Byung Hwa Jung, Biochem Mol biol J, 3:2
DOI: 10.21767/2471-8084-C1-003

Development of quantitative and qualitative analytical method for bile acids in rat bile and evaluation of their changes in aging

Byung Hwa Jung
Korea Institute of Science and Technology, Republic of Korea

Bile acids (BAs) have important roles in physiological functions including the homeostasis of cholesterol, lipid, and as ligands for G protein-coupled receptors (GPCRs). Aging is highly correlated with the incidence of various diseases related to liver and gastrointestinal tract, thus it simply can be guessed that the changes in the level of bile acids are closely related to aging. However, due to the diverse range and a variety of BAs that have different activation potency, a simple, effective and sensitive method is required to screen BAs for accurate quantification and identification. In this study, the quantification method for the 19 targeted BAs in rat bile was developed and validated using ultrahigh-performance liquid chromatography-Orbitrap mass spectrometry (UHPLC-LTQ-Orbitrap MS). 22 unknown bile acids were also characterized with their fragmentation patterns at the same time in this method. With the developed method, the change of bile acids level in rat bile according to aging was evaluated. Through statistical analysis, we have found that as the rats get older, unconjugated BAs and glycine-conjugated BAs were decreasing or not changing while taurine-conjugated BAs were increasing in general. Among the unknown BAs, five of the taurine conjugated BAs increased while a glycine conjugated BA decreased that is in corroboration with the trends of the targeted BAs.

Biography

Byung Hwa Jung has her expertise in Metabolomics and DMPK (drug metabolism and pharmacokinetics). She has developed many analytical methods for the quantitative and qualitative determination of endogenous metabolites and xenobiotics such as drugs. The platforms for the non-targeted metabolomics and lipidemic using LC-MS for the evaluation of metabolic change in *in vivo* (plasma, urine, bile, tissue so on) and *in vitro* (cell) systems were already established in her lab. Along with these systems, the quantitative analytical platforms for more than 170 metabolites and several drugs were also set up with LC-MS and GC-MS. The mechanisms and biomarkers for disease generation and development, and drug effect and adverse effects are studied with those systems.

jbhluck@kist.re.kr

Notes: