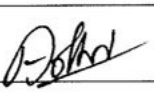
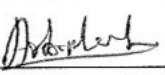
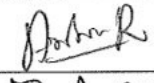
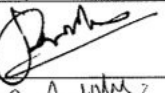
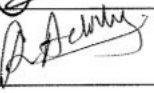
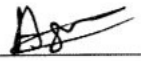
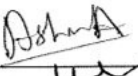
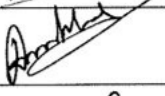
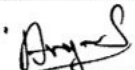
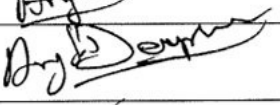
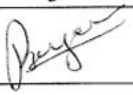
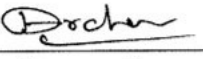
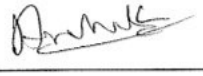
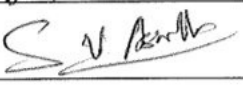
Photograph

Annexure- II

VALUE ADDED COURSE

Histology techniques for undergraduate medical students HIS01

List of Students Enrolled- **October 2021**

Sl. No.	Reg. No	Name of the Student	Sign
1	U16MB251	AARTHI.A	
2	U16MB252	ABILASHA.K	
3	U16MB253	ABITHA RAJLIN	
4	U16MB254	ADAPALA PRIYANKA	
5	U16MB255	ADHITHAYA RAJ .N	
6	U16MB256	AJAY .N	
7	U16MB257	AKSHYA .R	
8	U16MB258	ALLARI KARTHIK ABHIROOP	
9	U16MB259	AMAL ASHOK	
10	U16MB260	AMIRTHAVARSHNI .R	
11	U16MB261	ANANYA SHARMA	
12	U16MB262	ANGALAKUDURU DEEPCHAND	
13	U16MB263	ANJAN BANERJEE	
14	U16MB264	ANWESHA CHATTERJEE	
15	U16MB265	ARCHANA .A	
16	U16MB266	ARCHITHA.A	
17	U16MB267	ARIVUMATHI .R	
18	U16MB268	ARJUN.S	
19	U16MB269	ASHVANTH KUMAR .A	
20	U16MB270	ASMITHA S.V	

Histology & Histomorphometry for undergraduate Medical students

Sri Lakshmi Narayana Institute of Medical Sciences

Affiliated to Bharath Institute of Higher Education & Research

(Deemed to be University under section 3 of the UGC Act 1956)

CERTIFICATE OF MERIT

This is to certify that **AMIRTHAVARSHNI .R (Reg U16MB260)** has actively participated in the Value Added Course on Histology & Histomorphometry for undergraduate Medical students held during October 2021 Organized by Department of Anatomy, Sri Lakshmi Narayana Institute of Medical Sciences, Pondicherry- 605 502, India.

Ms. Santhini
Resource person

Dr. B Rajesh
Resource person

Dr. Somasekar I Tolanur
Co-ordinator

Dr. G Jayalakshmi
Dean

Sri Lakshmi Narayana Institute of Medical Sciences

Affiliated to Bharath Institute of Higher Education & Research

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CERTIFICATE OF MERIT

This is to certify that **ANWESHA CHATTERJEE (Rg. no.ReU16MB264)** has actively participated in the Value Added Course on Histology & Histomorphometry for undergraduate Medical students held during October 2021 Organized by Department of Anatomy, Sri Lakshmi Narayana Institute of Medical Sciences, Pondicherry- 605 502, India.

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Resource person

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Resource person

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Dr. G Jayalakshmi
Dean