Detection of Aberrant Promoter Methylation of Retinoic Acid Receptor Gene (RAR) in the Urine of Bladder Cancer Patients

Thesis
Submitted for fulfillment of master degree
In biochemistry

By

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Ahmed Ibrahim Abdel Fattah Nossier

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List of abbreviations

5-ALA	5-aminolevulinic acid
ABP	4-aminobiphenyl
AF	Activation function domain
AJCC	American Joint Committee on Cancer
AP-1	Activating protein-1
APC	Adenomatous polyposis coli gene
bp	base pair
BPDE	Benzo(a)pyrene diol epoxide
BRCA1	Breast cancer 1 gene
BTA	Bard Tumor Antigen
CDKN2A	Cyclin-dependent kinase 2A
CDKs	Cyclin-dependent kinases
CFH	Complement factor H
CFH-rp	Complement factor H-related proteins
CIS	Carcinoma in Situ
CKs	Cytokeratins

COX-2	Cyclooxigenase-2
CpA	Cytosine phosphodiester Adenine
CpG	Cytosine phosphodiester Guanine
CpT	Cytosine phosphodiester Thymine
CRABP	Cytoplasmic retinoic acid binding protein
CRBP	Cytoplasmic retinol binding protein
CYP1A2	Cytochrome p450 1A2
DAPK	Death-associated protein kinase gene
DBD	DNA-Binding Domain
DMH	Differential methylation hybridization
DNA	Deoxyribonucleic acid
DNMT	DNA methyltransferase
DR	Direct repeat
E-cad	Epithelial cadherin gene
EDNRB	Endothelin receptor B gene
EDTA	Ethylene Diamine Tetra Acetic acid
EGFR	Epidermal growth factor receptor
ELISA	Enzyme Linked Immunosorbent Assay

Erk1/2	Extracellular signal-regulated protein kinases 1 and 2
FDP	Fibrinogen degradation products
FHIT	Fragile histidine triad gene
FISH	Fluorescent in situ hybridization
GSTM1	Glutathione S-transferase M1
GSTP1	Glutathione S-transferase □1 gene
GTFs	General transcription factors
HAase	Hyalourindase
HAT	Histone acetyltransferases
HDAC	Histone deacetylases
HMT	Histone methyltransferase
HPLC	High performance liquid chromatography
HPV	Human papilloma virus
IHA	Indirect Haemagglutination Assay
ISUP	International Society of Urological Pathology

JNK	Jun amino-terminal kinase
LBD	Ligand-Binding Domain
LOH	Loss of heterozygosity
Lys	Lysine
M	Distant metastasis
MAPK	Mitogen-activated protein kinase
MBDs	Methyl-binding domain proteins
MGMT	O(6)-methylguanine-DNA methyltransferase gene
MKK	Mitogen-activated protein kinase kinase
MLH1	MutL homologue 1gene
MMP	Matrix metalloproteinase
Ms–AP–PCR	Methylation-sensitive arbitrarily primed polymerase chain reaction
MSP	Methylation-specific polymerase chain reaction
MTA2	Metastasis-associated protein 2
MUMA	Nuclear mitotic apparatus

N	Regional lymph node metastasis
NAT2	N-acetyltransferase 2
NCI	National Cancer Institute
NCoR	Nuclear receptor corepressor
NMP22	Nuclear matrix protein22
NNCs	N-nitroso compounds
NPV	Negative predictive value
NSCLC	Non-small cell lung cancer
p53	Tumor suppressor gene
PAX6	Paired box transcription factor 6 gene
PBS	Phosphate buffer saline
PCNA	Proliferating cell nuclear antigen
PCR	Polymerase chain reaction
PI-3K	Phosphoinositide-3 kinase
PPV	Positive predictive value
RA	Retinoic acid
RARs	Retinoic acid receptors
RARβ	Retinoic acid receptor β gene
RAREs	Retinoic acid response elements

RASSF1a	Ras association domain family 1A gene
Rb	Retinoblastoma protein
RbAp46/48	Retinoblastoma-associated protein 46/48
RBCs	Red Blood Cells
RLGS	Restriction landmark genomic scanning
RNA	Ribonucleic acid
RNA pol II	RNA polymerase II
RRIG1	Retinoid receptor-induced gene-1
RT-PCR	Reverse transcriptase polymerase chain reaction
RXRs	Retinoid X receptors
SAP18/30	Sin3-associated polypeptides 18/30
SCC	Squamous Cell Carcinoma
SMCC	Srb and Mediator protein containing complex
SMRT	Silencing mediator for retinoid and thyroid hormone receptor
SPSS	Statistical Package for the Social Sciences
T	Size of primary tumors
T.B.E	Trizma. Boric acid .EDTA

TCC	Transitional Cell Carcinoma
TF	Transcription factors
TGS	Transcriptional gene silencing
TPA	Tissue polypeptide antigen
UBC	Urinary bladder cancer
VHL	Von Hippel–Lindau gene
WBCs	White Blood Cells
WHO	World Health Organization
ZF	Zinc-finger domain

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