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Indian Institute of Technology  
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It is certified that the work contained in the thesis titled “**Exploring the multi-target profiling of novel ligands of therapeutic utility for Alzheimer’s Disease**” by **Mr. Gopichand Gutti** has been carried out under my supervision and that this work has not been submitted elsewhere for a degree.

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**(Supervisor)**

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- ❖ Science is a beautiful gift to humanity; we should not destroy it.
- ❖ The best brains of the nations may be found on the last benches of the classrooms.

-Dr. APJ Abdul Kalam

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(Gopichand Gutti)

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## List of Abbreviations

<b>Abbreviations</b>	<b>Full Form</b>
AChE	Acetylcholinesterase
AD	Alzheimer's disease
ADME	Absorption, Distribution, Metabolism, and Excretion
BBB	Blood-Brain Barrier
BuChE	Butyrylcholinesterase
CHCl <sub>3</sub>	Chloroform
CDCl <sub>3</sub>	Deuterated Chloroform
CuI	Copper iodide
CC <sub>50</sub>	Cytotoxic concentration required to kill 50% of the population
ChE	Cholinesterase
DL	Druglikeness
DCCD	N, N-Dicyclohexylcarbodiimide
DMF	Dimethylformamide
DCM	Dichloromethane
DIPEA	Diisopropylethylamine
DMSO	Dimethyl sulfoxide
DMSO-D6	Deuterated Dimethyl sulfoxide
EPS	Extrapyramidal side-effects
EMEM	Eagle's Minimal Essential Medium
Et <sub>3</sub> N	Triethylamine
EtOH	Ethanol
HTS	High Throughput Screening
HBA	Hydrogen Bond Acceptor
HBD	Hydrogen Bond Donor
IC <sub>50</sub>	Inhibitory concentration required to kill 50% of the population
K <sub>2</sub> CO <sub>3</sub>	Potassium carbonate
KOH	Potassium hydroxide

LD <sub>50</sub>	Median lethal dose
LTP	Long term potentiation
LTD	Long term depression
MTDLs	Multi-target directed ligands
MTT	3-(4,5-dimethyl-2-thiazolyl)-2,5-diphenyl-tetrazolium bromide
MeOH	Methanol
NMDAR	N-methyl-D-aspartate receptor
NMR	Nuclear Magnetic Resonance
NaCl	Sodium chloride
PAMPA	Parallel Artificial Membrane Permeability Assay
PDB	Protein Data Bank
PBL	Porcine Brain Lipid
Pe	Permeability
RMSD	Root Mean Square Deviation
SI	Selectivity Index
SAR	Structure-Activity Relationship
SEM	Standard Error of the Mean
SE	Standard error
TFA	Trifluoroacetic acid
TGI	Total Growth Inhibition
TLC	Thin-Layer Chromatography
TSA	Total Surface Area
TPSA	Topological Polar Surface Area
THF	Tetrahydrofuran
US-FDA	United States- Food and Drug Administration
UV	Ultraviolet
WHO	World Health Organization
3D	Three-Dimensional
5-HT	5-hydroxytryptamine

## List of Symbols

<b>Symbols</b>	<b>Meaning</b>
$\alpha$	Alpha
$\beta$	Beta
$\delta$	Delta
$\varepsilon$	Epsilon
$^{\circ}\text{C}$	Degree Celsius
$\text{\AA}$	Angstrom
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g	Gram; Gravitational force
mg	Milligram
$\mu\text{g}$	Micro gram
ng	Nano gram
$\mu\text{M}$	Micro Mole
nM	Nano Mole
mmol	Milli Mole
mL	Milliliter
$\mu\text{L}$	Microliter
mV	Millivolt
h	Hour
s	Second; Singlet
nm	Nanometer
$\mu\text{m}$	Micrometer
mm	Millimeter
cm	Centimeter
ppm	Parts per million
rpm	Revolutions per minute
Kcal	Kilocalories
Hz	Hertz
MHz	Megahertz
$J$	Coupling constant

d	Doublet
m	Multiplet
dd	Doublet of doublet
<i>m/z</i>	Mass to charge ratio
%	Percent
pH	Potential of hydrogen
≤	Less than or equal
<	Less than
>	More than
±	Plus or minus