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**Oxidative metabolism of dihomogammalinolenic acid by guinea pig epidermis: evidence of generation of anti-inflammatory products.**

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Reports that vegetable oils which contain gamma-linolenic acid (18:3n-6) may exert beneficial effects on cutaneous disorders prompted us to investigate whether epidermis possesses the ability to transform dihomogammalinolenic acid (20:3n-6), the epidermal elongase product of 18:3n-6, into oxidative metabolites with anti-inflammatory potential. Incubations of [1-14C]20:3n-6 with the 105,000 g particulate (microsomal) fraction from guinea pig epidermal homogenate resulted in the formation of the 1-series prostaglandin PGE1. The identity of this product was confirmed by argentation thin-layer chromatography (TLC), reverse phase-HPLC, and conversion with alkali treatment to PGB1. Incubations of [1-14C]20:3n-6 with the 105,000 g supernatant (cytosolic) fraction from guinea pig epidermal homogenate resulted in the formation of the 15-lipoxygenase product 15-hydroxy-8, 11, 13-eicosatrienoic acid (15-OH-20:3n6). The identity of this product was confirmed by normal phase-HPLC and gas chromatography/mass spectrometry (GC/MS). Thus, data from these studies indicate the capacity of enzymes in the microsomal and cytosolic fractions of guinea pig epidermal homogenates to transform 20:3n-6 to the eicosanoids PGE1 and 15-OH 20:3n-6, products which reportedly have anti-inflammatory properties. The in vivo significance of these findings remains to be explored.

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