DETECTION OF IMMUNOGLOBULIN AND T-CELL RECEPTOR GENE REARRANGEMENTS IN LYMPHOPROLIFERATIVE DISORDERS

Thesis
Submitted for Partial Fulfillment of The M.D. Degree
In
Clinical Pathology

By

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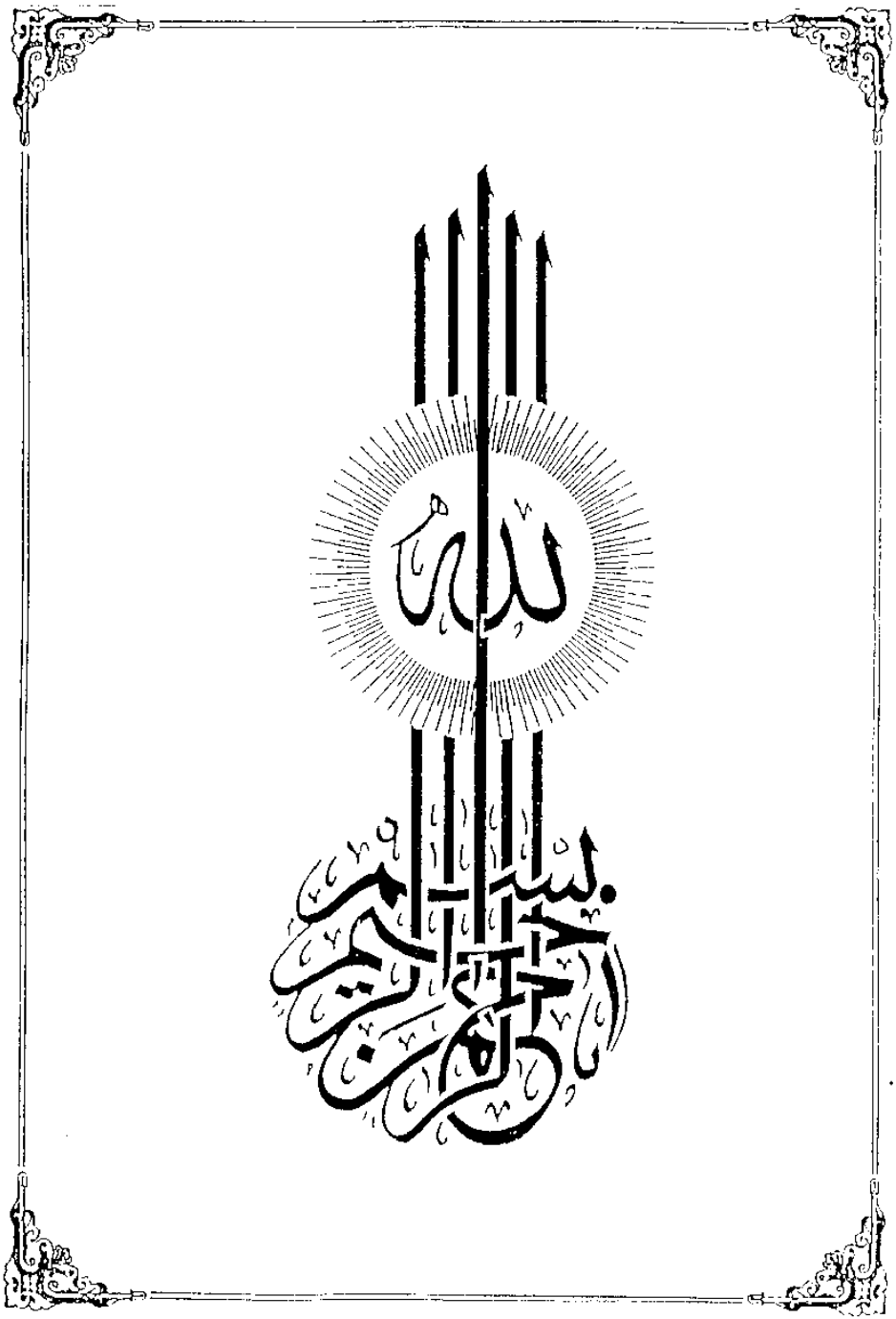
بسم اللّه الرحمن الرحيم

قالوا سبحانك لا علم لنا الا
ما علمتنا إنك أنت العليم
الحكيم

صدق اللّه العظيم

سورة البقرة الآية ٣٢



Acknowledgments

I would like to express my deepest gratitude to ***Prof. Sawsan Abd El-Moety Fayad****, Professor and Head of Clinical Pathology Department, Ain Shams University for precious guidance and continuous encouragement. I must admit that I consider myself very fortunate and I am proud to have worked under her supervision.*

I wish to offer my thanks to ***Dr. Mahmoud Mohamed Refaat****, Senior Scientist, Agricultural Genetic Engineering Research for his valuable instructions and honest assistance throughout this work.*

No words can express my appreciation to ***Dr. Azza Sadek El-Danasoury****, Assistant Professor of Clinical Pathology, Ain Shams University for her constant advice, valuable assistance, and illuminating remarks. Without her kind support, this work would not have come to light.*

I also want to thank **Dr. Manal Mohamed El-Masry**, *Lecturer of Clinical Pathology, Cairo University for her valuable support.*

I also want to thank **Dr. Nahela Ahmed Shalaby**, *Lecturer of Clinical Pathology, Ain Shams University for her kind supervision and precious assistance.*

I am also indebted to my family for their kindness, support and encouragement.

Last but not least, I am much grateful to my husband **Dr. Mohamed Amin** *Assistant Professor of Clinical Pathology, Ain Shams University for his continuous support, kind supervision, and constant advice.*

It is to them all this work is dedicated.

The recent availability of molecular probes for human Ig and TCR genes has introduced to investigate clonality and lineage in lymphoid proliferation. The aim of this work was to compare the frequency and pattern of Ig and TCR gene rearrangements in a variety of human lymphoma and lymphoid leukemias by Southern blot technique. The study included 32 patients with lymphoid malignancy as well as 10 controls. 14 patients were positive for IgH, 7 for TCR, and 4 for both. Thus monoclonality could be established by gene rearrangement in 25 patients (78.1%). Seven cases with malignant lymphoid diseases failed to show rearrangement.

It is concluded that analysis of Ig and TCR gene rearrangement by SB assay provides a valuable adjunct for diagnosis of lymphoproliferative diseases and detection of clonality in most cases.

** germline — non tumor cells (normal) ... ed
— ... oncogenic ... in tumor cell

** ... disease ... ↑ ... to develop ...

** ... ↑ ... ... ID

** failure → same size as (G) ...
→ appropriate probe
→ light chain ... is more sensitive
→ incorrect ID
→ clone ↓ sensitivity

fewer probes ... ↑ ... stringency of guidelines ... of T cells

** false +ve ! → cross hybr → to homologous DNA (...)
→ partial digest.
→ early clonal lymphoid proliferation.

** Ant ! → accessibility of both Ig q TCR for common recombinase
(in active D-J r ... a partial
occur during tumor progression
(cell which ... ... to ... ... lineage)
different step

** gene rearrangement → ... ...

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LIST OF ABBREVIATIONS

ALL	*Acute lymphoblastic leukemia*
AML	*Acute myeloblastic leukemia*
BM	*Bone marrow*
bp	*Base pair*
C	*Constant region*
CLL	*Chronic lymphocytic leukemia*
D	*Diversity region*
DNA	*Deoxy-ribonucleic acid*
FCM	*Flow cytometry*
FITC	*Fluorescene-isothiocyanate*
Hb	*Haemoglobin*
IgH	*Immunoglobulin heavy chain*
J	*Joining region*
JH	*Joining region of immunoglobulin heavy chain*
MHC	*Major histocompatibility complex*
mRNA	*Messenger ribonucleic acid*
NHL	*Non-Hodgkin' s lymphoma*
PB	*Peripheral blood*
PCR	*Polymerase chain reaction*
PE	*Phycoerythrin*
RAG 1&2	*Recombination-activation genes 1&2*
RNA	*Ribonucleic aicd*
SB	*Southern blot*
sIg	*Surface immunoglobulin*
TCR-β	*Beta chain of T-cell receptor*
TLC	*Total leucocytic count*
tRNA	*Transfer ribonucleic acid*
V	*Variable region*
κ	*Kappa light chain*
λ	*Lambda light chain*

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