A Comparison of Intestinal Lymphatic Absorption and Transport of *trans* Octadecenoic Acids from Industrial *versus* Ruminant Sources, in the Anaesthetised Rat Model.

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In this study, we compared in rats the complete 24-h lymphatic positional *trans* octadecenoic isomers profile after administration of either industrial or ruminant *trans* fatty acids (iTFA or rTFA), in order to assess the impact of the TFA origin on: i) the individual absorption rate of the isomers t-18:1; ii) their intramolecular distribution in lymphatic triacylglycerols; iii) the cholesterol absorption, through determination of the lymphatic cholesterol esters (CE) content. Rats (n=8 per diet) were subjected to cannulation of the main mesenteric lymph duct and experimental fats were administered through a gastric feeding tube (80mg/rat). These fats differed in their isomer profile: 9t and 10t-18:1 were the most prevalent in iTFA (44% and 19.6% of total t-18:1), while the main isomer was 11t-18:1 in rTFA (69% of total t-18:1). The isomer content of lymphatic lipids was determined by gas chromatography on a CP Sil 88 column (100m). The results indicate: i) the 9t-, 10t- and 11t-18:1 were equally well absorbed. The *trans* isomer profile of lymphatic total lipids was similar to that of the dietary source, i.e. it was 9t-18:1 (44% of total t-18:1), 10t-18:1 (24%) and 11t-18:1 (10.5%) for rats fed iTFA, *versus* 18:1 9t (4%), 18:1 10t (19%) and 18:1 11t (66%) for rats fed rTFA ; ii) the CE proportions in lymph were significantly higher ($p<0.01$) in the rTFA group (28.5 ng/µg of total lipids), compared with the iTFA group (17.7 ng/µg of total lipids) ; iii) the intramolecular distribution of the *trans* 18:1 isomers between the internal (*sn2*) and external (*sn1*+*sn3*) positions of lymphatic triacylglycerols depended on the TFA source and reflected it : proportions of *trans* 18:1 isomers from iTFA located in the *sn2* position were significantly ($p<0.001$) higher than those from rTFA (35% *vs* 25% for 11t-18:1 and 41% *vs* 31% for 9t-18:1).

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