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(54) Title: MODULATION OF EXCITABLE TISSUE FUNCTION BY PERIPHERALLY ADMINISTERED ERYTHROPOIETIN

(57) Abstract

Methods and compositions are provided for protecting or enhancing excitable tissue function in mammals by systemic administration of an erythropoietin receptor activity modulator, such as erythropoietin, which signals via an EPO-activated receptor to modulate the function of excitable tissue. Excitable tissues include central neuronal tissues, such as the brain, peripheral neuronal tissues, retina, and heart tissue. Protection of excitable tissues provides treatement of hypoxia, seizure disorders, neurodegenerative diseases, hypoglycemia, and neurotoxin poisoning. Enhancement of function is useful in learning and memory. The invention is also directed to compositions and methods for facilitating the transport of molecules across endothelial cell tight junction barriers, such as the blood–brain barrier, by association of molecules with an erythropoietin receptor activity modulator, such as an erythropoietin.