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Lipoxins A₄ and B₄ : Comparison of Icosanoids Having Bronchoconstrictor and Vasodilator Actions but Lacking Platelet Aggregatory Activity*

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Lipoxins A₄ (LxA₄) and B₄ (LxB₄), two lipoxygenase-generated icosanoids of arachidonic acid metabolism, were found to have a distinct biological profile. Both strips isolated from guinea pigs, rabbits, and rats in a concentration-dependent manner over the range 0.1—1 μ M. This bronchoconstrictor effect was not associated with release of peptide leucotrienes or thromboxane A₂, nor was it blocked by lipoxygenase inhibitors or thromboxane receptor antagonists, suggesting it is a direct effect of lipoxins. However, the leucotriene D₄ (LTD₄) receptor antagonist LY-171883 reduced the LxA₄ response, indicating that LTD₄ and LxA₄ may share the same receptor. LxA₄ and LxB₄ also exerted an endothelium-dependent vasorelaxation in guinea pig, rat, and, to a lesser extent, rabbit aortic vascular smooth muscle. In contrast to other vasoactive icosanoids, LxA₄ and LxB₄ failed to aggregate rat, rabbit, or guinea pig platelets or to inhibit ADP-induced aggregation. LxA₄ also enhanced the release of liver lysosomal labilizing action of LxA₄. LxA₄ and LxB₄ share a similar biological profile. It is not clear yet whether the lipoxins could be mediators of circulatory or pulmonary disease states.

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