Statement of the Problem: Breast cancer is the most frequently diagnosed tumor in women worldwide and a leading cause of cancer death. Due to the high incidence rate of breast cancer, the development of screening method is urgently needed. Targeted lipidomic analysis has indicated the potential of using bioactive lipids and fatty acids as breast cancer biomarkers. Methodology & Theoretical Orientation: Lipid profiling in plasma was analyzed using GC/MS/MS system based on targeted lipidomic platform with the assessment of lung metastases progression in mice model (4T1) of breast cancer. To characterize lipid profile in plasma in the early and late stage of metastasis we focus on bioactive lipids and saturated, monounsaturated and polyunsaturated fatty acids pathway. Findings: Based on primary tumor growth and lung metastases, 1-2 weeks period after 4T1 cancer cells inoculation was defined as early