

A Glu-Phe (EF) was isolated from onion (*Allium cepa* L. cv. Sunpower). The chemical structure of EF was determined by nuclear magnetic resonance and electrospray ionization-mass (ESI-MS) spectroscopy. We showed that EF reduced lipid accumulation in mouse hepatocytes by inhibiting the expression of sterol regulatory element-binding protein-1c (SREBP-1c) and its lipogenic target genes. We also found that AMP-activated protein kinase (AMPK) was required for the inhibitory effect of EF on lipid accumulation in mouse hepatocytes. Furthermore, EF was qualified in nine onion cultivars by selective multiple reaction-monitoring detection of liquid chromatography-ESI-MS. These results suggest that EF could contribute to the beneficial effect of onion supplement in maintaining hepatic lipid homeostasis.

EF from onion decreases the expression of SREBP-1c and its lipogenic target genes through activating AMP-AMPK, thereby attenuating lipid accumulation in mouse hepatocytes.

