



## INDIAN BOARD OF TOXICOLOGIC PATHOLOGY (IBTP)

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### Curriculum for the Board Certification:

1. Gross pathology, normal histology, non-proliferative and proliferative histopathological changes including age-related changes and neoplasia in all the different organs/organ systems in the common species of laboratory animals especially rats and mice.
2. Euthanasia, necropsy and tissue collection techniques.
3. Correlation of gross, organ weights and histopathological changes.
4. Gross and histological differences between different species, differences in histology and histopathology of the sexes of different species.
5. Clinical chemistry, hematology, coagulation parameters and urinalysis and correlation to histopathology.
6. Principles of toxicological testing for preclinical safety assessment studies, design of experiments, collection of data, regulatory guidelines.
7. Current up-to-date terminology as recommended by organizations like the STP and GoReni.
8. Theoretical basis of pathological changes, mechanism of toxicopathology.
9. Interpretation of data, practical applications of knowledge, reporting of findings.
10. A knowledge of common artifacts, postmortem changes and pitfalls encountered by Pathologists.
11. Basic knowledge of histotechniques (including special fixatives, special staining etc.) and its application to regulatory toxicology studies.
12. Staining and histochemistry, ultrastructural pathology, immunohistochemistry, molecular/immunological diagnostic tools (e.g., Basic Toxicogenomics/ proteomics).
13. Common species of laboratory animals : rats, mice, guinea pigs, rabbits, dogs, non-human primates.
14. Pathology and pathology techniques in reproductive toxicity studies (vaginal smears, foetal developmental markers, studies on sperms and ovaries, foetal visceral & skeletal examinations for developmental malformations, fixation / staining techniques).
15. Good laboratory practice in toxicological pathology and peer review system.
16. Biomarkers in toxicological pathology.



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### **Organs/organ systems**

1. Oral cavity, Esophagus and Stomach
2. Salivary glands
3. Small and large intestine
4. Peritoneum, Mesentery and abdominal cavity
5. Hepato-biliary system including gall bladder
6. Endocrine system
7. Urinary system
8. Central and peripheral nervous system
9. Reproductive system
10. Respiratory system
11. Lymphoid and vascular system
12. Eye, bone and skin



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### References:

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2. Rat Histopathology by P. Greaves and J. M. Faccini (Eds) 2<sup>nd</sup> Edn, Elsevier, Amsterdam, London – New York, Tokyo, 1992
3. Pathology of the Fischer Rat Eds Gary A. Boorman *et al.*, Academic Press, Inc. Harcourt Brace Jovanovich, Publishers, San Diego, New York
4. Pathology of the Mice Eds Robert R. Maronpot *et al.*, Cache River Press 2850 Oak Grove Road, Vienna, II 62995, USA
5. Basic Toxicology Ed. Frank C. Lu 3<sup>rd</sup> Edn, Taylor and Francis, 1101 Veromount Avenue, NW, Suite 200, Washington, D. E 20005-3521, 1996
6. Manual of Histologic Staining Methods of the Armed Force Institute of Pathology Ed Lee G. Luna, 3<sup>rd</sup> McGraw Hill Brook Co., New York, Toronto, Sydney, 1968.
7. Histopathology of Preclinical Toxicity Studies Ed Peter Greaves, 3<sup>rd</sup> Edn, Academic press/Elsevier, Park Avenue South, New York, 2007.
8. Pathology of Laboratory Rodents and Rabbits Eds. Dean H, Percy and Stephen W. Barthold, 3<sup>rd</sup> Edn, 2007, Blackwell Publishing professionals, 2121 State Avenues, Ames, Iowa – 50014, USA
9. Atlas of Experimental Toxicologic Pathology Eds C. Gopinath, D. E. Prentice and D. J. Jewis MTF Press Ltd. Lancesster/Boston/The Hague/Dordrecht, 1989
10. Target Organ Pathology – A Basic Text Eds. J. Turton and J. Hooson, Taylor and Francis Ltd. Gun Powder Square, London ECGA 3DE, 1998
11. Pathology of Tumours – Laboratory Animals Vol 1, 2<sup>nd</sup> Edn. – Tumours of Rats Eds. V. S. Turusov and U. Mohr, 1990, IARC Scientific, Lyon, France.
12. Pathology of Tumours – Laboratory Animals Vol 2, 2<sup>nd</sup> Edn. – Tumours of Mouse Eds. V. S. Turusov and U. Mohr, 1994, IARC Scientific Publication No – 111 Lyon, France.
13. Animal Clinical Chemistry. A primer for Toxicologists. Ed Evans 2009
14. Standardized System of Nomenclature and Diagnostic Criteria (SSNDC) Guides
15. GoReni guide
16. Animal models in toxicology / edited by Shayne C. Gad. -- 2nd ed. 2007
17. Pathology of laboratory rodents and rabbits / Dean H. Percy Third edition, 2007