

Lipidomic analysis of skin lipid changing by aging

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Human skin is exposed to some environmental stress. Because phospholipid (PL) and cholesterol esters (CE) are major component of cellular membrane, it is expected that the lipid change is a cause of the morphological change of the human skin. To analyze the morphological change and the lipid change of the skin according to aging would be important. In this study, to investigate the correlation of histology change and lipid change of skin, we analyzed lipid class, fatty acid composition using HaCaT cells.

The major component of lipid extracted from HaCaT cells was PL. The relative amount of CE was also high. The total relative amount of saturated fatty acid and unsaturated fatty acid was the almost same, but it of poly unsaturated fatty acid was low. Elaidic acid and/or oleic acid (18:1 ; carbon numbers : degree of unsaturation) would be the key component of skin lipid. The major molecular species of phosphatidyl choline (PC) were 32:1PC, 34:1PC, 34:2PC and 36:2PC. These molecules contained more than one unsaturated fatty acid acyl chain. We will examine the structural analysis for triacylglycerol (TG) molecular species and PC molecular species and these oxidation products of skin tissue.