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Design and Synthesis of Novel Imatinib Analogs as Antitumor Multi-target Kinase Inhibitors

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MSc in (Pharmaceutical Sciences), 2013

Submitted for partial fulfillment of PhD degree in Pharmaceutical Sciences (Pharmaceutical Chemistry)

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Cairo, 2018

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بسم الله الرحمن الرحيم

Acknowledgement

First of all, I would like to express my sincere thanks to Allah for helping me to successfully complete such study.

I wish to express my great thanks and feeling of gratitude to Professor Dr. Khaled A. M. Abouzid, Professor of Pharmaceutical Chemistry & Head of Pharmaceutical Chemistry department, for setting this creative idea for research and for his scientific supervision, valuable assistance, continuous help and encouragement, kind direction, innovative ideas throughout the whole practical work and during writing this thesis.

I would like to express my sincere appreciation and deepest gratitude to Professor Dr. Khairia M. Youssef; Professor of Pharmaceutical Organic Chemistry, faculty of Pharmaceutical Sciences and Pharmaceutical Industries, Future University in Egypt, for her encouragement, guidance, and motivation, and I would like to thank her being the first who enabled me to develop an understanding of the pharmaceutical chemistry concepts and was with me hand by hand in each step throughout the whole work. I am really honored to be one of her students.

I am extremely grateful and thankful to Professor Dr. Nasser Saad Mohammed for his great sincere collaboration and throughout the whole work, during writing and during revising this thesis. He was never tired from the continuous help and his persistent urge to drive me to success.
I would also like to thank Associate Professor Dr. Deena S. Lasheen, for her continuous interest, collaboration, assistance and her great efforts all the way through research and her scientific advices which helped this work to come out in its final comprehensive and valuable form.

My thanks to my colleagues and to the whole staff in the pharmaceutical chemistry department and in the faculty of pharmaceutical sciences and pharmaceutical industries in Future University for their great help, advice and support. I would also like to thank Future University for funding my research.

Last, no words could ever express my profound appreciation and sincere thanks and gratefulness to my mother, my father, my husband, my beloved child and all the members of my family for their encouragement, assistance and love during my work in this thesis.

Contents

List of Figures

List of Graphs

List of Tables

List of Abbreviations

7-AAD:	7-aminoactinomycin-D
aa:	Amino acids
Aβ40/42:	Amyloid beta isoforms 40 and 42
ACS	American Cancer Society
ADMET:	Absorption, Distribution, Metabolism, Execretion, Toxicity
AIF:	Apoptosis Inducing Factor
Akt:	AKT8 virus oncogene cellular homolog
ALK	Activin-Like Kinase
ALL:	Acute Lymphoblastic Leukemia
APAF-1:	Apoptotic Protease Activating Factor 1
APO-1:	Apo-enzyme/ Apolipoprotein
APP-695:	Amyloid protein precursor-695
ARD:	Caspase activation and recruitment domain
ATP:	Adenosine Tri-Phosphate
AXL:	Receptor tyrosine kinase
Bax:	BCL (B Cell Lymphoma)-Associated X protein
BBB:	Blood Brain Barrier
BCG:	Bacillus Calmette-Guérin
Bcl-2:	B cell leukemia 2 protein
Bcl-xL:	B cell leukemia extra large
Bcr-Abl:	Ableson leukemia oncogene cellular homolog
BH3:	Bcl-2 Homology-3
BID:	A BH3 domain-only death agonist protein
BM	Bone marrow
BRAF:	B cell receptor activating factor of TNF family
BSA:	Bovine serum albumin
BTK:	Bruton's tyrosine kinase
CASP3:	Caspase 3 gene
CD95:	Cyclin Dependent 95
CDK-4:	Cyclin dependent kinase-4
CH_2Cl_2:	Methylene Chloride
c-IAP1:	Cellular inhibitor of apoptosis protein 1
c-IAP2:	Cellular inhibitor of apoptosis protein 2
c-Met:	Tyrosine protein kinase Met
CK:	Casein Kinase

CK1:	Casein Kinase 1
CK1 I:	Casein Kinase 1 inhibitors
CMGC:	Kinase Group CMGC
CML:	Chronic Myeloid Leukemia
CNS:	Central Nervous System
CrKl:	CT10 sarcoma oncogene cellular homolog
CSF-1R:	Colony Stimulating Factor Receptor-1
CYP 171A1 inhibitor:	Cytochrome P 171A1 inhibitor
CYP 450:	Cytochrome P450
D_2O:	Deuterium Oxide
DAPI:	4’6’-diamidino-2-phenylindole
DCC:	N,N’Dicyclohexylcarbodiimide
DD:	Death Domain
DDR:	Death Domain Receptor
DDX3:	Death Domain X3
DED:	Death Effector Domain
DFG:	A general molecular framework that defines a type II inhibitor consists of a heterocyclic “head” group that recognizes the kinase hinge region, an amide or a urea based linker that traverses across the kinase “gatekeeper” residue, and a “tail” scaffold that occupies the hydrophobic allosteric pocket created by the flip
DIABLO:	(Direct IAP binding protein with low pI) gene on chromosome 12
DISC:	Death-Initiating Signaling Complex
DMAP:	4-dimethylaminopyridine
DNA:	Deoxyribonucleic acid
DRD:	Death receptor dependent
DTP:	Developmental Therapeutic Program
DTT:	Dithiothreitol also known as Cleland's reagent
DVL:	Dishevelled 1 (Homologous to Drosophila Dsh)
EGFR:	Epidermal Growth Factor Receptor
Endo G:	Endonuclease G
ERBB2:	Erythroblast oncogene B, a gene isolated from avian genome
ERK 1/2:	Extracellular signal regulated kinase
FADD:	Fas-associated protein with death domain
FAK:	Focal adhesion kinase
Fas:	TNF superfamily receptor 6

FDA:	Food and Drug Administration
FGF:	Fibroblast Growth Factor
FLASH	Proapoptotic Protein Involved in Activation of Caspase-8
FZD:	Wnt-protein ligand to a Frizzled family
GCT:	Giant Cell Tumor cells
GPCR:	G-protein coupled receptor
Grb2:	Growth factor receptor-*bound* protein 2
HBA:	Hydrogen Bond Acceptors
HBTU:	Hexafluorophosphate Benzotriazole Tetramethyl Uronium
HEI-193	Human Vestibular Schwannoma cells
HL60:	Acute Myeloid Leukemia
HMC-1	Human Mast Cell line-1
HMG-CoA synthetase:	High mobility group-CoA synthetase
HOBT:	1-hydroxybenzotriazole
Hsp10:	Heat shock protein 10
Hsp60:	Heat shock protein 60
HtrA2:	High temperature requirement serine protease A2
IAPs:	Inhibitors of Apoptosis Proteins
IGFR:	Insulin-like Growth Factor Receptor
IKKβ:	IκB kinase
JAK:	Janus family tyrosine kinase
JNK:	Jun N-terminal kinase
K562:	First human immortalised myelogenous leukemia line (erythroleukemia)
KD:	Kinase domain
kDa:	Kilo Dalton
KG1a:	Human Leukemia Stem-like cell line
KIT:	Human gene of receptor tyrosine kinase
LBD:	Ligand Binding Domains
LEDs	Light-emitting diodes
LMP:	lysosomal membrane permeabilization
LRP:	Leucine-responsive Regulatory Protein
Lu:	Luminescence Intensity in the presence of the compound
Luc:	Luminescence Intensities in the presence of Kinase
Lu_t:	Luminescence Intensities in the absence of Kinase
MCF-7:	Breast cancer cell line