LYMPHATIC ABSORPTION OF PLASMALOGENS WITH ODD-CHAIN FATTY ACIDS FROM MICROORGANISMS IN THE SMALL INTESTINE OF RATS

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A rat study investigated the intestinal absorption of bacterial plasmalogens containing odd-chain fatty acids and found that these lipids maintain their characteristic odd-chain structure at the sn-1 position after absorption while undergoing fatty acid remodeling at the sn-2 position.

KEY POINTS

- Bacterial plasmalogens from Selenomonas ruminantium with odd-chain fatty acids (carbons 13, 15, and 17) were administered to rats via duodenal catheter, and lymphatic absorption was tracked over 7 hours using LC-MS/MS analysis.
- Absorbed plasmalogen ethanolamine retained the bacterial odd-chain hydrocarbon structure at the sn-1 position in lymph fluid.
- At the sn-2 position, the original bacterial fatty acids were replaced primarily with 20:4 fatty acids, or with 22:6 fatty acids when a 15-carbon chain was at sn-1, indicating fatty acid remodeling during absorption.
- The authors suggest these findings inform the selectivity of lipid biosynthesis in the gastrointestinal tract and may support the use of bacterial plasmalogens as food ingredients.
- This material is relevant to researchers studying plasmalogen metabolism, lipid absorption mechanisms, and the development of bacterial lipid sources for nutritional applications.

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