

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

Thesis

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By

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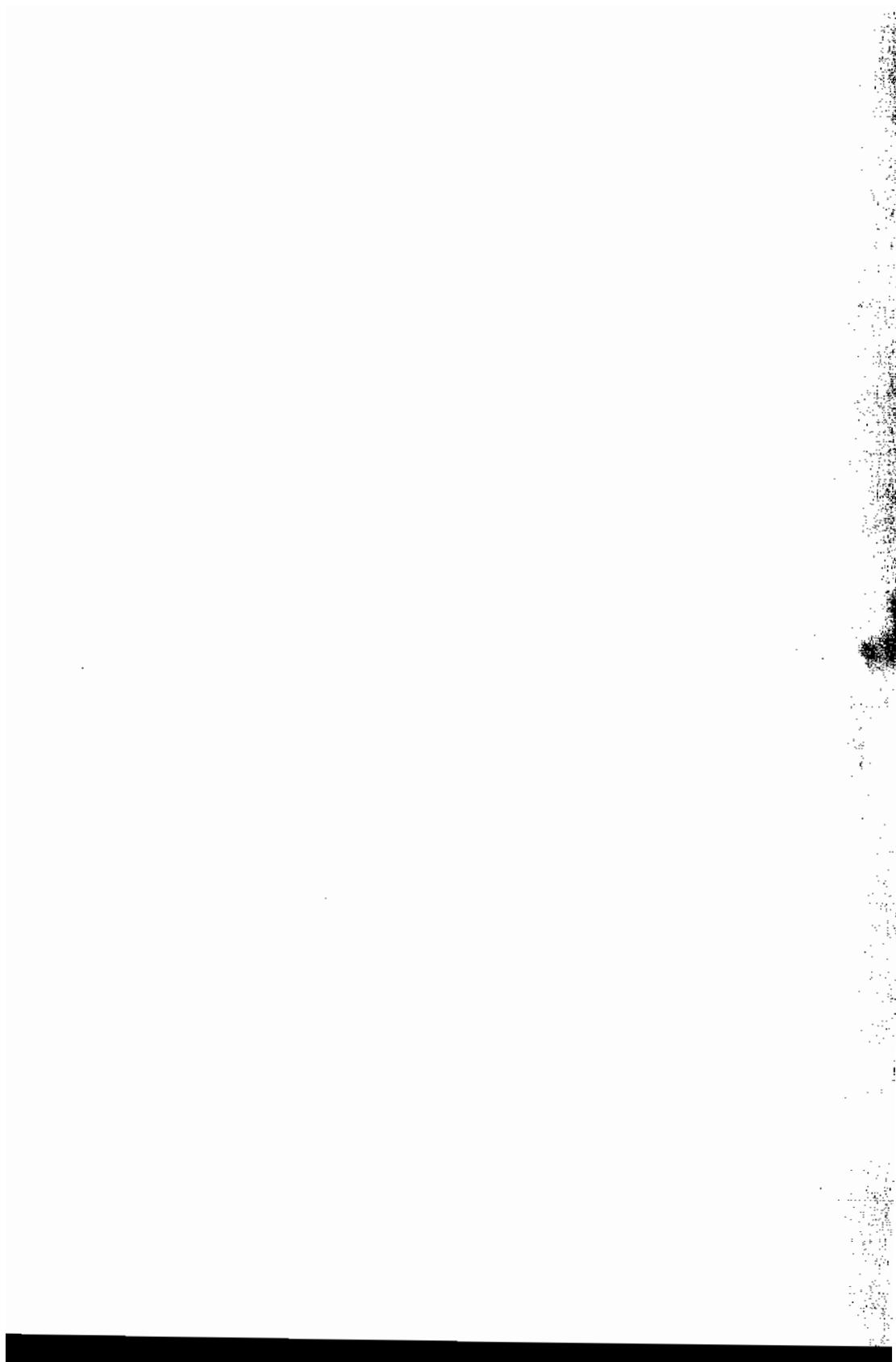
بسم الله الرحمن الرحيم

**قالوا سبحانك لا علم لنا الا
ما علمتنا انك انت العليم
الحكيم**

صدق الله العظيم

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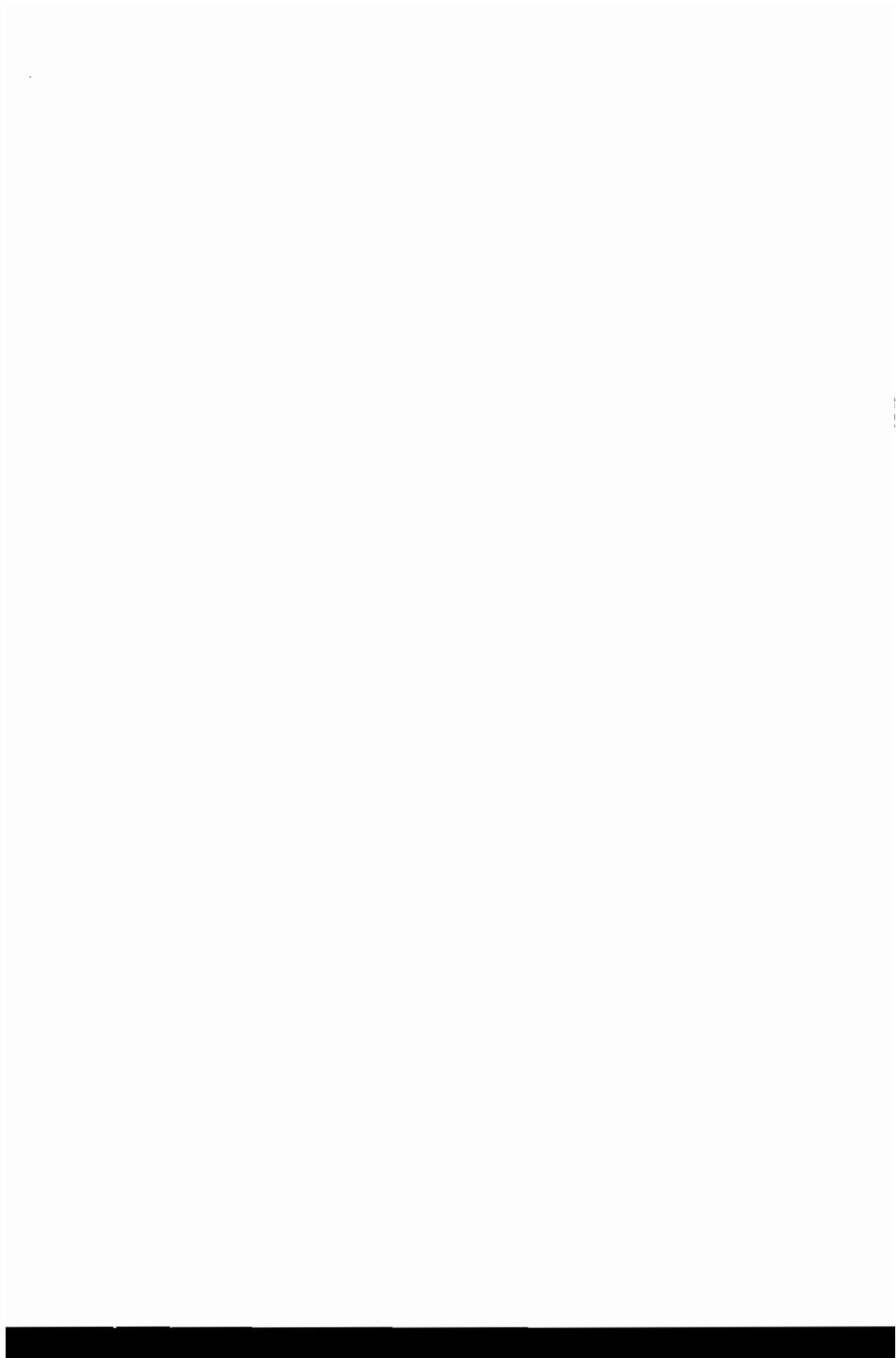
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It is to them all this work is dedicated.

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.

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.



XX germline → unchanged outside in Tumor cells
 non-tumor cells (normal) →

XX All derived info is 1 copy to develop it

XX diploid 1 and instead 2 copies of ID

XX feature → same size as (G) copy
 → appropriate probe
 → light chain PCR is more sensitive
 → incorrect ID
 → clone ↓ sensitivity

Lower process → stable →
 Stringency of guidelines →
 % of T cells

XX feature → cross hybrid → to homologous DNA (Pseudo)
 → partial digest
 → early clonal lymphoid precursor

XX feature → accessibility of both Ig & TCR for
 common recombination
 (in case of V → must a partial
 occur during Tumor progression
 (cell when partial to switch to
 other lineage)
 → different step

XX gene rearrangement → (PCR) →

gene, antibody, between 3' & 5'

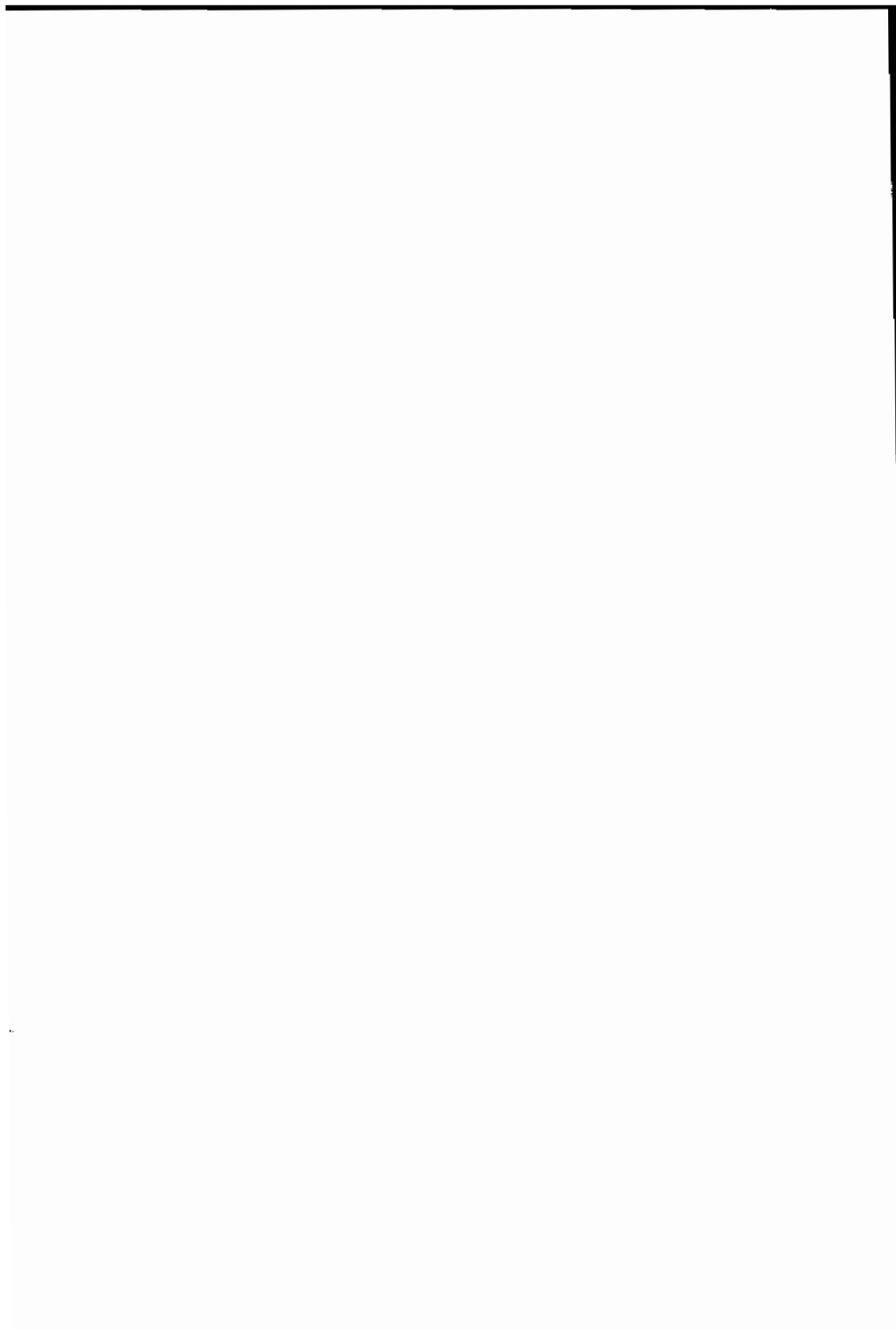
مراجعة نهائية

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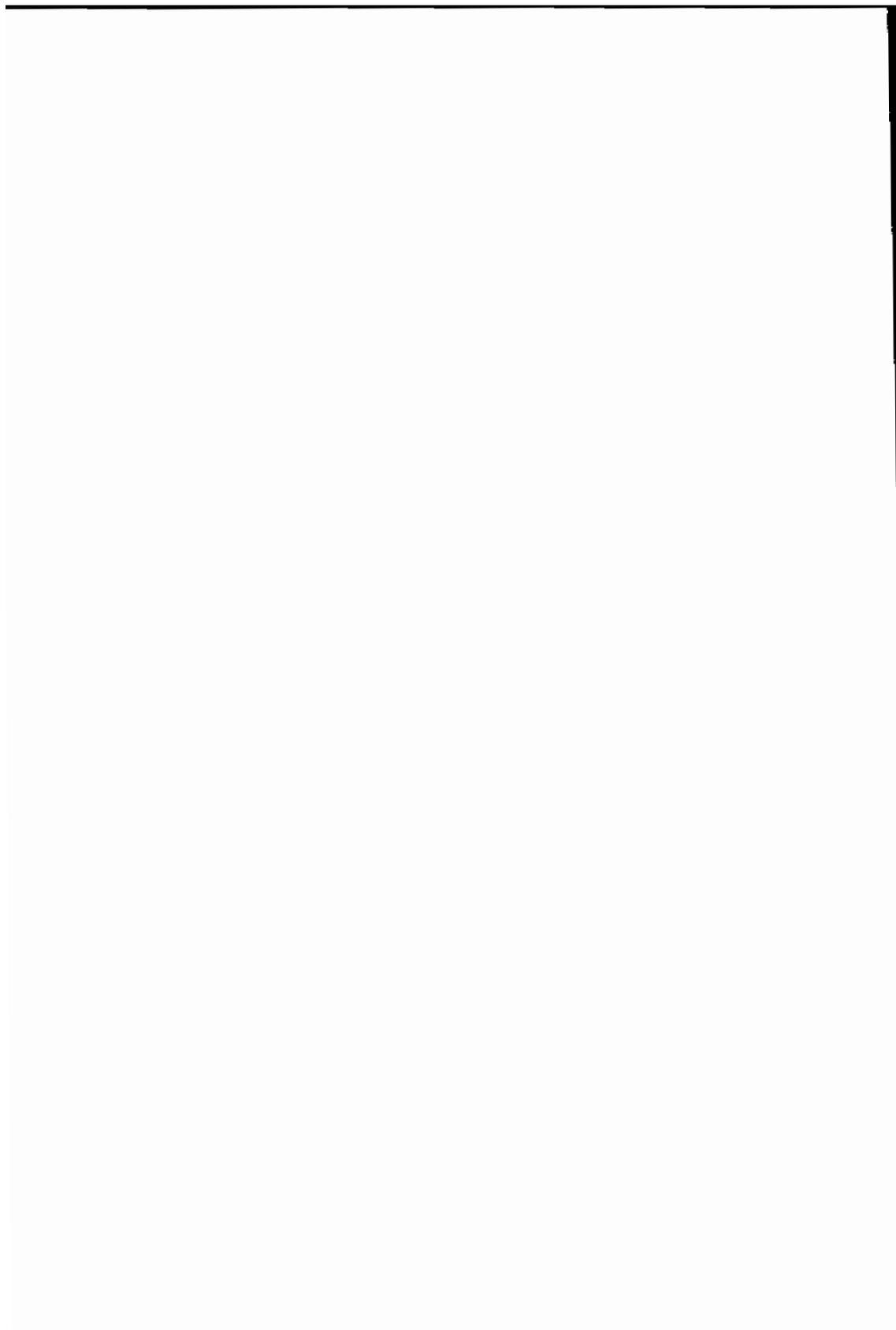
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Arabic Summary! *ملخص عربي*



LIST OF ABBREVIATIONS

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



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