1. Overview

- New LC/MS/MS Method Package for simultaneous analysis of 18 bile acids.
- Method was successfully applied to human plasma and mouse liver samples.
- Useful tool for clinical research or gut microbiome studies.

2. Introduction

Bile acids are primarily produced in the liver through cholesterol metabolism. They are then secreted into the intestines where they are transformed by gut bacteria giving secondary forms thereof. They constitute then a large family of molecules with several position-isomer groups (see Figure 1).

3. Methods

3.1. Reagents

An experimentally optimized LC/MS/MS procedure was applied to human plasma samples. The Method was validated for the analysis of bile acids in human plasma samples, and the results were consistent with the expected concentrations.

3.2. Sample Preparation

Human plasma samples were centrifuged at 14 000 g for 15 minutes, followed by 850 µL of aqueous hydrochloric acid solution (1 M) and then 910 µL of acetonitrile. After 1 minute of vortex, samples were centrifuged at 14 000 g for 15 minutes. 

3.3. Analytical Conditions

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4. Results

4.1. Calibration

The predicted precision was below 10% across all compounds. An average response factor was used to calculate concentrations in plasma samples.

4.2. Plasma Samples

Human plasma sample from a pool of healthy anonymous donors was processed. Each extract was injected twice. As expected, not all the targeted bile acids were detected in human plasma.

5. Conclusion

A newly developed Method Package was applied for the analysis of human plasma samples. The Method Package offers a key solution and can be used for clinical research. As a covers a large over of targeted bile acids, it can be used with other relevant biological matrices.