Anticancer Res. 2008 Nov-Dec;28(6A):3647-64.

The guggul for chronic diseases: ancient medicine, modern targets.

Shishodia S, Harikumar KB, Dass S, Ramawat KG, Aggarwal BB.

Department of Biology, Texas Southern University, Houston, Texas 77004, USA.

Abstract

Identification of active principles and their molecular targets from traditional medicine is an enormous opportunity for modern drug development. Gum resin from Commiphora wightii (syn C. mukul) has been used for centuries in Ayurveda to treat internal tumors, obesity, liver disorders, malignant sores and ulcers, urinary complaints, intestinal worms, leucoderma (vitiligo), sinuses, edema and sudden paralytic seizures. Guggulsterone has been identified as one of the major active components of this gum resin. This steroid has been shown to bind to the farnesoid X receptor and modulate expression of proteins with antiapoptotic (IAP1, XIAP, Bfl-1/A1, Bcl-2, cFLIP, survivin), cell survival, cell proliferation (cyclin D1, c-Myc), angiogenic, and metastatic (MMP-9, COX-2, VEGF) activities in tumor cells. Guggulsterone mediates gene expression through regulation of various transcription factors, including NF-kappaB, STAT-3 and C/EBPalpha, and various steroid receptors such as androgen receptor and glucocorticoid receptors. Modulation of gene expression by guggulsterone leads to inhibition of cell proliferation, induction of apoptosis, suppression of invasion and abrogation of angiogenesis. Evidence has been presented to suggest that guggulsterone can suppress tumor initiation, promotion and metastasis. This review describes the identification of molecular targets of guggulsterone, cellular responses to guggulsterone, and animal studies and clinical trials of guggulsterone in cancer and other diseases.

PMID: 19189646 [PubMed - indexed for MEDLINE]