4-(2-(3-azabicyclo[3.1.0]hexan-3-ylmethyl)-4-(4-chlorophenyl)thiazol-5-yl)benzenesulfonamide;

4-(4-(4-chlorophenyl)-2-((2-oxopyrrolidin-1-yl)methyl)thiazol-5-yl)benzenesulfonamide;

4-(4-(4-chlorophenyl)-2-((2-oxopyrrolidin-1-yl)methyl)thiazol-5-yl)-3-fluorobenzenesulfonamide;

4-(4-(4-chlorophenyl)-2-((2-oxopiperidin-1-yl)methyl)thiazol-5-yl)benzenesulfonamide; and

4-(4-(4-chlorophenyl)-2-(4-phenylpiperidin-1-yl)thiazol-5-yl)benzenesulfonamide.

12. A pharmaceutical composition comprising a compound of claim 1, a tautomeric form, a stereoisomer, or a pharmaceutically acceptable salt thereof, and a pharmaceutically acceptable carrier.

13. A pharmaceutical composition comprising a compound of formula 1, a tautomeric form, a stereoisomer, or a pharmaceutically acceptable salt thereof, for ~~method of~~ treating a disease or disorder or condition mediated partially or completely by nicotinic acetylcholine receptors ~~in a subject in need thereof, comprising administering to the subject a therapeutically effective amount of a compound of formula I, a tautomeric form, a stereoisomer, or a pharmaceutically acceptable salt thereof~~,

when the heterocyclic group is substituted, it can be substituted either on a ring carbon atom or on a ring hetero atom, when it substituted on a ring carbon atom, it is substituted with 1-3 substituents selected independently from halogen, nitro, cyano, oxo, substituted- or unsubstituted- alkyl, perhaloalkyl, substituted- or unsubstituted-cycloalkyl, substituted- or unsubstituted- aryl, substituted- or unsubstituted- heteroaryl, substituted- or unsubstituted- heterocyclyl, $R^{8b}O$-, $R^{8c}OC(=O)$-, $R^{8c}C(=O)O$-, $R^{8d}N(H)C(=O)$-, $R^{8d}N(alkyl)C(=O)$-, $R^{8c}C(=O)N(H)$-, $R^{8d}N(H)$-, $R^{8d}N(alkyl)$-, $R^{8d}N(H)C(=O)N(H)$-, and $R^{8d}N(alkyl)C(=O)N(H)$-; when the 'heterocyclic' group is substituted on a ring nitrogen, it is substituted with a substituent selected from substituted- or unsubstituted- alkyl, substituted- or unsubstituted-cycloalkyl, substituted- or unsubstituted- aryl, substituted- or unsubstituted- heteroaryl, $R^{8a}S(O_2)$-, $R^{8a}C(=O)$-, $R^{8a}OC(=O)$-, $R^{8}N(H)C(=O)$-, and $R^{8}N(alkyl)C(=O)$-;

R^{8} is selected from hydrogen, alkyl, cycloalkyl, aryl, heteroaryl, and heterocyclyl;

R^{8a} is selected from alkyl, perhaloalkyl, cycloalkyl, aryl, heteroaryl, and heterocyclyl;

R^{8b} is selected from hydrogen, alkyl, perhaloalkyl, cycloalkyl, aryl, heteroaryl, and heterocyclyl;

R^{8c} is selected from alkyl, perhaloalkyl, and cycloalkyl; and

R^{8d} is selected from hydrogen, alkyl, and cycloalkyl.

14. The pharmaceutical composition comprising a compound of the formula I, a tautomeric form, a stereoisomer, or a pharmaceutically acceptable salt thereof, as claimed in ~~method of~~ claim 13, wherein the disorder or condition or disease is selected from Alzheimer's disease, mild cognitive impairment, senile dementia, vascular dementia, dementia of Parkinson's disease, attention deficit disorder, attention deficit hyperactivity disorder, dementia associated with Lewy bodies, AIDS dementia complex, Pick's

disease, dementia associated with Down's syndrome, Huntington's disease, cognitive deficits associated with traumatic brain injury, cognitive decline associated with stroke, poststroke neuroprotection, cognitive and sensorimotor gating deficits associated with schizophrenia, cognitive deficits associated with bipolar disorder, cognitive impairments associated with depression, acute pain, post-surgical or post-operative pain, chronic pain, inflammation, inflammatory pain, neuropathic pain, smoking cessation, need for new blood vessel growth associated with wound healing, need for new blood vessel growth associated with vascularization of skin grafts, and lack of circulation, arthritis, rheumatoid arthritis, psoriasis, Crohn's disease, ulcerative colitis, pouchitis, inflammatory bowel disease, celiac disease, periodontitis, sarcoidosis, pancreatitis, organ transplant rejection, acute immune disease associated with organ transplantation, chronic immune disease associated with organ transplantation, septic shock, toxic shock syndrome, sepsis syndrome, depression, and rheumatoid spondylitis.

15. The pharmaceutical composition comprising a compound of formula I, a tautomeric form, a stereoisomer, or a pharmaceutically acceptable salt thereof, as claimed in ~~method of~~ claim 13, wherein the disease or disorder or condition is selected from the group classified or diagnosed as major or minor neurocognitive disorders, or disorders arising due to neurodegeneration.

16. The pharmaceutical composition comprising a compound of formula I, a tautomeric form, a stereoisomer, or a pharmaceutically acceptable salt thereof, as claimed in ~~method of~~ claim 13, comprising administering a compound of formula I, a tautomeric form, a stereoisomer, or a pharmaceutically acceptable salt thereof, in combination with or as adjunct to medications utilized in the treatment of attention deficit hyperactivity disorders, schizophrenia, cognitive disorders such as Alzheimer's disease, Parkinson’s dementia, vascular dementia or dementia associated with Lewy bodies, or traumatic brain injury.

17. The pharmaceutical composition comprising a compound of formula I, a tautomeric form, a stereoisomer, or a pharmaceutically acceptable salt thereof, as claimed in ~~method of~~ claim 13 or 14, further comprising administering a compound of formula I, a tautomeric form, a stereoisomer, or a pharmaceutically acceptable salt thereof, in combination with or as an adjunct to acetylcholinesterase inhibitors, disease modifying drugs or biologics for neurodegenerative disorders, dopaminergic drugs, antidepressants, or a typical or an atypical antipsychotic.