

Answer 1:

Bibliographic Information

Involvement of insulin-like growth factor binding protein-3 in the retinoic acid receptor-alpha-mediated inhibition of hepatocellular carcinoma cell proliferation. Murakami K; Matsuura T; Hasumura S; Nagamori S; Yamada Y; Saiki I Department of Pathogenic Biochemistry, Institute of Natural Medicine, Toyama Medical and Pharmaceutical University, Japan. komuraka@hanno.taiho.co.jp Cancer letters (2000), 151(1), 63-70. Journal code: 7600053. ISSN:0304-3835. Journal; Article; (JOURNAL ARTICLE) written in English. PubMed ID 10766424 AN 2000227491 MEDLINE (Copyright (C) 2008 U.S. National Library of Medicine on SciFinder (R))

Abstract

We examined the relationship between the expression of retinoic acid receptor-alpha (RAR-alpha) and upregulation of insulin-like growth factor binding protein-3 (IGFBP-3) in the retinoid-induced inhibition of hepatocellular carcinoma (HCC) cell proliferation. HCC cell lines showed a marked expression of RAR-alpha, whereas the expression levels of RAR-beta and RAR-gamma were relatively lower. An RAR-alpha agonist significantly inhibited the HCC cell proliferation both in vitro and in vivo. The RAR-alpha expression closely related to the upregulation of IGFBP-3 as compared with RAR-beta or RAR-gamma expressions. RAR-alpha agonist would be beneficial to inhibit the growth of HCC.