

Display Settings: Abstract[Biochem Biophys Res Commun](#). 2011 Aug 16. [Epub ahead of print]

Quercetin-induced downregulation of phospholipase D1 inhibits proliferation and invasion in U87 glioma cells.

Park MH, Min DS.

Department of Molecular Biology, College of Natural Science, Pusan National University, 30 Jangjeon dong, Geumjeong gu, Busan 609-735, Republic of Korea.

Abstract

Phospholipase D (PLD) has been recognized as a regulator of cell proliferation and tumorigenesis, but little is known about the molecules regulating PLD expression. Thus, the identification of small molecules inhibiting PLD expression would be an important advance in PLD-mediated physiology. Quercetin, a ubiquitous bioactive flavonoid, is known to inhibit proliferation and induce apoptosis in a variety of cancer cells. In the present study, we examined the effect of quercetin on the expression of PLD in U87 glioma cells. Quercetin significantly suppressed the expression of PLD1 at the transcriptional level. Moreover, quercetin abolished the protein expression of PLD1 in a time and dose-dependent manner, as well as inhibited PLD activity. Quercetin suppressed NF κ B-induced PLD1 expression via inhibition of NF κ B transactivation. Furthermore, quercetin inhibited activation and invasion of metalloproteinase-2 (MMP-2), a key modulator of glioma cell invasion, induced by phosphatidic acid (PA), a product of PLD activity. Taken together these data demonstrate that quercetin abolishes PLD1 expression and subsequently inhibits invasion and proliferation of glioma cells.

Copyright © 2011 Elsevier Inc. All rights reserved.

PMID: 21867678 [PubMed - as supplied by publisher]

[+ LinkOut - more resources](#)