

Yeast Lipid Particles: Lipidome meets Proteome

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In the yeast *Saccharomyces cerevisiae* as in other eukaryotes neutral lipids are a reservoir of energy and building blocks for membrane lipid synthesis. The yeast neutral lipids, triacylglycerols (TAG) and steryl esters (STE), are stored in so called lipid particles (LP) in a biologically inert form of fatty acids and sterols. Prerequisite for the understanding of LP function and structure is elucidation of their molecular equipment. For this purpose, we performed conventional analysis and mass spectrometric analysis of lipids (TAG, STE, phospholipids), but also of proteins which are present on the surface of LP. These analyses were carried out with LP from cells grown on the two carbon sources glucose and oleic acid. Results obtained by these methods revealed marked differences in the lipidome, but also in the proteome of LP isolated from yeast cells grown under different conditions. Moreover, proteome analysis of LP led to identification of several new putative LP proteins. The detailed analysis of the lipid and protein composition of this organelle will help to deepen our knowledge regarding function of LP in the cellular interplay of organelles.

Supported by FWF projects 18857 and W901-B05.