DETECTION OF GLUTATHIONE-S-TRANSFERASE NULL GENOTYPES IN ACUTE AND CHRONIC MYELOID LEUKAEMIAS

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بسم الله الرحمن الرحيم

"قالوا سبحانك لا علم لنا إلا ما علمتنا إنك أنت العليم الحكيم"

صدق الله العظيم

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Contents

page

List Of Abbreviation

A CML	Atypical CML.
ALL	Acute lymphoblastic leukaemia
AML	Acute myeloid leukaemia.
ANLL	Acute non lymphoblastic leukaemia
AP	Accelerated phase.
APL	Acute promyelocytic leukaemia.
ASCT	Autologus stem cell transplantation.
ATRA	All trans retinoic acid
AUL	Acute undifferentiated leukaemia.
BC	Blastic crisis.
BM	Bone marrow
BC	Blastic crisis.
BCR	Breakpoint cluster region.
Ca	Calcuim.
CAE	Chloroacetate esterase.
CALLA	Common acute lymphoblastic leukaemic antigen
CBC	Complete blood count.
CD	Cluster of differentiation
CDNB	1chloro 2, 4 dinitrobenzene.
CEL	Chronic eosinophilic leukaemia.
CFU	Colony forming unit.
CFU GEMM	Colony forming unit, granulocyte, erythroid &myeloid
CFU GM	Colony forming unit, granulocyte & monocyte
CHR	Complete haematological remission.
CI	Confidence interval.
CIMF	Chronic idiopathic myelofibrosis
CMML	Chronic myelomonocytic leukaemia
CMPD -U	Unclassified chronic myeloproliferative disorders
CNL	Chronic neutrophilic leukaemia.
CR	Complete remission.
Cyt	Cytoplasmic.
DAV	Doxorubucin vincristine .
DIC	Dissiminated intra vascular coagulopathy
DLCL	Diffuse large B cell lymphoma .
DNA	Deoxy ribonucleic acid.
ECM	Extracellular matrix

ELISA	**Enzyme linked immunosorbant assay.**
EM	**Electron microscope.**
ET	**Essential thrombocythaemia.**
FAB	**French American British**
FISH	**Fluorescence In Situ Hybridization**
FLT3	**Fms like tyrosine kinase 3 receptor.**
G CSF	**Granulocyte colony stimulating factor.**
GM CSF	**Granulocyte**
GST	**Glutathione S Transferase**
GSTM1	**Glutathione s Transferase-Mu**
GSTT1	**Glutathione s Transferase-Theta**
Hct	**Haematocrit value.**
HES	**Hyper eosinophilic syndrome**
HGFs	**Haematopoietic growth factors.**
HLA	**Human leukocyte antigen.**
HPLC	**High performance liquid chromatography.**
Ig	**Immunoglobulin.**
IL1	**Interleukin one**
IL4	**Interleukin four**
IL5	**Interleukin five**
IL6	**Interleukin six**
IL7	**Interleukin seven**
INF-α	**Interferon-α.**
IR	**Incomplete remission.**
JCML	**Juvenille CML.**
LDH	**Lactate dehydrogenase.**
LM	**Light microscope.**
MCD	**Mast cell disease.**
MCS	**Monocyte colony stimulating factor**
MDS	**Myelodysplastic syndrome.**
Mg Cl	**Magnesuim chloride.**
MMM	**Myelosclerosis with myeloid metaplasia**
MPD	**Myeloproliferative disorders.**
MPO	**Myeloperoxidase**
MRD	**Minimal residual disease.**
NAP	**Neutrophil alkaline phosphatase**
NEC	**Non erythroid cell.**

NK	**Natural killer.**
NSE	**Non specific esterase.**
OR	**Odd's ratio.**
PAH	**Polycyclic aromatic hydrocarbons.**
PAS	**Periodic acid Schiff.**
PB	**Peripheral blood**
PCR	**Polymerase chain reaction.**
Ph. Chromosome	**Philadelphia chromosome**
PV	**Polycythaemia Vera.**
RB	**Retinoblastoma.**
RBC	**Red blood cells.**
ROS	**Reactive oxygen species.**
SBB	**Sudan black B.**
SCF	**Stem cell factor.**
SD	**Standard deviation.**
SDS PGAGE	**Soduim Diacyl Sulphate** **Polyacrylamide Gel Electrophoresis.**
Sm	**Surface membrane.**
SPSS	**Statistical Package for the Social Science.**
SWOG	**South west oncology group**
t AML	**Therapy related AML.**
Taq	**Thermus aquaticus**
TdT	**Terminal deoxy nucleotydyl transferase.**
UAL	**Undifferentiated acute leukaemia.**
WBC	**White blood cells**
WT1	**Wilm's tumour gene.**

List of Tables

List of Figures

Abstract

Glutatione-S-transferases (GSTs) are xenobiotic metabolizing enzymes contributing to the detoxification of activating carcinogens as environmental pollutants, benzopyrenes and other polyaromatic hydrocarbons. Inherited differences in the capacity of these enzymes might be an important genetic factor leading to susceptibility to cancer **.**

Glutathione-S-transeferases (GSTs) have been implicated as susceptibility genes in this context for a number of cancers including hematological malignancies like AML – CML **.** Individuals carrying less efficient alleles of detoxifying genes, vary in their ability to metabolize carcinogens and hence to detoxify chemicals, leading to different risk in getting cancer **..**

Myloid leukaemias are heterogenous diseases which are subdivided into acute and chronic myeloid leukaeimas. Acute myeloid leukaemia is neoplastic proliferation in haematopoietic precursor cells, resulting in overgrowth of myeloblast and other immature myeloid cells. The malignant cells replace the bone marrow, circulate in the blood and may accumulate in other tissues**.**

Acute myeloid leukaemia (AML) in adults has a 20% 5-years disease-free survival, despite treatment with aggressive cytotoxic chemotherapy. For several decades AML has been characterized on the basis of morphology, special stain, cytogenetics, and cell surface markers. However, recent studies on molecular characterization of