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T E C H N O L O G Y O P P O R T U N I T Y

Melatonin Ligands for Sleep Disorders and Depression

Applications: Treatment of insomnia, anxiety and depression

Technology: The inventors have synthesized a novel series of melatonin analogs, which exhibit high selectivity for the MT2 receptor subtype and are partial agonists. In a rat model, our compounds preferentially affect Slow Wave Sleep, and not REM sleep. Based on our mechanistic studies, the MT2 subtype is responsible for the CNS related effects of melatonin (such as sleep, anxiety, and depression). The compounds also have anti-anxiety activity.

Advantages: The compounds are specific for Slow Wave Sleep, which is more desirable than those compounds that preferentially affect REM sleep. Existing drugs for insomnia include Ramelteon (Takeda), a non-selective melatonin agonist and a range of other drugs that act on the GABA/barbiturate/benzodiazepine mechanisms. The latter drugs have the disadvantage of being habit forming and inducing prolonged drowsiness.

Lead Inventor



Dr. Gabriella Gobbi, MD, Ph.D.

Dr. Gobbi's research is focused in the pathophysiology of depression and anxiety, and in the discovery of new potential antidepressant drugs. Present research is focused on the implication of the Substance P and NK1 receptors in the treatment of major depression and in the relationship between cannabis consumption and mood disorders. Techniques used in this lab are in vivo electrophysiology and in vivo behavioral pharmacology. Transgenic animals are also used as models of mood disorders

CONTACT:

Officer's Name: Michael Stern
Office of Sponsored Research
McGill University
Tel: 514-398-2393
Email: michael.stern@mcgill.ca
Reference code: 06019
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