

Name of Block	Block 1
Name of Elective	Role of Immunohistochemistry in colon carcinoma
Location of hospital Lab or research facility	Immunopathology Laboratory, Department of Pathology
Name of internal preceptor(s)	Dr. Aminder Singh/Dr.Saloni Goyal
Name of external preceptor (if applicable)	-
Learning objectives of elective	<ol style="list-style-type: none"> 1. To define immunohistochemistry and explain the principle of IHC on paraffin embedded tissues. 2. To enumerate and define various steps in processing and protocol of IHC staining of tissues. 3. To enumerate and discuss the carcinoma arising in colon. 4. To understand the significance of Microsatellite instability in colon carcinoma 5. To learn to interpret the IHC staining of carcinoma arising in colon.
Number of students that can be accommodated in this elective	4
Prerequisites for elective	Universal precautions and Good laboratory practice Previous knowledge of etio-pathogenesis of colorectal and endometrial cancers
Learning resources for students	<ol style="list-style-type: none"> 1. Robbins and Cotran Pathological basis of disease, Tenth edition 2. Diagnostic IHC David Dabbs, 5th edition
List of activities of student participation	<ol style="list-style-type: none"> 1. Obtain history for patients directly or from HIS whose samples were received in past six months for IHC workup in pathology laboratory. 2. observe and learn the procedure of testing and understand the SOP for IHC testing 3. Learn the Interpretation of IHC 4. Correlate the IHC results with other genetic analysis if available 5. Work with supervisor in making observations, collect data and documents as per protocol 6. Document details in excel worksheet 7. Write abstract of work done
Portfolio entries required	<ol style="list-style-type: none"> 1. No of cases worked up. 2. Summary of the results of the entire one month data analysis 3. Steps of procedure of the tests observed during elective period
Log book entry required	Completion of posting signed by preceptor with a “meets expectation ‘(M)’grade”
Assessment	Formative: <ol style="list-style-type: none"> 1) Attendance (minimum 75%) 2) Day-to-day participation in laboratory activity 3) No of cases satisfactorily worked up 4) Completion of objectives of elective posting topic
Other comments	-

Logbook- cum- Portfolio

Elective Module: Immunohistochemistry analysis in colon

Colorectal carcinoma (CRC) and are one of the commonest malignancies in the western world. These carcinoma develops by one of the three pathways: chromosomal instability pathway (75%), microsatellite instability pathway (15%), or epigenetic gene silencing (10%).

The classic adenoma carcinoma sequence accounts for 80% sporadic cancer of typically includes mutation in APC in early neoplastic process. Both copies of APC gene must be functionally inactivated for adenomas to develop.

All new CRC cases should be universally screened for microsatellite status and RAS/BRAF mutational testing when considering for prognostic and predictive of chemotherapy efficacy.

Microsatellite instability (MSI) may develop as a result of sporadic or germline (Lynch`s syndrome) mutations in DNA mismatch repair genes and rarely by sporadic methylation of hMLH1. High-level microsatellite instability (MSI-H) affects treatment response and prognosis. MSI testing can be done either by immunohistochemistry (IHC) or polymerase-chain-reaction (PCR) based molecular studies. A panel of four markers including anti-MLH1, anti-PMS2, anti-MSH2, and anti-MSH6 is recommended for MSI testing by IHC.

In this elective module, the student will be able to see and understand

- 1) The concept and application of immunohistochemistry (IHC)
- 2) The method and standard technique of IHC.
- 3) The role of IHC in diagnosing colorectal carcinoma
- 4) Do a retrospective analysis of colorectal carcinomas in which IHC testing was done.