Immunohistochemical Expression of Stem Cell Marker Musashi 1(Msi-1) in Colorectal Carcinoma and Its Correlation With various pathologic Parameters

Thesis

Submitted for partial fulfillment of Master Degree in Pathology

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2017

التعبير المناعى الهيستوكميائى موساشي ١ (Msi-1) في سرطان القولون والمستقيم وارتباطه بمختلف العوامل المرضية

رسالة

توطئة للحصول علي درجة *الماجيستر في الباثولوجى*

مقدمة من

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سورة البقرة الآية: ٣٢

Acknowledgement

First and foremost thanks to ALLAH, the Most Merciful.

Really I can hardly find the words to express my gratitude to ***Prof. Dr. Nahed Samy Khamis,*** *Professor of pathology , faculty of medicine, Ain Shams University, for her supervision, continuous help, encouragement throughout this work and tremendous effort she has done in the revision of the whole work. It is a great honor to work under her guidance and supervision.*

I would like also to express my sincere appreciation and gratitude to ***Prof. Dr. Hala Sobhy Cousha,*** *Professor of pathology faculty of medicine, Ain Shams University, for her continuous directions, help , patience and support throughout the whole work.*

I am so thankful to ***Ass. Prof. Dr. Amr Lotfy Farag,*** *Assistant professor of clinical oncology and nuclear medicine, Faculty of Medicine, Ain Shams University for his helpful guidance and honest effort that assisted me to finish this scientific work.*

Last but not least, I dedicate this work to my family, whom without their sincere emotional support, pushing me forward this work would not have ever been completed.

Rana Ahmed Mostafa

Contents

List of Abbreviations

ABC	:	Avidin-biotin-enzyme complex
ACF	:	Aberrant crypt foci
AJCC	:	American Joint Committee of Cancer
ANOVA	:	Analysis of variance
APC	:	Adenomatous polyposis coli
AS	:	Additive score
BAX	:	Bcl-2–associated X protein
BE	:	Barrett's esophagus
BMI	:	Body mass index
BMP		Bone morphogenetic protein
CBCCs		Crypt base columnar cells
CC-IC	:	Colon cancer initiating cell
CD	:	Cluster of differentiation
CEA	:	Carcinoembryonic antigen
c-myc		Avian myelocytomatosis virus oncogene cellular homolog
CRC	:	Colorectal carcinoma
CSCs	:	Cancer stem cells
DAB	:	Diaminobenzidine
DC		Differentiated cell
dd h20		Double -distilled water
DNA	:	Deoxy ribonucleic acid
EAC	:	Esophageal adenocarcinoma
EMT		Epithelial mesenchymal transition
EpCAM		epithelial cell adhesion molecule
Eph/ephrin		Erythropoietin–producing human hepatocellular receptor/ Eph receptor-interacting protiens
FAP	:	Familial adenomatous polyposis
FOLFIRI	:	Combination of 5-fluorouracil, leucovorin, and irinotecan
FOLFOX	:	Combination of 5-fluorouracil, leucovorin, and oxaliplatin
H&E	:	Hematoxylin and Eosin
H2O2	:	Hydrogen peroxide
HGF	:	Hepatocyte growth factor
hMLH1	:	human mutL homolog 1
HNPCC	:	Hereditary non-polyposis colorectal cancer
HPs	:	Hyperplastic polyps
IBD	:	Inflammatory bowel disease

ICD	:	Intracellular domain
IEN	:	Intraepithelial neoplasm
IGF2	:	Insulin-like growth factor
IL-6	:	Interleukin 6
ISCs	:	Intestinal stem cells
ISEMFs	:	Intestinal subepithelial myofibroblasts
IUCC	:	International Union for Cancer Control
K-ras		Kirsten rat sarcoma viral oncogene
Lgr5		Leucine rich repeat-containing G-protein coupled receptor 5
MAC staging system	:	Modified Astler-Coller staging system
MAP kinase	:	Mitogen-activated protein kinase,
MMPs	:	Matrix metalloproteinase 7
MSI	:	Microsatellite instability
Msi-1	:	Musashi 1
MyoD	:	Myogenic determination factor
NCI	:	National cancer institute
NEC		Neuroendocrine carcinoma
NET	:	Neuroendocrine tumor
NICD	:	Notch Intracellular domain
P VALUE	:	Probability factor value
PC		Progenitor r cell
PCR		Polymerase chain reaction
PPARs	:	Peroxisome proliferator-activated receptors
RNA	:	Ribonucleic acid
SA	:	Serrated adenoma
SAC	:	Serrated adenocarcinoma
SCC	:	Squamous cell carcinoma
SCs	:	Stem cells
SD	:	Standard deviation
SHH		Sonic hedgehog
SPSS	:	Statistical Package for Social Sciences
SSA	:	Sessile serrated adenoma
TB	:	Tumor budding
TBS	:	Tris-buffered saline
TDLU	:	Terminal ductal lobular unit
TDs	:	Tumor deposits
TGF-β	:	Transforming growth factor beta
TGF-β II	:	Transforming growth factor beta receptor-II
TNF-α	:	Tumor necrosis factor α
TSA	:	Traditional serrated adenoma
U.S	:	United states

UK	:	United kingdom
WCRF-AICR	:	The World Cancer Research Fund/American Institute for Cancer Research
WHO	:	World health organization
Wnt pathway		wingless-related integration site

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Introduction

Colorectal carcinoma **(CRC)** is a multifactorial disease with many documented genetic and non-genetic risk factors ***(Sharafeldin et al.,2015).***

CRC is a commonly diagnosed and a highly lethal malignancy in both men and women ***(Murat et al., 2016).***It is considered the 3rd most common cancer in men and the 2nd in women ***(Ferlay et al., 2015).***

Since 1998, colorectal carcinoma (CRC) incidence increased at a rate of 1.6 % per year ***(American cancer society, 2011).*** Nowadays, the estimated new cases per year are 746,000 cases in men and about 614,000 cases in women. This represents 10% of total cancers in men and 9.2 % of total cancers in women ***(Ferlay et al., 2015).***

In Egypt, The incidence is estimated to be around 2.5 per 100,000 ***(Ibrahim et al.,2014)*** with male to female ratio 3: 1 ***(Mahfouz et al.,2014).***Moreover, patients under age of 40 reported relatively higher rates than those in the United States for the same age group (***Gado et al., 2014)***.

Despite the progress made in the last few years in its management, it still remains a major health problem ***(Yan et al., 2016).*** And a leading cause of cancer-related morbidity and mortality worldwide***(Ho MY et al., 2016).***