Scutellaria barbata inhibits angiogenesis through downregulation of HIF-1α in lung tumor.


Source
Department of Microbiology and Immunology, National Cheng Kung University Medical College, Tainan, Taiwan.

Abstract
Hypoxia, a hallmark of many solid tumors, is associated with angiogenesis and tumor progression. Hypoxia-inducible factor-1 (HIF-1) plays a significant role in tumor angiogenesis. In this study, the authors constructed a selective platform to screen the traditional Chinese medicine as anti-angiogenic agent. The authors examined the molecular mechanism by which Scutellaria barbata regulates HIF-1-dependent expression of vascular endothelial growth factor (VEGF), which is an important angiogenic factor. Hypoxia promotes angiogenesis by increasing VEGF expression and secretion. Herein, the expression of VEGF was decreased by treatment with S. barbata in tumor cells. Meanwhile, S. barbata reduced the migration and proliferation of endothelial cells under hypoxic condition. S. barbata inhibited the expression of HIF-1α, as well as phosphorylated their upstream signal mediators AKT. S. barbata significantly inhibited the tumor growth in vivo and immunohistochemical studies in the tumors revealed decreased intratumoral microvessel density. These results suggest that the traditional Chinese medicine therapy using S. barbata, which exerts anti-angiogenic activities, represents a promising strategy for the treatment of tumors. © 2012 Wiley Periodicals, Inc. Environ Toxicol, 2012.

Copyright © 2012 Wiley Periodicals, Inc.

PMID:22331677