Licochalcone A

National Cancer Institute

Source

A derivative of the phenol chalconoid, found in and extracted from the roots of Glycyrrhiza species G. glabra and inflata, with potential anti-inflammatory, antibacterial, and anticancer activities. Upon administration, licochalcone A inhibits the phosphatidylinositol-3-kinase/Akt/mammalian target of rapamycin (PI3K/Akt/mTOR) signaling pathway and inhibits the activity of c-Jun N-terminal kinase 1 (JNK-1), a member of the mitogen-activated protein kinase (MAPK) family that plays a role in the MAPK-mediated signaling pathway. Inhibition of the PI3K/Akt/mTOR- and MAPK-signaling pathways induces cell cycle arrest and apoptosis, decreases migration and invasion of cancer cells, and inhibits tumor cell proliferation. Licochalcone A also prevents the production of reactive oxygen species (ROS), and reduces oxidative stress through the nuclear factor-erythroid 2-related factor 2 (Nrf2) pathway.