



**Service Priorities and Programmes**  
**Electronic Presentations**

**Convention ID:** 1019

**Submitting author:** Mr Chun Keung WONG

**Post title:** Medical Technologist, Tuen Mun Hospital

**Common Laboratory Panels of Immunohistochemical Markers Useful for Cancer Diagnosis: A Comprehensive Literature Review**

*Wong CK(1)*

*(1)Department of Clinical Pathology, Tuen Mun Hospital*

**Keywords:**

Immunohistochemistry

Cancers

Immunohistochemical markers

**Introduction**

Pathologists usually encounter difficulties in the tumor differentiation solely by traditional haematoxylin and eosin staining of tissues in the histopathology laboratory. It is especially true for some tumors with early cellular changes and of metastatic types. Immunohistochemistry is the mostly applied assay for routine diagnosis of cancers in the hospital settings. As there is variation in immunohistochemistry staining results in some early stage neoplasms and metastatic tumors, panels of immunohistochemical markers are needed in routine laboratory practice. Despite the using of immunohistochemical markers has been widely discussed, little suggestions have been provided to standardize the common panels of markers for different tumors. Such knowledge gap in immunohistochemistry is addressed in this study.

**Objectives**

(1) To perform a comprehensive literature review of the application of immunohistochemistry in the routine laboratory practice.

(2) To provide information on common panels of immunohistochemical markers for different tumors.

**Methodology**

A qualitative study had been performed which involved the comprehensive literature review of websites based documents, reports and case studies, etc. Sampling bias affecting the results of study due to the factor of demographic variable was eliminated using the method of maximum variation sample. Conclusions on common panels of immunohistochemical markers were then made based on the findings and patterns identified in this study.

**Result**

Common panels of immunohistochemical markers for different tumors were identified with some results shown as follows:

(1) Panel of five immunohistochemical markers (CK7, CK20, S100, HMB45 and CD45) was useful for differentiation of human epithelial neoplasma such as, pancreatic carcinoma, endometrial adenocarcinoma, colorectal adenocarcinoma, squamous cell carcinoma and prostate adenocarcinoma, etc.

(2) Panel of four immunohistochemical markers (HBME-1, CD56, CK19 and Gaectin-3) was useful for differential diagnosis of follicular thyroid lesions.

(3) Panel of three immunohistochemical markers (P504S, CDX2 and beta-catenin) was useful for diagnosing metastatic colorectal carcinoma to ovary and primary ovarian carcinoma.

(4) Panel of three immunohistochemical markers (ER, PR and HER2) was useful as predictive tools for breast cancer, with the additional potential markers of EGFR and Ki67 which require further development of their scoring system.

(5) Panel of three immunohistochemical markers (S100, Melan-A and HMB45) was useful for melanoma differentiation.

Conclusions:

Comprehensive literature review concerning the application of immunohistochemistry in routine histopathology laboratory practice was performed. Common panels of immunohistochemical markers useful for cancer diagnosis were identified. The results of study are important in enhancing the quality of health care for both the research, public health and hospital settings.