

Poster Abstract

Biomarkers for human consumption on Trans Fatty AcidsToke P. Krogager^{1,2,3}, Anita Møller, Ida B. Thøgersen^{1,2,3},Niels Chr. Nielsen^{1,2,4} and Jan J. Enghild^{1,2,3}

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These studies were undertaken to identify human plasma protein biomarkers for the consumption of trans fatty acids (TFA). Using a proteomics approach based on Difference in Gel Electrophoresis (DIGE) and tandem mass spectrometry we have identified 7 potentially protein biomarkers secreted by cultured liver cell when stimulated with TFA.

Humans mainly consume TFA from two different sources 1), Industrially produced TFA found in baking goods, frying oils and hard margarines and 2), naturally occurring TFA found in meat and dairy products from ruminant animals (e.g. cattle and sheep). For more than a decade it has been known that the consumption of TFA leads to an increased risk of cardiovascular diseases and other health problems. For these reasons the Danish Government have posed an upper limit of 2% TFA in foods.

Specific clinical biomarkers for the intake of TFA are currently not available. Such a marker in concert with others like cholesterol is likely to help determine if a change in the diet is called for particularly regarding the consumption of TFA. Furthermore, it is likely that certain individuals are more susceptible to the negative effects of TFA, and that the current TFA limit foods still pose a risk. A new biomarker for TFA would help identify these people and advise them to avoid certain foods. The seven potentially biomarkers will be verified with western blots and tested in and eventually tested in clinical setting.