

Welcome to MetricFile! Our goal is to make the downloading and hosting of files as easy as possible. We strive to be the best File Sharing site around! Remember, if there is a file you want or need to download, just visit MetricFile and enjoy your stay!

Correlative cytochemistry and biophysics for lipid detection by high resolution magic angle spinning (HR MAS) NMR. Nuclear magnetic resonance spectroscopy (NMR) is a powerful technique for chemical analysis. Although lipid constituents make up the bulk of many cells, their quantitative and qualitative distribution within these cells has received less attention compared to that for many other cellular components. In the presence of water, lipids are, however, detectable by NMR, but the signals are broadened and distorted, and the spatial distribution is difficult to analyze. On the other hand, conventional lipid extraction techniques are time-consuming, involve considerable sample preparation and are tedious. In addition, the extracts can only be studied by established methods, i.e. microscopy, chromatography or electrophoresis. The combination of highly magic angle spinning (MAS) NMR, combined with magnetic field gradient pulses, enables high spatial resolution and provides information on the distribution of both structural and dynamical properties. As a specific example, the discrimination of different spatially local lipid compositions and their integrity in red blood cells (RBC) membranes is described. The measured relaxation times and line widths of individual spectral features indicate a spatially heterogeneous lipid composition in the inner and outer compartments of the erythrocyte membrane (e.g. the cytosol/plasma membrane and the inner membrane/sarcoplasmic reticulum interface). In addition, high resolution magic angle spinning (HR-MAS) NMR enables the characterization of intact membranes and can be used to analyze the lipid composition and structural properties of lipid rafts in the plasma membrane.

Pump kinetic data analysis of the upflow anaerobic sludge blanket (UASB) system. In the study, the time course of effluent COD, ammonia, biogas and methane concentration, and the daily production of effluent total nitrogen and total organic nitrogen were used to investigate the performance of a lab-scale upflow anaerobic sludge blanket (UASB) reactor. Experimental results showed that total organic nitrogen removal was inhibited when the volume ratios of biogas, methane and dilute H2O were changed from 1:3:4 to



[illegible]