Identification Of OLMAINC as a Biomarker for NAFLD, NASH, Metabolic Syndrome, Hepatic Fibrosis

Tech ID: 29158 / UC Case 2018-199-0

SUMMARY

UCLA researchers in the Departments of Medicine and Human Genetics have identified a sequence of long, non-coding RNA that plays a role in the regulation of intracellular lipogenesis and holds potential for diagnosing and treating metabolic diseases, including NAFLD and NASH.

BACKGROUND

Metabolic syndrome (MetS) has reached epidemic proportions in the United States and can manifest itself in various ways in the body, leading to a variety of diseases, including non-alcoholic fatty liver disease (NAFLD) and non-alcoholic steatohepatitis (NASH). These diseases can then lead to fibrosis, cirrhosis, and hepatocellular carcinoma. The pathophysiology of the MetS is complex, multi-factorial, and includes genetic and environmental contributions. A further understanding of the genetic perturbations of NAFLD/NASH is needed to develop targeted treatment for the disease.

INNOVATION

The inventors have demonstrated that novel long non-coding RNA (LncRNA) OLMAINC plays an important role in the regulation intracellular lipogenesis and OLMAINC tissue levels correlate with NAFLD and NASH. The inventors have also developed a series of silencing RNAs, which was demonstrated to be effective in the down-regulation of OLMAINC.

APPLICATIONS

- Diagnosis and treatment of NAFLD and NASH
- Diagnosis and treatment of other metabolic diseases

ADVANTAGES

- Targeted diagnostic approach
- Targeted disease therapy

STATE OF DEVELOPMENT

The inventors have shown the OLMAINC plays a role in the regulation of intracellular lipogenesis. The inventors have also developed a series of silencing RNAs that can bind selectively to down-regulate OLMAINC expression and reduce lipogenesis. The inventors have further described a composition of agents and antagonists to be used in therapeutics.

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Issued Patent	11,274,303	03/15/2022	2018-199

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OTHER INFORMATION

KEYWORDS

metabolic regulation, lipogenesis, long non-coding RNA, silencing RNA, metabolic syndrome, non-alcoholic fatty liver disease, non-alcoholic steatohepatitis

CATEGORIZED AS

- **Medical**
  - Diagnostics
  - Disease: Metabolic/Endocrinology
  - Therapeutics

RELATED CASES

2018-199-0

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