

3RD WORLD CONGRESS ONMEDICINAL PLANTS AND
NATURAL PRODUCTS RESEARCH

OCTOBER 02-03, 2017 KUALA LUMPUR, MALAYSIA

The antiadipogenic effect of *Aster glehni* extract through HMG-CoA Reductase and fatty acid synthase inhibition**Hyunbeom Lee**

Korea Institute of Science and Technology, South Korea

Aster glehni Franceht et Sckmidt (AG), a natural product known to have anti-adipogenic, anti-inflammatory and anticonvulsant effects. To understand the underlying mechanistic role of the natural product for its antiadipogenic effects, the active fractions of the AG extract were tested for their inhibitory effects on HMG-CoA Reductase (HMGR) and Fatty Acid Synthase (FAS), two of the most important enzymes involved in the cholesterol and fatty acid synthesis, respectively. We found that caffeoylquinic acid methyl esters present in AG are responsible for the inhibition of HMGR and thus we have demonstrated that the overall inhibitory effects of the AG extract against HMGR can be improved by simple methylation of the extract. Subsequent cell-based study found that AGEM70M also have an effect of lowering the rate of cancer cell proliferation. In addition, global metabolic profiling of an *in vivo* model using UPLC-Q-TOF-MS after consuming the natural product, we have observed various changes in lipid metabolites such as lysophosphatidylcholine, phosphatidylcholine and amino acids that are involved in energy metabolism. We believe the natural product AG holds promising therapeutic potentials for not only for cholesterol and lipid-lowering effects through HMGR and FAS inhibition, but also for anti-proliferative activities against cancer cells.

Biography

Hyunbeom Lee has earned his BS degree in Chemistry in 2008 from Illinois Institute of Technology, in Chicago, USA. He has received his PhD degree in Organic Chemistry at Northwestern University in Evanston, Illinois. His graduate research was focused on the investigation and elucidation of the mechanism of inactivation of GABA aminotransferase as a target for the treatment of epilepsy. He was also involved in design, synthesis and evaluation of novel GABA analogs as a drug candidate for hepatocellular carcinoma. After obtaining his PhD degree in 2014, he has joined as a Researcher at Korea Institute of Science and Technology. Currently, he is appointed as a Senior Researcher, working on drug mechanism studies through metabolomics and developing enzyme assays to aid target identification.

hyunbeom@kist.re.kr

Notes: