

Comparison of Different Procedures for the Lipid Extraction from HL-60 Cells: A MALDI-TOF Mass Spectrometric Study

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A human leukaemia cell line – HL-60 – can be differentiated into neutrophils or macrophages and both differentiation processes are accompanied by changes of the lipid composition. Various methods were described for the extraction of lipids from cellular systems, but only two of them were applied to the HL-60 cell line so far. In this study we compared five selected extraction methods for the lipid extraction from HL-60 cells with regard to their qualitative analysis by matrix-assisted laser desorption/ionisation time-of-flight mass spectrometry (MALDI-TOF MS): chloroform/methanol at volume ratios 2:1 and 1:2, isopropanol/chloroform, isopropanol/hexane and butanol. In addition, the cholesterol and phospholipid concentrations in organic extracts were measured by colorimetric assays. Results can be summarized as follows: For the analysis of polar phospholipids obtained from HL-60 cells by MALDI-TOF MS, a chloroform/methanol (1:2) or isopropanol/chloroform mixture or butanol can be applied as extraction systems. On the other hand, if one would like to analyze changes in triacylglycerols, then chloroform/methanol (2:1) would be the method of choice.

Key words: HL-60 Cells, Lipid Composition, MALDI-TOF MS