Material Science
Biomedical
Engineering

5CA3β: biomedicine for liver diseases

Improved results and side effect profile for liver disease

Current therapeutics for chronic and acute liver diseases are limiting by targeting only a single protein. This means each treatment is limited to only one outcome: lipid reduction, anti-inflammation, or anti-apoptosis.

Virginia Commonwealth University researchers describe a novel therapeutic strategy targeting DNA methylation in order to decrease lipid accumulation, reduce inflammation, and restore liver function using just one compound. 5CA3β regulates gene expression, reducing the expression of genes related to lipid metabolism, lipogenesis, and inflammation and increasing the expression of genes involved in lipid catabolism, antioxidant defense, and anti-inflammatory response.

The Technology

Studies have shown that 5CA3β has potential therapeutic benefits, such as reducing liver fat accumulation, inflammation, and improving glucose metabolism. It also regulates gene expression, reducing the expression of genes related to lipid metabolism, lipogenesis, and inflammation and increasing the expression of genes involved in lipid catabolism, antioxidant defense, and anti-inflammatory response. The chemical can be widely used to treat metabolic syndrome, liver diseases, diabetes, atherosclerosis, multiple organ injury, and other diseases.

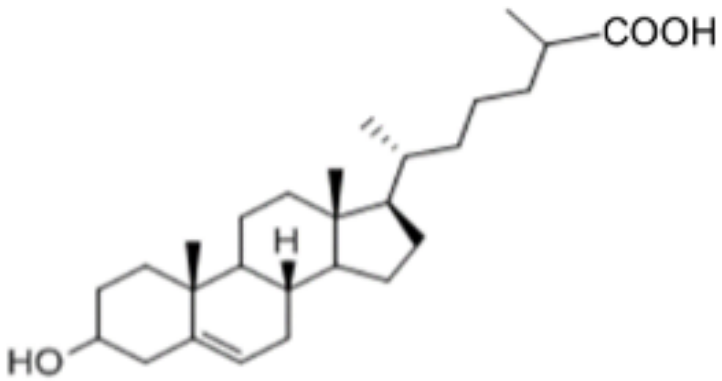

Figure 1 – Chemical formula of 3β-Hydroxy-5-cholestenoic acid, a cholesterol metabolite which antagonist of DNA methyltransferase 3a/3b (DNMT3a/3b) with potent cholesterol and triglyceride lowering properties and anti-apoptosis.

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Benefits

- Decreases lipid accumulation
- Reduced inflammation
- Restores liver function
- Decreased side effects
- More stable than existing drugs

Applications

- Lipid-associated diseases
- Metabolic syndromes

Patent Status:
Provisional Patent Application has been filed

License Status:
This technology is available for licensing to industry for further development and commercialization

Category:
Pharmacotherapeutics

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Additional Information:
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