

MedGen

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fermented wheat germ

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fermented wheat germ extract

MedGen UID: 330368 • Concept ID: C1832024 • Pharmacologic Substance

Modification Date: 19 Jun, 2013

Synonyms: FWGE extract

Definition

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An extract of fermented wheat germ containing a concentrated, standardized amount of methoxy-substituted benzoquinones with immunomodulatory and potential antineoplastic activities. Fermented wheat germ extract (FWGE) inhibits the activities of several enzymes involved in de novo nucleic acid synthesis and in supplying the dNTP pool required for DNA replication. This agent also induces caspase-3-mediated inactivation of poly(ADP)ribose polymerase (PARP), a key enzyme in DNA repair that is overexpressed in many cancers; cleavage of PARP prevents DNA repair and induces apoptosis. The benzoquinones may contribute to the immunomodulatory effects of FWGE, down-regulating major histocompatibility complex class I (MHC-1) protein on the surface of cancer cells, allowing natural killer (NK) cell surveillance; and up-regulating the expression of intracellular adhesion molecule 1 (ICAM-1) on tumor endothelial cells. [from NCI]

Recent clinical studies

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Characterizing the efficacy of fermented wheat germ extract against ovarian cancer and defining the genomic basis of its activity.

Judson PL, Al Sawah E, Marchion DC, Xiong Y, Bicaku E, Zgheib NB, Chon HS, Stickles XB, Hakam A, Wenham RM, Apte SM, Gonzalez-Bosquet J, Chen DT, Lancaster JM

Int J Gynecol Cancer 2012 Jul;22(6):960-7. doi: 10.1097/IGC.0b013e318258509d. PMID: 22740002

Avemar, a nontoxic fermented wheat germ extract, attenuates the growth of sensitive and 5-FdUrd/Ara-C cross-resistant H9 human lymphoma cells through induction of apoptosis.

Saiko P, Ozsvar-Kozma M, Graser G, Lackner A, Grusch M, Madlener S, Krupitza G, Jaeger W, Hidvegi M, Agarwal RP, Fritzer-Szekeres M, Szekeres T

Oncol Rep 2009 Mar;21(3):787-91. PMID: 19212640

Synergistic effect of Avemar on proinflammatory cytokine production and Ras-mediated cell activation.

Telekes A, Kiss-Tóth E, Nagy T, Qwarnstrom EE, Kúsz E, Polgár T, Resetár A, Dower SK, Duda E

Ann N Y Acad Sci 2005 Jun;1051:515-28. doi: 10.1196/annals.1361.096. PMID: 16126992

Fermented wheat germ extract reduces chemotherapy-induced febrile neutropenia in pediatric cancer patients.

Garami M, Schuler D, Babosa M, Borgulya G, Hauser P, Müller J, Paksy A, Szabó E, Hidvégi M, Fekete G

J Pediatr Hematol Oncol 2004 Oct;26(10):631-5. PMID: 15454833

Fermented wheat germ extract induces apoptosis and downregulation of major histocompatibility complex class I proteins in tumor T and B cell lines.

Fajka-Boja R, Hidvégi M, Shoenfeld Y, Ion G, Demydenko D, Tömösközi-Farkas R, Vizler C, Telekes A, Resetar A, Monostori E

Int J Oncol 2002 Mar;20(3):563-70. PMID: 11836569

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