

# N-3 PUFA supplementation triggers PPAR- $\alpha$ activation and PPAR- $\alpha$ /NF- $\kappa$ B interaction: Anti-inflammatory implications in liver ischemia-reperfusion injury

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Dietary supplementation with the n-3 polyunsaturated fatty acids (n-3 PUFA) eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) to rats preconditions the liver against ischemia-reperfusion (IR) injury, with reduction of the enhanced nuclear factor- $\kappa$ B (NF- $\kappa$ B) functionality occurring in the early phase of IR injury, and recovery of IR-induced pro-inflammatory cytokine response. The aim of the present study was to test the hypothesis that liver preconditioning by n-3 PUFA is exerted through peroxisome proliferator-activated receptor  $\alpha$  (PPAR- $\alpha$ ) activation and interference with NF- $\kappa$ B activation. For this purpose we evaluated the formation of PPAR- $\alpha$ /NF- $\kappa$ Bp65 complexes in relation to changes in PPAR- $\alpha$  activation, I $\kappa$ B- $\alpha$  phosphorylation and serum levels and expression of interleukin (IL)-1 $\alpha$  and tumor necrosis factor (TNF)- $\alpha$  in a model of hepatic IR-injury (1 h of ischemia and 20 h of reperfusion) or sham laparotomy (controls) in male Sprague Dawley rats. Animals were previously supplementen