## Free Radical Pathology in Neuropsychiatric Disorders

Essay submitted for partial fulfillment of the M.Sc. Degree in Neuropsychiatry

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Under the supervision of

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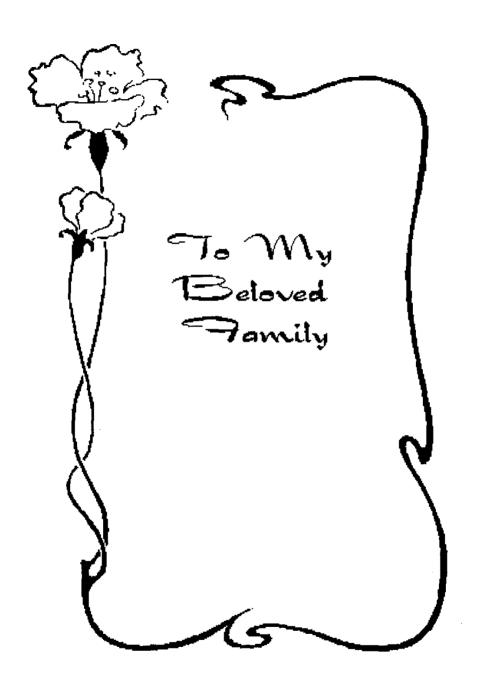
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يسم الله الرحمن الرحيم قالوا سبحانك لا عليم لفا إلا ما عليم تفا إلا ما عليم تفا إلا ما عليم تفا إنك أفت العليم الحكيم صدق الله العظيم صدق الله العظيم (سورة البقرة الاية ٣٢)





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## Rist of Abbreviations

2-TBA: 2-thiobarbituric acid 6-OHDA: 6-Hydroxydopamine

AB: amyloid-β-peptide

AIMS: abnormal involuntary movement scale

ALS: Amyotrophic lateral sclerosis

AMPA/kainate receptor: alpha-amino-3-hydroxy-5methyl-4-isoxazole proprionic acid/kainate receptor

APP: amyloid precursor protein ATP: Adenosine triphosphate

BIDIP: 1,3 bis(dimethylamino)-2-propanol

Ca<sup>2+</sup>: calcium
CI: chloride

Co-Q: co-enzyme Q

CPH: centrophenoxine

CSF: cerebrospinal fluid

CT: computerized tomography

Cu(I): cuprous Cu(II): cupric

Cu-Zn SOD: copper-zinc superoxide dismutase

DMAE: dimethyl-amino-ethanol

DNA: Deoxyribonucleic acid EAA: excitatory amino acid

EDRF: endothelium derived relaxing factor

EpR: electron paramagnetic resonance

ESR: electron spin resonance

Fe<sup>2+</sup>: ferrous Fe<sup>3+</sup>: ferric

GABA: gamma-amino butyric acid

GSH: glutathione peroxidase

GSSG: oxidized glutathione GTP: guanine triphosphate

H<sub>2</sub>O: water

H<sub>2</sub>O<sub>2</sub>: hydrogen peroxide

IREs: iron-responsive elements

IRF: Iron regulatory factor

IU: International unit

K+: potassium

MAO: mono-amine oxidase

Mn-SOD: manganese superoxide dismutase

MPP+: 1-methyl-4-phenyl pyridine

MPTP: 1-methyl-4-phenyl-1,2,3,6-tetrahydropyridine

MRI: magnetic resonance imaging mRNA: Messenger ribonucleic acid

mtDNA: mitochondrial DNA

Na<sup>+</sup>: sodium

NADPH: nictoinamide-adenine dinucleotide

phosphate

nDNA: nuclear DNA

NH3: Ammonia

NMDA: N-methyl-D-aspartate

NO': nitric oxide

NOS: nitric oxide synthase

NSAIDs: non steroidal anti-inflammatory drugs.

O2: Molecular oxygen

 $O_2^-$ : Superoxide

OH\*: hydroxyl radical ONOO\*: peroxynitrite

ONOOH: peroxynitrous acid OOH\*: perhydroxyl radical PBN: phenyl butyl nitrone PrPc: Prion protein

RAGE: receptor for advanced glycation end products.

RO\*: alkoxy radical
ROO\*: peroxy-radical

SOD: superoxide dismutase

TBARS: thiobarbituric acid reactive substances.

VTA: ventral tegmental area



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