

FATTY ACIDS AND CARDIOVASCULAR RISK

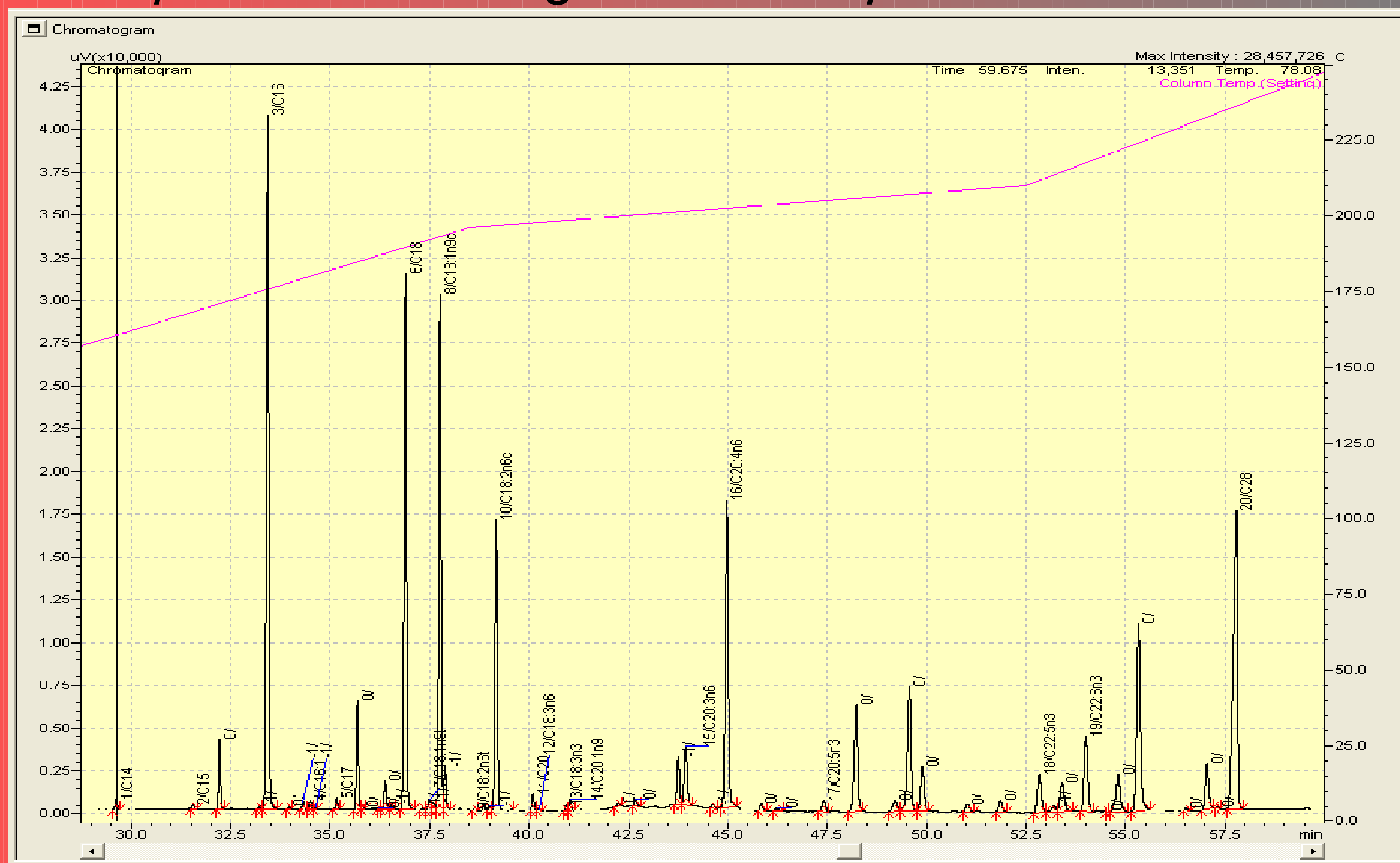
Background: A fatty acid (FA) is a carboxylic acid with a long aliphatic chain, which is either saturated or unsaturated. Recently, the role of FA and particularly omega 3 and 6 has emerged as cardiovascular risk factor in the literature.

The aim of our study was to establish reference value for these FA and to compare these results with data obtained in acute myocardial infarction (AMI) patients.

Materials and methods:

- Fifty four healthy subjects (33±11 yo) (23 men) were selected as reference population.. We also evaluated FA in thirty three patients (55±9 yo) (23 men) admitted in the Emergency of our Institution for AMI.
- The fasting whole blood was drawn in vacutainer containing EDTA. Before the analysis, the samples were washed and transmethylated.
- We performed the quantification of different FA by gas chromatography associated with flame ionization detector (GC/FID).

Example of chromatogram of AMI patient



Results: For the AMI group, the level of omega-6 were significantly higher ($p < 0.01$) for C18:2n6 (Figure 1) and C18:3n6 (Figure 2). The level of omega-3 was significantly decreased ($p < 0.01$) in comparison with reference value for C22:6n3 (Figure 3). The omega-3 index (sum of DHA* and EPA**) was significantly lower ($p < 0.01$) in AMI group compared reference value and the ratio omega-6/omega-3 was significantly higher ($p < 0.01$) in AMI than reference patient.

Fig. 1

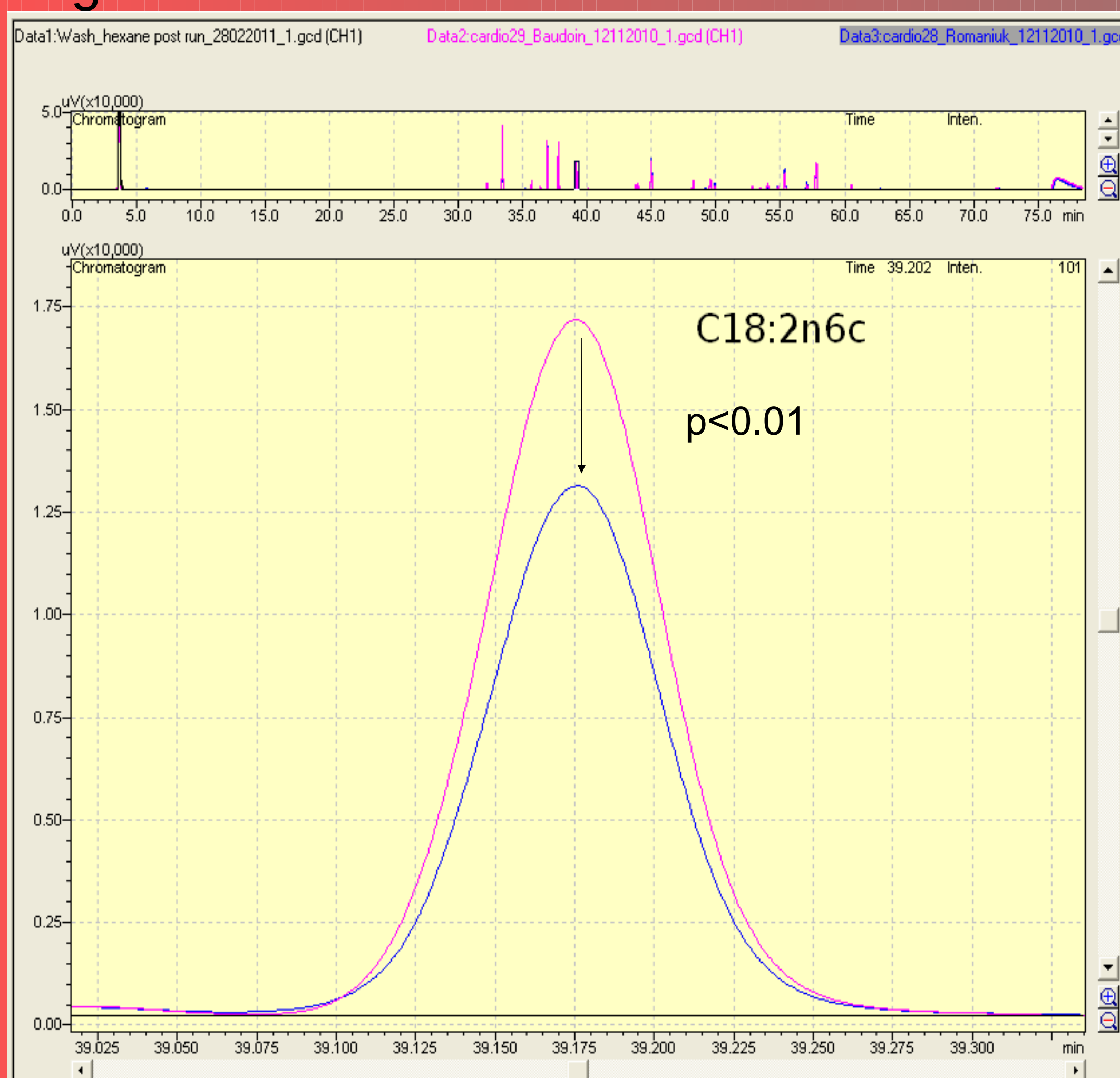


Fig. 2

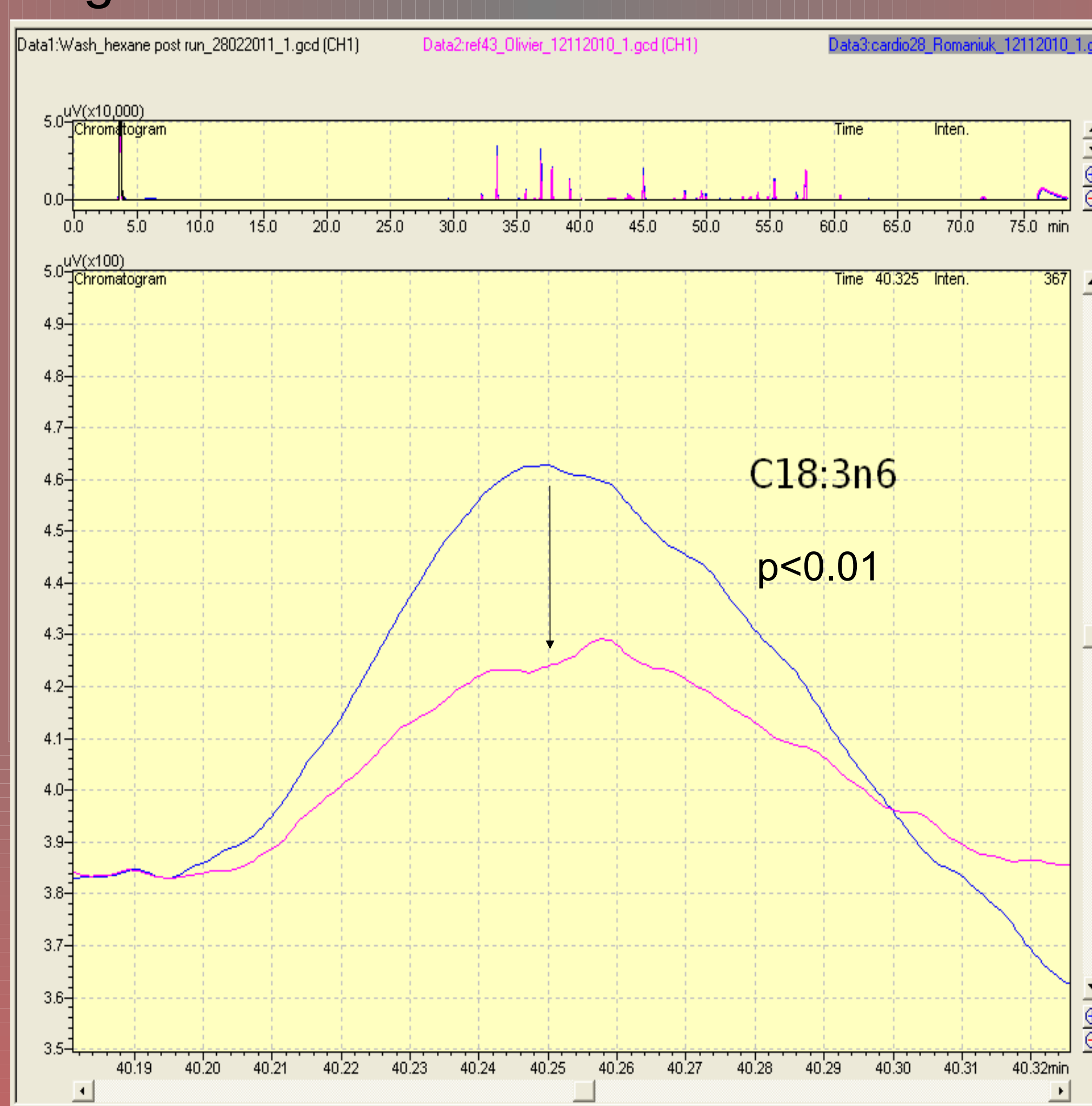
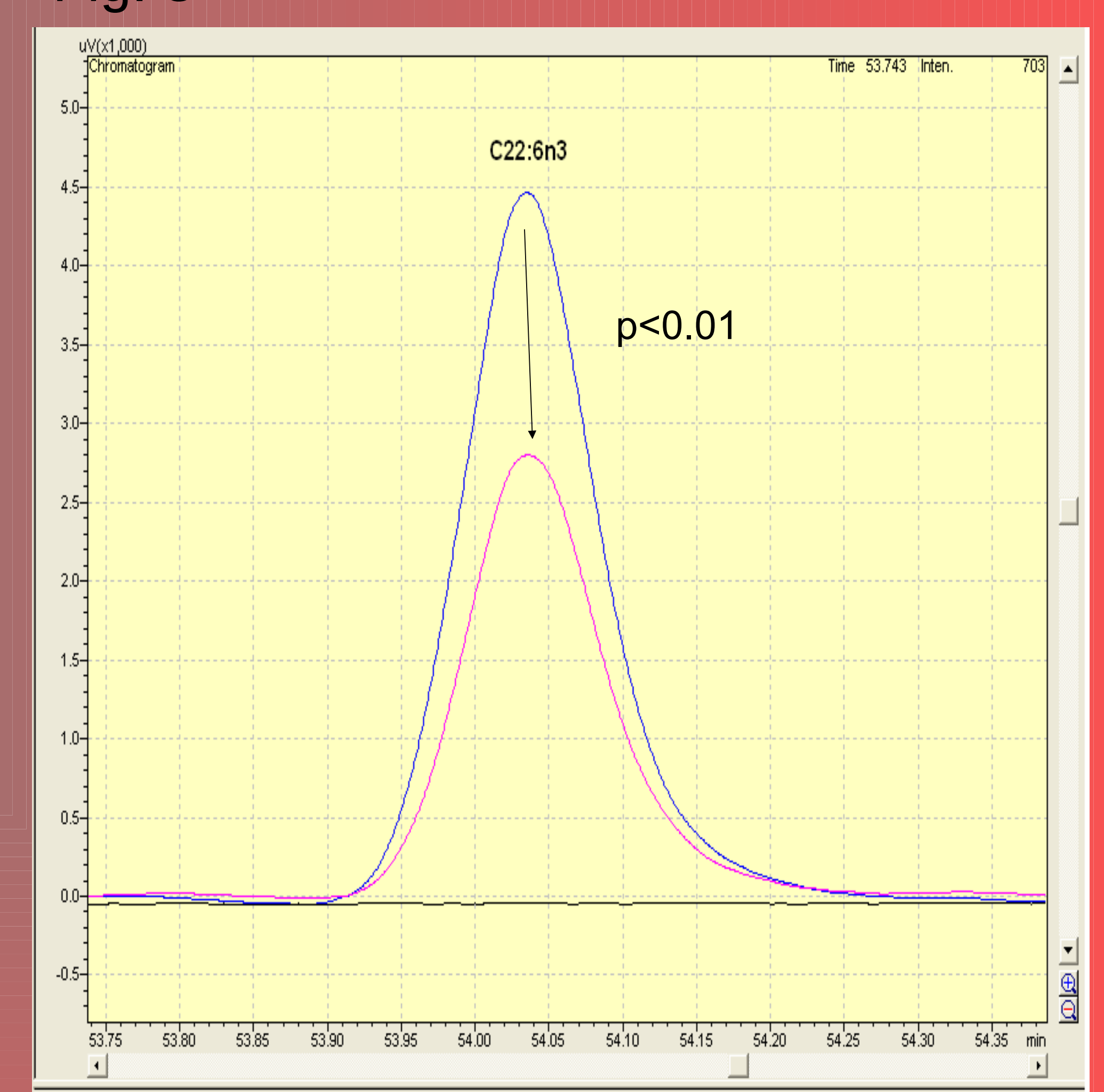


Fig. 3



Conclusion: We have established reference value for FA and compare them with the FA determination in AMI group. It is a new tool we are able to use and to process in our laboratory which can help the clinician to highlight patients with the most cardiovascular risks seen the protector role of polyunsaturated FA particularly, omega3, and the implication of saturated FA in the development of atherosclerosis.

- DHA* = Docosahexaenoic acid
- EPA** = Eicosapentaenoic acid