Enhancing the antidepressant efficacy of SSRIs via simultaneous stimulation of histone expression

Technology #cu12070

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Coupling SSRIs with HDAC inhibitors can enhance the antidepressant efficacy of mood disorder treatments over SSRIs or HDAC Inhibitors alone, a new augmentation strategy for SSRI's antidepressant treatment.

Selective serotonin reuptake inhibitors (SSRIs) are the first line of treatment for depression. However, these drugs are far more effective at treating severe depression compared with mild or moderate depression. This technology demonstrates that the efficacy of SSRI treatment of mood disorders is linked with levels of histone acetylation in the brain. Histones are part of the chromatin complex and their acetylation state is a determinant of gene expression. By using histone deacetylase (HDAC) inhibitors, the level of histone acetylation can be increased, which increases the potency of SSRI even when previously there was no response to these drugs. Therefore, this technology, the combination of SSRIs and HDAC inhibitors, can enhance the treatment of mood disorders currently unresponsive or only partially responsive to SSRI therapy alone. In recent years novel HDAC inhibitors have been introduced to the marketplace that are FDA approved for the treatment of other illnesses and these medications could potentially be used to augment antidepressant treatment.

Current psychiatric drugs with HDAC inhibitory properties can be used as combination treatment with SSRIs to augment treatment of mood disorders.

Many times, mild to moderate depression does not respond to SSRI treatment alone. HDAC inhibitors, such as valproic acid, are currently used as mood stabilizers and anti-epileptics, but as a stand alone, valproic acid is not an effective treatment for depression. By effectively controlling the therapeutic dose of both drugs, and establishing a novel combination drug therapy strategy, more effective treatments for mild to moderate depression and other mood disorders can be developed. This combination treatment strategy will target the large population of people who have mild to moderate depression in which SSRIs are not particularly effective.

The increased efficacy of the technology’s combined drug therapy has been demonstrated using Balb/c mice in a model for depression caused by early life stress compared with control mice.

Applications: • Treatment of mild, moderate, and severe depression • Treatment for patients with PTSD • Treatment for patients with bipolar disorder • Treatment of other mood disorders • Treatment of anxiety disorders

Advantages: • Introducing a new class of medications as augmentation strategy for the treatment of depression. • Potential for more efficacious treatment of adolescent depression. • Higher efficacy of SSRI & HDAC Inhibitor combination therapy versus SSRI therapy alone. • Better treatment for a larger patient population suffering from
mild or moderate clinical depression. • Increased medical uses for currently prescribed medications. • Increased efficacy of SSRI antidepressant therapies such as Zoloft, Effexor, and Prozac.

Patent information:

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