Resolvin D1 Triggered GPR32 Signaling in Human Macrophages

Summary / Zusammenfassung
The lipoxygenase pathways play a role in leukocyte activation by the generation of two classes of arachidonic acid lipid mediators, the leukotrienes and the lipoxins and three classes of omega-3 fatty acid metabolites, the resolvins, the protectins, and the maresins. The leukotrienes have pro-inflammatory properties, while the lipoxins, resolvins and protectins appear at the time of resolution of inflammation and have anti-inflammatory properties. Resolvin D1 (RvD1) showed potent anti-inflammatory and pro-resolving effects in several mouse models of inflammation. In addition, RvD1 reduced inflammatory cytokine secretion of primary human macrophages, blocked chemotaxis, and increased phagocytosis. We showed in primary human macrophages that the RvD1 effects are mediated by triggering GPR32, however, the intracellular signaling of RvD1 has not been elucidated yet. We hypothesize that RvD1 triggered GPR32 signaling involves rapid regulation of kinases and we are currently identifying these intracellular signaling pathways. This may identify novel drug targets to improve efferocytosis and to reduce inflammation, both mechanisms implicated in chronic inflammatory diseases like atherosclerosis.

Publications / Publikationen

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