Development of Methods and Assay for Measurement of Total Oxidized Phospholipid (OxPL)

Tech ID: 31842 / UC Case 2020-166-0

BACKGROUND

Nonalcoholic fatty liver disease (NAFLD) is the most common cause of chronic liver disease in the United States. It can be broadly sub-classified into nonalcoholic fatty liver (NAFL), which is thought to have minimal risk of progression to cirrhosis, and nonalcoholic steatohepatitis (NASH), which is thought to have an increased risk of progression to cirrhosis. The current diagnostic gold standard for differentiating whether a patient with NAFLD has NAFL versus NASH is liver biopsy. However, liver biopsy is an invasive procedure, which is limited by sampling variability, cost, and may be complicated by morbidity and even death, although rare. Accurate, non-invasive, biomarkers for the detection of liver disease and liver disease progression e.g., progression to NASH, are currently also not available.

TECHNOLOGY DESCRIPTION

Researchers at UC San Diego have developed a method and assay measuring total oxidized phospholipids(OxPL) that can be used for determining and or distinguishing a disease or disorder associated with OxPL. The invention provides for methods, compositions and kits that utilize total Oxidized phospholipids to determine whether a subject has liver disease.

APPLICATIONS

Measurement of Total OxPL could be a valuable biomarker of the development of NASH. Our current data suggests it distinguishes patients with NAFL (fatty liver only) from patients with NASH (nonalcoholic steatohepatitis)

ADVANTAGES

There is currently no way to measure Total OxPL in plasma or serum of animal models or humans. The researchers have developed in an assay that directly measures OxPL on apoB-100 containing lipoproteins and that for the most part this measures OxPL on Lipoprotein (a) particles, which contain apoB-100 and are enriched in OxPL. This assay does not measure OxPL on non-apoB particles.

STATE OF DEVELOPMENT

The assay is functional and has been used to show elevated levels of Total OxPL in NASH in both mice models and human patients

INTELLECTUAL PROPERTY INFO

The invention is patent-pending and is available for licensing and collaborations.

RELATED MATERIALS

▶ Sun X, Seidman JS, Zhao P, Troutman TD, Spann NJ, Que X, Zhou F, Liao Z, Pasillas M, Yang X, Magida JA, Kisseleva T, Brenner DA, Downes M, Evans RM, Saltiel AR, Tsimikas S, Glass CK, Witztum JL. Neutralization of Oxidized Phospholipids Ameliorates Non-alcoholic Steatohepatitis. Cell Metab. 2020 Jan 7;31(1):189-206.e8. doi: 10.1016/j.cmet.2019.10.014. Epub 2019 Nov 21. - 01/31/2020

PATENT STATUS

Patent Pending

CONTACT

University of California, San Diego
Office of Innovation and Commercialization
innovation@ucsd.edu
tel: 858.534.5815.



OTHER INFORMATION

KEYWORDS

total oxidized phospholipids, NASH, Nonalcoholic fatty liver disease (NAFLD), chronic liver disease, biomarker

CATEGORIZED AS

- ▶ **Medical**
  - ▶ Diagnostics
  - ▶ Disease: Metabolic/Endocrinology
  - ▶ Research Tools
- ▶ **Research Tools**
  - ▶ Reagents

RELATED CASES

2020-166-0

© 2020, The Regents of the University of California
Terms of use
Privacy Notice