ApoE-deficent mice and Fenretinide: a structural study of the skin

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Fenretinide, a synthetic retinoid derivative first investigated for cancer prevention and treatment, has been shown to ameliorate glucose tolerance and the plasma lipid profile, and to reduce body fat mass. Since these effects, together with its ability to inhibit ceramide synthesis, have suggested that fenretinide may display anti-atherosclerotic effects, the purpose of our work was to evaluate the effect of fenretinide on accumulation of lipids on the skin of a dyslipidemic mouse model that spontaneously develops atherosclerosis.

To this aim, 9-weeks-old apoE-knockout (EKO) female mice were fed for 12 weeks with a Western diet, without (control) or with (0.1% w/w) fenretinide. At sacrifice, skin biopsies were excised from the thoracic region, dissected in smaller fragments and processed for structural morphology analysis on both paraffin and semithin sections. As a reference, wild-type (WT) mice were likewise treated.

Morphological analysis did not show any significant difference between the skin of treated and untreated WT mice. In both the experimental groups, indeed, the epidermis appeared build-up of ordinated overlapped layers of cells and in the dermis there were no signs of alteration. The presence of foam cells was detected only in EKO mice treated and untreated. Other morphological alterations were also visible, although shared almost equally in EKO-Ctrl and EKO-Fen animals.

Our data suggest that fenretinide slightly interferes with lipid accumulation in the skin of EKO mice.