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(54) Title: 3-SUBSTITUTED 1,2,3-TRIAZIN-4-ONE'S AND 3-SUBSTITUTED 1,3-PYRIMIDINONE'S FOR ENHANCING GLUTAMATERGIC SYNAPTIC RESPONSES

(57) Abstract: This invention relates to compounds, pharmaceutical compositions and methods for use in the prevention and treatment of cerebral insufficiency, including enhancement of receptor functioning in synapses in brain networks responsible for basic and higher order behaviors. These brain networks, which are involved in regulation of breathing, and cognitive abilities related to memory impairment, such as is observed in a variety of dementias, in imbalances in neuronal activity between different brain regions, as is suggested in disorders such as Parkinson's disease, schizophrenia, respiratory depression, sleep apneas, attention deficit hyperactivity disorder and affective or mood disorders, and in disorders wherein a deficiency in neurotrophic factors is implicated, as well as in disorders of respiration such as overdose of an alcohol, an opiate, an opioid, a barbiturate, an anesthetic, or a nerve toxin, or where the respiratory depression results form a medical condition such as central sleep apnea, stroke- induced central sleep apnea, obstructive sleep apnea, congenital hypoventilation syndrome, obesity hypoventilation syndrome, sudden infant death syndrome, Rett syndrome, spinal cord injury, traumatic brain injury, Cheney-Stokes respiration, Ondines curse, Prader-Willi's syndrome and drowning. In a particular aspect, the invention relates to compounds useful for treatment of such conditions, and methods of using these compounds for such treatment.

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