# Anti-inflammatory effects of resolvins in diabetic nephropathy: Mechanistic pathways

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The incidence of diabetes mellitus is growing rapidly. The exact pathophysiology of diabetes is unclear, but there is increasing evidence of the role of the inflammatory response in both developing diabetes as well as its complications. Resolvins are naturally occurring polyunsaturated fatty acids that are found in fish oil and sea food that have been shown to possess anti-inflammatory actions in several tissues including the kidneys. The pathways by which resolvins exert this anti-inflammatory effect are unclear. In this review we discuss the evidence showing that resolvins can suppress inflammatory responses via at least five molecular mechanisms through inhibition of the nucleotide-binding oligomerization domain protein 3 inflammasome, inhibition of nuclear factor ?B molecular pathways, improvement of oxidative stress, modulation of nitric oxide synthesis/release and prevention of local and systemic leukocytosis. Complete understanding of these molecular pathways is important as this may lead to the development of new effective therapeutic strategies for diabetes and diabetic nephropathy. 

diabetic nephropathy

inflammation

NF-?B

oxidative stress

resolvin D1

resolvin E1

antiinflammatory agent

cryopyrin

immunoglobulin enhancer binding protein

nitric oxide

plant medicinal product

polyunsaturated fatty acid

resolvin

unclassified drug

antiinflammatory activity

biochemistry

biological activity

classification

diabetes mellitus

diabetic complication

diabetic nephropathy

drug efficacy

drug safety

fatty acid synthesis

human

inflammation

leukocytosis

nonhuman

oxidative stress

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Review

risk

signal transduction