

Glycolipids of Mammalian Epidermis

¹Sumiko Hamanaka, ²Minoru Suzuki

¹*Yamaguchi Rosai Hospital*

²*Tokyo Metropolitan Institute of Medical Science*

Human epidermis gave two glycolipid bands that migrated faster than glucosylceramides and two bands that migrated like glucosylceramide and galactosylceramide, respectively, on TLC. The two faster migrating glycolipids (GL-I and GL-II), which exhibited alkalilability, were purified by conventional DEAE and silica gel column chromatographies, and further by HPLC on a silica gel column. Structure determination of the two components, named GL-I3 and GL-II3, which were finally purified from GL-I and GL-II, respectively, by HPLC on a reversed column, was performed by means of ¹H-NMR spectroscopy, fast atom bombardment mass spectrometry, and component analysis involving GLC-mass spectrometry. GL-I3 was determined to be a mixture of glucosyl β 1-N- (ω -0-linoleoyl) triacontanoyl and -dotriacontamonoenoyl-eicosasphingenine, and one of the two components of GL-II3 was determined to be glucosyl β 1-N- (ω -0-linoleoyl) triacontanoyl 1-trihydroxyeicosasphingenine. GL-I3 and GL-II3 were the major components of GL-I and GL-II, respectively, and both the latter contained additional four components, which were heterogeneous as to the ceramide portion. This paper reports the structures of acylglucosylceramides isolated from human epidermis together with ¹H-NMR spectra and mass spectra demonstrating their molecular weights. The structure of molecular species containing trihydroxysphingosine having a double bond is novel.