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Research Topic

Apples

Research Subtopics

Apple Cider Vinegar
Apple Pectin
Apple Polyphenols
Apple: Golden Delicious

This Smart Search PDF was created based on **1** research topic. There are a total of **100** unique research articles on GreenMedInfo.com in regard to your search topic, all compiled in this research document.

The GMI-Pub system automates the natural medical research retrieval process by creating an individualized document that matches your search requirements in order to fit the needs of real people, in real time.

Our technology pulls from the equivalent of 20,454+ years of scientific experimental labor and pulls results based on variables the user decides are relevant.

Below you will find compelling research hard-referenced to peer-reviewed biomedical research sourced

Overview of Terms Associated with Your Search Topic

87 Relevant Results for Diseases

Disease/Symptom	Cumulative Knowledge	Article Count
Colorectal Cancer	55	7
Colon Cancer	36	12
Cancers: All	27	5
Cardiovascular Diseases	11	2
Liver Cancer	9	6
Breast Cancer	40	9
Oral Cancer	21	2
Oxidative Stress	14	3
Helicobacter Pylori Infection	12	3
Atherosclerosis	8	4
High Fat Diet	6	3
Breast Cancer: Triple Negative	4	3
Cholera	4	2
Colitis	4	2
Hyperlipidemia	4	2
Insulin Resistance	4	2
Periodontal Diseases	4	3
Advanced Glycation End products (AGE)	3	2
Aspirin-Induced Toxicity	2	1
Chemically-Induced Liver Damage	2	1

Colon Polyps	2	1
Colorectal Cancer: Prevention	2	1
Staphylococcus aureus infection	2	2
Vaccine-induced Toxicity	2	1
Cardiovascular Disease: Prevention	1	1
Radiation-Induced Illness: Cesium-137 Exposure	31	4
Esophageal Cancer	21	2
Hypertension	20	1
Alzheimer's Disease	12	2
Diarrhea	10	1
Dysbiosis	10	1
Joint Diseases	10	1
Libido: Low	10	1
Mortality: All-Cause	10	1
Overweight	10	1
Stroke	10	1
Systemic Lupus Erythematosus	10	1
Aging: Brain	4	2
C-Reactive Protein	4	2
Cognitive Decline/Dysfunction	4	2
Inflammatory Bowel Diseases	4	2
Aging	3	2
Colon Cancer: Prevention	3	2
Aluminum Toxicity	2	1
Cancer Metastasis	2	1
Colorectal Tumors	2	1
Endothelial Dysfunction	2	1
Fibrinogen: Elevated	2	1

Food Allergies	2	1
Hepatic Steatosis	2	1
High Cholesterol	2	1
High Cholesterol: very low density lipoprotein (VLDL)	2	1
Hyperuricemia	2	1
Inflammation	2	1
Irritable Bowel Syndrome	2	1
Malabsorption Syndrome	2	1
Muscle Fatigue	2	1
Neurodegenerative Diseases	2	1
Obesity	2	1
Radiation Induced Illness	2	1
Radiation-Induced Illness: Americium	2	1
Radiation-Induced Illness: Plutonium	2	1
Radiotherapy	2	1
Tongue Cancer	2	1
Triglycerides: Elevated	2	1
Tumors	2	1
Allergies	1	1
Alopecia	1	1
Cancers: Multi-Drug Resistant	1	1
Candida Albicans	1	1
Candida Infection	1	1
DNA damage	1	1
Denture Stomatitis	1	1
Diabetic Complications	1	1
Endotoxemia	1	1
Escherichia coli Infections	1	1

Hair Loss	1	1
Hepatoma	1	1
Hyperglycemia	1	1
Influenza A	1	1
Listeria Infections	1	1
Male Pattern Baldness	1	1
Porphyromonas gingivalis	1	1
Radiation Disaster Associated Toxicity	1	1
Squamous cell carcinoma	1	1
Staphylococcal Infections	1	1
Stomach Cancer	1	1

57 Relevant Results for Pharmacological Actions

Pharmacological Action Name	Cumulative Knowledge	Article Count
Antioxidants	68	22
Anti-Bacterial Agents	7	6
Antiproliferative	13	11
Apoptotic	13	11
Cell cycle arrest	7	6
Hepatoprotective	6	3
Chemopreventive	33	10
Radioprotective	26	6
Anti-Inflammatory Agents	20	6
Cyclooxygenase 2 Inhibitors	14	3
Hypolipidemic	8	4
Neuroprotective Agents	6	3
Hypoglycemic Agents	5	3
Cardioprotective	3	2

Enzyme Inhibitors	3	2
Anti-Apoptotic	2	1
Gastroprotective	2	1
Detoxifier	21	3
Detoxifier: Radionuclide Removal	20	2
Anticholesteremic Agents	10	1
Antinoceceptive	10	1
Aphrodisiac	10	1
Gastrointestinal Agents	10	1
Lipoxygenase Inhibitors	10	1
Anticarcinogenic Agents	8	5
Angiogenesis Inhibitors	5	1
NF-kappaB Inhibitor	5	3
Vascular Endothelial Growth Factor Inhibitors	5	1
Anti-atherogenic	2	1
Antidiarrheals	2	1
Antimicrobial	2	1
Appetite Depressants	2	1
Catalase Up-Regulation	2	1
Chelating Agents	2	1
Immunomodulatory	2	1
Insulin Sensitizers	2	1
Renoprotective	2	1
Superoxide Dismutase Up-regulation	2	1
Tumor Necrosis Factor (TNF) Alpha Inhibitor	2	1
Vasodilator Agents	2	1
Alpha-amylase inhibitor	1	1
Alpha-glucosidase inhibitor	1	1

Anti-Allergic Agents	1	1
Anti-Glycation Agents	1	1
Anti-metastatic	1	1
Antifungal Agents	1	1
Antimutagenic Agents	1	1
Antiviral Agents	1	1
Caspase-3 Activation	1	1
Chemosensitizer	1	1
Histone deacetylase inhibitor	1	1
Matrix metalloproteinase-9 (MMP-9) inhibitor	1	1
Nrf2 activation	1	1
P21 Activation	1	1
Prophylactic Agents	1	1
Topoisomerase II Inhibitor	1	1
Viral Hemagglutinin Inhibitor	1	1

50 Relevant Results for Substances

Substance Name	Cumulative Knowledge	Article Count
Apples	266	67
Polyphenols	51	13
Flavonoids	26	11
Quercetin	14	3
Vitamin C	12	2
Catechin	3	2
Carotenoids	2	2
Hops	2	2
Neoxanthin	1	1
Fruit: All	70	6

Vegetables: All	60	5
Apple Polyphenols	31	17
Pear	24	5
Banana	20	2
Broccoli	20	1
Carrot	20	1
Raisins	20	1
Grape	12	2
Green Tea	12	2
Chamomile	10	1
Cruciferous Vegetables	10	1
Dietary Modification: Mediterranean Diet.	10	1
Green Leafy Vegetables	10	1
Kale	10	1
Lettuce	10	1
Red Wine Extract	10	1
Tomato	10	1
EGCG (Epigallocatechin gallate)	6	2
Phloretin	3	3
Apple: Golden Delicious	2	2
Bifidobacterium	2	1
Bifidobacterium Longum	2	1
Black Tea	2	1
Calcium	2	1
Cherry: All Varieties	2	1
Fiber	2	1
Lactobacillus casei	2	1
Tannic Acid	2	1

Beet	1	1
Berries: All	1	1
Citrus Pectin	1	1
Curcumin	1	1
Flaxseed	1	1
Ginger	1	1
Gum arabic	1	1
Myrrh	1	1
Onion	1	1
Orange	1	1
Paprika	1	1
Pectin	1	1

19 Relevant Results for Keywords

Keyword Name	Cumulative Knowledge	Article Count
Dose Response	17	5
Risk Reduction	93	9
Plant Extracts	42	15
Natural Substance Synergy	12	2
Dietary Concentrations	2	1
Drug Side Effect Attenuation	2	1
Proanthocyanidins	17	6
Fruit Juice	10	1
Significant Treatment Outcome	10	1
Diet	5	1
Epigenetic Modification	3	2
Alpha-Glycan	2	1
Anti-Obesity Agents	2	1

Bacteriostatic	2	1
Chelation	2	1
Increased Bioavailability	2	1
Drug-Plant-Vitamin Synergies	1	1
Selective Cytotoxicity	1	1
Whole Food is Superior to the Isolated Parts	1	1

View the Evidence.
100 Research Articles in Total.

Category : Diseases

Advanced Glycation End products (AGE) (AC 2) (CK 3)

Apple leaves contain compounds which may have therapeutic value against advanced glycation end-productions and vasoconstriction.

Pubmed Data : Phytochemistry. 2009 Dec 18. Epub 2009 Dec 18. PMID: 20022617

Article Published Date : Dec 18, 2009

Authors : Thomas Dugé de Bernonville, Sylvain Guyot, Jean-Pierre Paulin, Matthieu Gaucher, Laurent Loufrani, Daniel Henrion, Séverine Derbré, David Guilet, Pascal Richomme, James F Dat, Marie-Noëlle Brisset

Study Type : Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Advanced Glycation End products (AGE) : CK(231) : AC(73)
Pharmacological Actions : Anti-Inflammatory Agents : CK(4500) : AC(1574), Vasodilator Agents : CK(342) : AC(73)

Bioactive compounds isolated from apple, tea, and ginger

protect against dicarbonyl induced stress in cultured human retinal epithelial cells.

Pubmed Data : Phytomedicine. 2016 Feb 15 ;23(2):200-13. Epub 2016 Jan 5. PMID: **26926182**

Article Published Date : Feb 14, 2016

Authors : Chethan Sampath, Yingdong Zhu, Shengmin Sang, Mohamed Ahmedna

Study Type : In Vitro Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17) , EGCG (Epigallocatechin gallate) : CK(606) : AC(312), Ginger : CK(676) : AC(175)
Diseases : Advanced Glycation End products (AGE) : CK(231) : AC(73) , Diabetic Complications : CK(1512) : AC(315)
Pharmacological Actions : Anti-Glycation Agents : CK(46) : AC(19) , Antioxidants : CK(7192) : AC(2631), Nrf2 activation : CK(172) : AC(83)

Aging (AC 2) (CK 3)

Apple exhibits anti-aging properties.

Pubmed Data : Oxid Med Cell Longev. 2012 ;2012:491759. Epub 2012 Aug 30. PMID: **22970337**

Article Published Date : Dec 31, 2011

Authors : Vanessa Palermo, Fulvio Mattivi, Romano Silvestri, Giuseppe La Regina, Claudio Falcone, Cristina Mazzoni

Study Type : Review
Additional Links
Substances : Apples : CK(374) : AC(100)
Diseases : Aging : CK(1581) : AC(428)
Additional Keywords : Whole Food is Superior to the Isolated Parts : CK(13) : AC(4)

Procyanidins from apples extend the lifespan of caenorhabditis elegans.

Pubmed Data : Planta Med. 2010 Aug 17. Epub 2010 Aug 17. PMID: **20717869**

Article Published Date : Aug 17, 2010

Authors : Tadahiro Sunagawa, Takahiko Shimizu, Tomomasa Kanda, Motoyuki Tagashira, Manabu Sami, Takuji Shirasawa

Study Type : Animal Study
Additional Links
Substances : Apples : CK(374) : AC(100)

Diseases : Aging : CK(1581) : AC(428)

Aging: Brain (AC 2) (CK 4)

Apple juice concentrate prevents oxidative damage and impaired maze performance in aged mice.

Pubmed Data : Ann Clin Psychiatry. 2009 Jul-Sep;21(3):148-61. PMID: **16340085**

Article Published Date : Jul 01, 2009

Authors : Flaubert Tchantchou, Amy Chan, Lydia Kifle, Daniela Ortiz, Thomas B Shea

Study Type : Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Aging: Brain : CK(246) : AC(84), Cognitive Decline/Dysfunction : CK(1138) : AC(212)
Pharmacological Actions : Neuroprotective Agents : CK(2237) : AC(1053)

The consumption of apples can prevent the decline in cognitive performance that accompanies dietary and genetic deficiencies and aging.

Pubmed Data : J Alzheimers Dis. 2006 Aug;9(3):287-91. PMID: **16914839**

Article Published Date : Aug 01, 2006

Authors : [No authors listed]

Study Type : Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Aging: Brain : CK(246) : AC(84), Cognitive Decline/Dysfunction : CK(1138) : AC(212), Neurodegenerative Diseases : CK(3370) : AC(846)
Pharmacological Actions : Antioxidants : CK(7192) : AC(2631)

Allergies (AC 1) (CK 1)

Procyanidin-enriched apple extract exhibits anti-allergic properties.

Pubmed Data : Int Arch Allergy Immunol. 2008;147(3):213-21. Epub 2008 Jul 2. PMID: 18594151

Article Published Date : Jan 01, 2008

Authors : [No authors listed]

Study Type : In Vitro Study
Additional Links
Substances : Apples : CK(374) : AC(100), Polyphenols : CK(920) : AC(333)
Diseases : Allergies : CK(672) : AC(128)
Pharmacological Actions : Anti-Allergic Agents : CK(167) : AC(61)
Additional Keywords : Plant Extracts : CK(7288) : AC(2419), Proanthocyanidins : CK(203) : AC(54)

Alopecia (AC 1) (CK 1)

Procyanidin B-2 from apples promotes hair growth.

Pubmed Data : Sci Total Environ. 2010 Feb 13. Epub 2010 Feb 13. PMID: 11841365

Article Published Date : Feb 13, 2010

Authors : A Kamimura, T Takahashi

Study Type : In Vitro Study
Additional Links
Substances : Apples : CK(374) : AC(100)
Diseases : Alopecia : CK(146) : AC(32), Hair Loss : CK(69) : AC(24), Male Pattern Baldness : CK(69) : AC(4)

Aluminum Toxicity (AC 1) (CK 2)

Apple polyphenol extracts have neuroprotective effects against Aluminum induced biotoxicity.

Pubmed Data : Neurotoxicology. 2014 Dec ;45:111-20. Epub 2014 Oct 17. PMID: 25445564

Article Published Date : Nov 30, 2014

Authors : Dai Cheng, Yu Xi, Jiankang Cao, Dongdong Cao, Yuxia Ma, Weibo Jiang

Study Type : Animal Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17) , Polyphenols : CK(920) : AC(333)
Diseases : Aluminum Toxicity : CK(195) : AC(75), Oxidative Stress : CK(3800) : AC(1357)
Pharmacological Actions : Chelating Agents : CK(12) : AC(1) , Neuroprotective Agents : CK(2235) : AC(1052)
Additional Keywords : Chelation : CK(4) : AC(2) , Plant Extracts : CK(7288) : AC(2419)

Alzheimer's Disease (AC 2) (CK 12)

Antioxidant beverages could be used as a natural complementary therapy to alleviate or decrease oxidative stress in Alzheimer's disease.

Pubmed Data : Eur J Nutr. 2015 Aug 23. Epub 2015 Aug 23. PMID: **26298312**

Article Published Date : Aug 22, 2015

Authors : Jose M Rubio-Perez, Maria D Albaladejo, Pilar Zafrilla, Maria L Vidal-Guevara, Juana M Morillas-Ruiz

Study Type : Human Study
Additional Links
Substances : Apples : CK(373) : AC(99) , Green Tea : CK(1934) : AC(549)
Diseases : Alzheimer's Disease : CK(1282) : AC(375) , Oxidative Stress : CK(3800) : AC(1357)
Pharmacological Actions : Antioxidants : CK(7191) : AC(2630)

Dietary supplementation with apple juice decreases endogenous amyloid-beta levels in mouse brain.

Pubmed Data : Int J Mol Med. 2010 Oct;26(4):447-55. PMID: **19158432**

Article Published Date : Oct 01, 2010

Authors : Amy Chan, Thomas B Shea

Study Type : Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Alzheimer's Disease : CK(1282) : AC(375)
Pharmacological Actions : Neuroprotective Agents : CK(2237) : AC(1053)

Aspirin-Induced Toxicity (AC 1) (CK 2)

Apple extracts assisted in protecting the gastric mucosa following acute aspirin administration

Pubmed Data : Phytother Res. 2014 Jul 28. Epub 2014 Jul 28. PMID: 25069887

Article Published Date : Jul 27, 2014

Authors : Gunaranjan Paturi, Christine A Butts, Kerry L Bentley-Hewitt, Tony K McGhie, Zaid S Saleh, Andrew McLeod

Study Type : Animal Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17) , Apples : CK(374) : AC(100)
Diseases : Aspirin-Induced Toxicity : CK(87) : AC(28)
Pharmacological Actions : Gastroprotective : CK(152) : AC(71)
Additional Keywords : Plant Extracts : CK(7288) : AC(2419)

Atherosclerosis (AC 4) (CK 8)

Apple fibers and polyphenols may play a role in preventing atherosclerosis by decreasing uric acid plasma level.

Pubmed Data : Phytomedicine. 2007 Apr;14(4):280-4. Epub 2007 Feb 12. PMID: 18558693

Article Published Date : Apr 01, 2007

Authors : Sylvain Auclair, Mathieu Silberberg, Elyett Gueux, Christine Morand, Andrzej Mazur, Dragan Milenkovic, Augustin Scalbert

Study Type : Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99) , Fiber : CK(808) : AC(103) , Flavonoids : CK(1194) : AC(376) , Polyphenols : CK(920) : AC(333)
Diseases : Atherosclerosis : CK(578) : AC(146) , Hyperuricemia : CK(217) : AC(48)
Pharmacological Actions : Antioxidants : CK(7191) : AC(2630)
Additional Keywords : Plant Extracts : CK(7288) : AC(2419)

Apple juice can effectively prevent the progress of atherosclerosis.

Pubmed Data : Lipids Health Dis. 2009;8:39. Epub 2009 Oct 5. PMID: **19804641**

Article Published Date : Jan 01, 2009

Authors : Mahbubeh Setorki, Sedighe Asgary, Akram Eidi, Ali Haeri Rohani, Nafiseh Esmaeil

Study Type : Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Atherosclerosis : CK(578) : AC(146), C-Reactive Protein : CK(1628) : AC(171), Fibrinogen: Elevated : CK(104) : AC(12)

Phenolics from purple grape, apple, purple grape juice and apple juice prevent early atherosclerosis induced by an atherogenic diet in hamsters.

Pubmed Data : Mol Nutr Food Res. 2008 Apr;52(4):400-7. PMID: **18214852**

Article Published Date : Apr 01, 2008

Authors : [No authors listed]

Study Type : Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99), Grape : CK(1720) : AC(430)
Diseases : Atherosclerosis : CK(578) : AC(146)
Pharmacological Actions : Cardioprotective : CK(1574) : AC(400)

These results suggest that the apple polyphenols are a beneficial nutritional supplement for the attenuation of atherosclerosis.

Pubmed Data : Nutrients. 2015 ;7(8):7085-105. Epub 2015 Aug 24. PMID: **26305254**

Article Published Date : Dec 31, 2014

Authors : Zhe-Rong Xu, Jin-You Li, Xin-Wei Dong, Zhong-Ju Tan, Wei-Zhen Wu, Qiang-Min Xie, Yun-Mei Yang

Study Type : Animal Study, In Vitro Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17)
Diseases : Atherosclerosis : CK(578) : AC(146), Endothelial Dysfunction : CK(1166) : AC(231), Hepatic Steatosis : CK(131) : AC(35)
Pharmacological Actions : Anti-atherogenic : CK(143) : AC(36), Anti-Inflammatory Agents : CK(4499) : AC(1573), Antioxidants : CK(7191) : AC(2630), Catalase Up-Regulation : CK(118) : AC(42), Hepatoprotective : CK(1342) : AC(581), Superoxide Dismutase Up-regulation : CK(504) : AC(169)

Breast Cancer (AC 9) (CK 40)

Apple and curcumin extracts contain phytochemicals which inhibit cellular processes associated with breast cancer cell resistance to chemotherapy.

Pubmed Data : J Agric Food Chem. 2007 Apr 18;55(8):3167-73. Epub 2007 Mar 21. PMID: 17373813

Article Published Date : Apr 18, 2007

Authors : Hyungeun Yoon, Rui Hai Liu

Study Type : In Vitro Study
Additional Links
Substances : Apples : CK(373) : AC(99) , Curcumin : CK(4128) : AC(2171)
Diseases : Breast Cancer : CK(3492) : AC(1052)
Pharmacological Actions : NF-kappaB Inhibitor : CK(1100) : AC(686)

Apple phytochemical extracts inhibit proliferation of estrogen-dependent and estrogen-independent human breast cancer cells.

Pubmed Data : J Agric Food Chem. 2008 Dec 24;56(24):11661-7. PMID: 19053381

Article Published Date : Dec 24, 2008

Authors : Jie Sun, Rui Hai Liu

Study Type : In Vitro Study
Additional Links
Substances : Apples : CK(373) : AC(99) , Flavonoids : CK(1194) : AC(376)
Diseases : Breast Cancer : CK(3492) : AC(1052)
Pharmacological Actions : Antiproliferative : CK(2461) : AC(1673), Cell cycle arrest : CK(805) : AC(607)
Additional Keywords : Plant Extracts : CK(7288) : AC(2419)

Apple total triterpenoid content induced apoptosis in MDA-MB-231 cells.

Pubmed Data : J Agric Food Chem. 2012 Sep 19 ;60(37):9430-6. Epub 2012 Sep 6. PMID: 22924395

Article Published Date : Sep 18, 2012

Authors : Xiangjiu He, Yihai Wang, Hui Hu, Zhenxue Zhang

Study Type : Animal Study, In Vitro Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Breast Cancer : CK(3492) : AC(1052) , Breast Cancer: Triple Negative : CK(256) : AC(138), Colon Cancer : CK(743) : AC(426) , Liver Cancer : CK(1208) : AC(455)
Pharmacological Actions : Antiproliferative : CK(2461) : AC(1673), Apoptotic : CK(2941) : AC(2062) , Cell cycle arrest : CK(805) : AC(607) , NF-kappaB Inhibitor : CK(1100) : AC(686)
Additional Keywords : Dose Response : CK(1035) : AC(400)

Apples prevent mammary tumors in rats.

Pubmed Data : J Altern Complement Med. 2010 Sep;16(9):973-8. PMID: **15769178**

Article Published Date : Sep 01, 2010

Authors : Rui Hai Liu, Jiaren Liu, Bingqing Chen

Study Type : Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Breast Cancer : CK(3492) : AC(1052)
Pharmacological Actions : Antioxidants : CK(7191) : AC(2630) , Chemopreventive : CK(2678) : AC(767)

Consumption of apples is associated with a reduced risk of cancer in different anatomical sites.

Pubmed Data : Public Health Nutr. 2016 Mar 22:1-15. Epub 2016 Mar 22. PMID: **27000627**

Article Published Date : Mar 21, 2016

Authors : Roberto Fabiani, Liliana Minelli, Patrizia Rosignoli

Study Type : Meta Analysis
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Breast Cancer : CK(3492) : AC(1052) , Colorectal Cancer : CK(1635) : AC(611) , Esophageal Cancer : CK(486) : AC(84), Oral Cancer : CK(194) : AC(78)
Additional Keywords : Risk Reduction : CK(6136) : AC(658)

Flavonoids from Pink Lady apples can inhibit cancer cell growth in human colon cancer LoVo cells and breast cancer MCF-7 cells.

Pubmed Data : Food Funct. 2015 Sep 29. Epub 2015 Sep 29. PMID: **26416794**

Article Published Date : Sep 28, 2015

Authors : Shufang Yang, Haisheng Zhang, Xingbin Yang, Yilin Zhu, Min Zhang

Study Type : In Vitro Study
Additional Links

Substances : Apple Polyphenols : CK(31) : AC(17)
Diseases : Breast Cancer : CK(3492) : AC(1052) , Colon Cancer : CK(743) : AC(426)
Pharmacological Actions : Antioxidants : CK(7191) : AC(2630) , Apoptotic : CK(2941) : AC(2062)
Additional Keywords : Dose Response : CK(1035) : AC(400)

Fresh apples suppress mammary carcinogenesis in rats.

Pubmed Data : J Agric Food Chem. 2009 Jan 14;57(1):297-304. PMID: **19072049**

Article Published Date : Jan 14, 2009

Authors : Jia-Ren Liu, Hong-Wei Dong, Bing-Qing Chen, Peng Zhao, Rui Hai Liu

Study Type : Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Breast Cancer : CK(3492) : AC(1052)
Pharmacological Actions : Anticarcinogenic Agents : CK(1071) : AC(514) , Antiproliferative : CK(2461) : AC(1673), Apoptotic : CK(2941) : AC(2062)
Additional Keywords : Plant Extracts : CK(7288) : AC(2419)

High intake of fruit during adolescence could be associated with a lower risk of breast cancer.

Pubmed Data : BMJ. 2016 ;353:i2343. Epub 2016 May 11. PMID: **27170029**

Article Published Date : Dec 31, 2015

Authors : Maryam S Farvid, Wendy Y Chen, Karin B Michels, Eunyoung Cho, Walter C Willett, A Heather Eliassen

Study Type : Human Study
Additional Links
Substances : Apples : CK(373) : AC(99) , Banana : CK(194) : AC(53) , Fruit: All : CK(3530) : AC(769) , Grape : CK(1720) : AC(430) , Kale : CK(53) : AC(6) , Vegetables: All : CK(1032) : AC(113)
Diseases : Breast Cancer : CK(3492) : AC(1052)
Additional Keywords : Risk Reduction : CK(6136) : AC(658)

Pelingo apple is rich in food components that can markedly inhibit in vitro tumorigenesis and growth of human breast cancer cells.

Pubmed Data : PLoS One. 2015 ;10(8):e0135840. Epub 2015 Aug 18. PMID: **26284516**

Article Published Date : Dec 31, 2014

Authors : Giuditta Fiorella Schiavano, Mauro De Santi, Giorgio Brandi, Mirco Fanelli, Anahi Bucchini, Laura Giamperi, Giovanna Giomaro

Study Type : In Vitro Study
Additional Links
Substances : Apples : CK(373) : AC(99)

Diseases : Breast Cancer : CK(3492) : AC(1052) , Breast Cancer: Triple Negative : CK(256) : AC(138)
Pharmacological Actions : Antiproliferative : CK(2461) : AC(1673), Cell cycle arrest : CK(805) : AC(607), Chemopreventive : CK(2678) : AC(767) , P21 Activation : CK(72) : AC(47)

Breast Cancer: Triple Negative (AC 3) (CK 4)

Apple pectic acid without any modification could trigger apoptosis in MDA-MB-231 human breast cancer cells and has potential to improve cancer treatment as a natural product.

Pubmed Data : Asian Pac J Cancer Prev. 2015 ;16(13):5265-71. PMID: **26225664**

Article Published Date : Dec 31, 2014

Authors : Ladan Delphi, Houri Sepehri, Mohammad Reza Khorramizadeh, Fatemeh Mansoori

Study Type : In Vitro Study
Additional Links
Substances : Apple Pectin : CK(66) : AC(15)
Diseases : Breast Cancer: Triple Negative : CK(256) : AC(138)
Pharmacological Actions : Antiproliferative : CK(2461) : AC(1673), Apoptotic : CK(2941) : AC(2062) , Cell cycle arrest : CK(805) : AC(607)

Apple total triterpenoid content induced apoptosis in MDA-MB-231 cells.

Pubmed Data : J Agric Food Chem. 2012 Sep 19 ;60(37):9430-6. Epub 2012 Sep 6. PMID: **22924395**

Article Published Date : Sep 18, 2012

Authors : Xiangjiu He, Yihai Wang, Hui Hu, Zhenxue Zhang

Study Type : Animal Study, In Vitro Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Breast Cancer : CK(3492) : AC(1052) , Breast Cancer: Triple Negative : CK(256) : AC(138), Colon Cancer : CK(743) : AC(426) , Liver Cancer : CK(1208) : AC(455)
Pharmacological Actions : Antiproliferative : CK(2461) : AC(1673), Apoptotic : CK(2941) : AC(2062) , Cell cycle arrest : CK(805) : AC(607) , NF-kappaB Inhibitor : CK(1100) : AC(686)
Additional Keywords : Dose Response : CK(1035) : AC(400)

Pelingo apple is rich in food components that can markedly inhibit in vitro tumorigenesis and growth of human breast cancer cells.

Pubmed Data : PLoS One. 2015 ;10(8):e0135840. Epub 2015 Aug 18. PMID: **26284516**

Article Published Date : Dec 31, 2014

Authors : Giuditta Fiorella Schiavano, Mauro De Santi, Giorgio Brandi, Mirco Fanelli, Anahi Bucchini, Laura Giamperi, Giovanna Giomaro

Study Type : In Vitro Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Breast Cancer : CK(3492) : AC(1052) , Breast Cancer: Triple Negative : CK(256) : AC(138)
Pharmacological Actions : Antiproliferative : CK(2461) : AC(1673), Cell cycle arrest : CK(805) : AC(607), Chemopreventive : CK(2678) : AC(767) , P21 Activation : CK(72) : AC(47)

C-Reactive Protein (AC 2) (CK 4)

Apple juice can effectively prevent the progress of atherosclerosis.

Pubmed Data : Lipids Health Dis. 2009;8:39. Epub 2009 Oct 5. PMID: **19804641**

Article Published Date : Jan 01, 2009

Authors : Mahbubeh Setorki, Sedighe Asgary, Akram Eidi, Ali Haeri Rohani, Nafiseh Esmaeil

Study Type : Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Atherosclerosis : CK(578) : AC(146) , C-Reactive Protein : CK(1628) : AC(171) , Fibrinogen: Elevated : CK(104) : AC(12)

Polyphenol-rich apple peel extract, cherry extract and quercetin modulates some of the harmful effects of the consumption of an high fat diet.

Pubmed Data : J Nutr. 2016 Apr 6. Epub 2016 Apr 6. PMID: **27052533**

Article Published Date : Apr 05, 2016

Authors : Sarah M Snyder, Bingxin Zhao, Ting Luo, Clive Kaiser, George Cavender, Jill Hamilton-Reeves, Debra K Sullivan, Neil F Shay

Study Type : Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99) , Cherry: All Varieties : CK(167) : AC(31) , Quercetin : CK(557) : AC(246)
Diseases : C-Reactive Protein : CK(1628) : AC(171) , High Fat Diet : CK(176) : AC(85) , Inflammation : CK(2863) : AC(839)
Pharmacological Actions : Anti-Inflammatory Agents : CK(4499) : AC(1573) , Hypoglycemic Agents : CK(1380) : AC(338)
Additional Keywords : Plant Extracts : CK(7288) : AC(2419)

Cancer Metastasis (AC 1) (CK 2)

Apple pectin and Lactobacillus casei inhibit liver cancer metastasis.

Pubmed Data : Hum Cell. 1999 Dec;12(4):189-96. PMID: **10834105**

Article Published Date : Dec 01, 1999

Authors : K Tazawa, K Yatuzuka, M Yatuzuka, J Koike, H Ohkami, T Saito, Y Ohnishi, M Saito

Study Type : Animal Study
Additional Links
Substances : Apple Pectin : CK(66) : AC(15), Lactobacillus casei : CK(209) : AC(40)
Diseases : Cancer Metastasis : CK(442) : AC(206) , Liver Cancer : CK(1208) : AC(455)

Cancers: All (AC 5) (CK 27)

Apples contain a wide range of health benefits.

Pubmed Data : J Endocrinol. 2011 Mar;208(3):273-83. Epub 2011 Jan 6. PMID: **18855307**

Article Published Date : Mar 01, 2011

Authors : Clarissa Gerhauser

Study Type : Review
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Cancers: All : CK(14297) : AC(4542)

Pharmacological Actions : Anticarcinogenic Agents : CK(1071) : AC(514)
Additional Keywords : Risk Reduction : CK(6136) : AC(658)

Carotenoids extracted from red paprika, Valencia orange and Golden delicious apple exhibit anti-H. pylori and anti-multidrug resistance activity.

Pubmed Data : Phytother Res. 2005 Aug;19(8):700-7. PMID: **16177974**

Article Published Date : Aug 01, 2005

Authors : Péter Molnár, Masami Kawase, Kazue Satoh, Yoshitaka Sohara, Toru Tanaka, Satoru Tani, Hiroshi Sakagami, Hideki Nakashima, Noboru Motohashi, Nóra Gyémánt, Joseph Molnár

Study Type : In Vitro Study
Additional Links
Substances : Apple: Golden Delicious : CK(2) : AC(2) , Carotenoids : CK(1620) : AC(306) , Orange : CK(170) : AC(35), Paprika : CK(8) : AC(6)
Diseases : Cancers: All : CK(14296) : AC(4541) , Cancers: Multi-Drug Resistant : CK(120) : AC(93) , Helicobacter Pylori Infection : CK(475) : AC(101)
Pharmacological Actions : Anti-Bacterial Agents : CK(1362) : AC(470) , Antioxidants : CK(7191) : AC(2630), Chemosensitizer : CK(391) : AC(283)

Data from a series of case control studies suggested a favourable role of high intakes of fruit and vegetables in the risk of many common cancers, particularly of the digestive tract.

Pubmed Data : Br J Nutr. 2015 Apr ;113 Suppl 2:S102-10. PMID: **26148912**

Article Published Date : Mar 31, 2015

Authors : Federica Turati, Marta Rossi, Claudio Pelucchi, Fabio Levi, Carlo La Vecchia

Study Type : Human Study
Additional Links
Substances : Apples : CK(373) : AC(99) , Cruciferous Vegetables : CK(1108) : AC(348) , Dietary Modification: Mediterranean Diet. : CK(20) : AC(1), Fruit: All : CK(3530) : AC(769) , Tomato : CK(557) : AC(109), Vegetables: All : CK(1032) : AC(113)
Diseases : Cancers: All : CK(14297) : AC(4542)
Additional Keywords : Risk Reduction : CK(6136) : AC(658)

The consumption of apples is inversely associated with the risk of developing various cancers.

Pubmed Data : Ann Oncol. 2005 Nov;16(11):1841-4. Epub 2005 Aug 9. PMID: **16091428**

Article Published Date : Nov 01, 2005

Authors : S Gallus, R Talamini, A Giacosa, M Montella, V Ramazzotti, S Franceschi, E Negri, C La

Vecchia

Study Type : Human Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Cancers: All : CK(14297) : AC(4542)

VEGF is a key molecular target for specific polyphenols found in tea, apples and cocoa which potently inhibit VEGF signalling and angiogenesis at physiological concentrations.

Pubmed Data : Mol Nutr Food Res. 2015 Mar ;59(3):401-12. Epub 2015 Jan 22. PMID: 25546248

Article Published Date : Feb 28, 2015

Authors : Christina W A Moyle, Ana B Cerezo, Mark S Winterbone, Wendy J Hollands, Yuri Alexeev, Paul W Needs, Paul A Kroon

Study Type : Human In Vitro
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17) , EGCG (Epigallocatechin gallate) : CK(606) : AC(312), Polyphenols : CK(920) : AC(333)
Diseases : Cancers: All : CK(14297) : AC(4542)
Pharmacological Actions : Angiogenesis Inhibitors : CK(112) : AC(61) , Vascular Endothelial Growth Factor Inhibitors : CK(123) : AC(61)
Additional Keywords : Diet : CK(75) : AC(8)

Cancers: Multi-Drug Resistant (AC 1) (CK 1)

Carotenoids extracted from red paprika, Valencia orange and Golden delicious apple exhibit anti-H. pylori and anti-multidrug resistance activity.

Pubmed Data : Phytother Res. 2005 Aug;19(8):700-7. PMID: 16177974

Article Published Date : Aug 01, 2005

Authors : Péter Molnár, Masami Kawase, Kazue Satoh, Yoshitaka Sohara, Toru Tanaka, Satoru Tani, Hiroshi Sakagami, Hideki Nakashima, Noboru Motohashi, Nóra Gyémánt, Joseph Molnár

Study Type : In Vitro Study
Additional Links

Substances : Apple: Golden Delicious : CK(2) : AC(2) , Carotenoids : CK(1620) : AC(306) , Orange : CK(170) : AC(35), Paprika : CK(8) : AC(6)
Diseases : Cancers: All : CK(14296) : AC(4541) , Cancers: Multi-Drug Resistant : CK(120) : AC(93) , Helicobacter Pylori Infection : CK(475) : AC(101)
Pharmacological Actions : Anti-Bacterial Agents : CK(1362) : AC(470) , Antioxidants : CK(7191) : AC(2630), Chemosensitizer : CK(391) : AC(283)

Candida Albicans (AC 1) (CK 1)

Apple cider vinegar showed antifungal properties against Candida spp., thus representing a possible therapeutic alternative for patients with denture stomatitis.

Pubmed Data : J Prosthodont. 2015 Jun ;24(4):296-302. Epub 2014 Sep 14. PMID: 25219289

Article Published Date : May 31, 2015

Authors : Ana Carolina Loureiro Gama Mota, Ricardo Dias de Castro, Julyana de Araújo Oliveira, Edeltrudes de Oliveira Lima

Study Type : In Vitro Study
Additional Links
Substances : Apple Cider Vinegar : CK(9) : AC(5)
Diseases : Candida Albicans : CK(38) : AC(26) , Candida Infection : CK(241) : AC(112), Denture Stomatitis : CK(11) : AC(1)
Pharmacological Actions : Antifungal Agents : CK(233) : AC(145)

Candida Infection (AC 1) (CK 1)

Apple cider vinegar showed antifungal properties against Candida spp., thus representing a possible therapeutic alternative for patients with denture stomatitis.

Pubmed Data : J Prosthodont. 2015 Jun ;24(4):296-302. Epub 2014 Sep 14. PMID: 25219289

Article Published Date : May 31, 2015

Authors : Ana Carolina Loureiro Gama Mota, Ricardo Dias de Castro, Julyana de Araújo Oliveira,

Edeltrudes de Oliveira Lima

Study Type : In Vitro Study
Additional Links
Substances : Apple Cider Vinegar : CK(9) : AC(5)
Diseases : Candida Albicans : CK(38) : AC(26) , Candida Infection : CK(241) : AC(112), Denture Stomatitis : CK(11) : AC(1)
Pharmacological Actions : Antifungal Agents : CK(233) : AC(145)

Cardiovascular Disease: Prevention (AC 1) (CK 1)

This review will focus on the reciprocal interaction between apple components and the gut microbiota and the potential link to cardiovascular health and the possible mechanisms of action.

Pubmed Data : Nutrients. 2015;7(6):3959-3998. Epub 2015 May 26. PMID: **26016654**

Article Published Date : Dec 31, 2014

Authors : Athanasios Koutsos, Kieran M Tuohy, Julie A Lovegrove

Study Type : Review
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17) , Apples : CK(374) : AC(100)
Diseases : Cardiovascular Disease: Prevention : CK(3094) : AC(415) , Cardiovascular Diseases : CK(7018) : AC(887)
Pharmacological Actions : Cardioprotective : CK(1574) : AC(400)
Additional Keywords : Cardioprotective : CK(1574) : AC(400)

Cardiovascular Diseases (AC 2) (CK 11)

Apple pectin significantly reduces Cesium-137 load within 16 days in children exposed to radioisotopes as a result of

Chernobyl.

Pubmed Data : Swiss Med Wkly. 2004 Dec 18;134(49-50):725-9. PMID: **15635491**

Article Published Date : Dec 18, 2004

Authors : G S Bandazhevskaya, V B Nesterenko, V I Babenko, T V Yerkovich, Y I Bandazhevsky

Study Type : Human Study
Additional Links
Substances : Apple Pectin : CK(66) : AC(15)
Diseases : Cardiovascular Diseases : CK(7018) : AC(887) , Radiation-Induced Illness: Cesium-137 Exposure : CK(96) : AC(25)
Pharmacological Actions : Detoxifier : CK(408) : AC(131) , Detoxifier: Radionuclide Removal : CK(23) : AC(4), Radioprotective : CK(725) : AC(258)

This review will focus on the reciprocal interaction between apple components and the gut microbiota and the potential link to cardiovascular health and the possible mechanisms of action.

Pubmed Data : Nutrients. 2015;7(6):3959-3998. Epub 2015 May 26. PMID: **26016654**

Article Published Date : Dec 31, 2014

Authors : Athanasios Koutsos, Kieran M Tuohy, Julie A Lovegrove

Study Type : Review
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17) , Apples : CK(374) : AC(100)
Diseases : Cardiovascular Disease: Prevention : CK(3094) : AC(415) , Cardiovascular Diseases : CK(7018) : AC(887)
Pharmacological Actions : Cardioprotective : CK(1574) : AC(400)
Additional Keywords : Cardioprotective : CK(1574) : AC(400)

Chemically-Induced Liver Damage (AC 1) (CK 2)

The results of the present study revealed the hepatoprotective efficacy of APE by inhibiting carbon tetrachloride induced apoptosis.

Pubmed Data : Hum Exp Toxicol. 2016 Jan 25. Epub 2016 Jan 25. PMID: **26811344**

Article Published Date : Jan 24, 2016

Authors : S Sharma, S Rana, V Patial, M Gupta, S Bhushan, Y S Padwad

Study Type : Animal Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17) , Apples : CK(373) : AC(99)
Diseases : Chemically-Induced Liver Damage : CK(629) : AC(252)
Pharmacological Actions : Anti-Apoptotic : CK(360) : AC(201) , Antioxidants : CK(7192) : AC(2631) , Hepatoprotective : CK(1342) : AC(581)
Additional Keywords : Dose Response : CK(1035) : AC(400)

Cholera (AC 2) (CK 4)

Apple polyphenol may reduce the adverse effects of the immunization adjuvant cholera toxin.

Pubmed Data : Vaccine. 2009 Jul 30;27(35):4808-17. Epub 2009 Jun 17. PMID: **19539583**

Article Published Date : Jul 30, 2009

Authors : Naoto Yoshino, Kohtaro Fujihashi, Yukari Hagiwara, Hiroyuki Kanno, Kiyomi Takahashi, Ryoki Kobayashi, Noriyuki Inaba, Masatoshi Noda, Shigehiro Sato

Study Type : Animal Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17) , Apples : CK(374) : AC(100) , Polyphenols : CK(920) : AC(333)
Diseases : Cholera : CK(66) : AC(24) , Vaccine-induced Toxicity : CK(1288) : AC(194)
Additional Keywords : Drug Side Effect Attenuation : CK(251) : AC(49)

Polymerized catechin compounds in apple polyphenol extracts inhibit the biological and enzymatic activities of cholera toxin.

Pubmed Data : Microbiol Immunol. 2002 ;46(4):249-55. PMID: **12061627**

Article Published Date : Dec 31, 2001

Authors : Takao Saito, Masami Miyake, Masamichi Toba, Hiroshi Okamatsu, Seiichi Shimizu, Masatoshi Noda

Study Type : Animal Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17) , Catechin : CK(512) : AC(169), Flavonoids : CK(1194) : AC(376)
Diseases : Cholera : CK(66) : AC(24)

Pharmacological Actions : Antidiarrheals : CK(110) : AC(20) , Antimicrobial : CK(290) : AC(125) , Enzyme Inhibitors : CK(463) : AC(250)
Additional Keywords : Dose Response : CK(1035) : AC(400) , Plant Extracts : CK(7288) : AC(2419)

Cognitive Decline/Dysfunction (AC 2) (CK 4)

Apple juice concentrate prevents oxidative damage and impaired maze performance in aged mice.

Pubmed Data : Ann Clin Psychiatry. 2009 Jul-Sep;21(3):148-61. PMID: **16340085**

Article Published Date : Jul 01, 2009

Authors : Flaubert Tchantchou, Amy Chan, Lydia Kifle, Daniela Ortiz, Thomas B Shea

Study Type : Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Aging: Brain : CK(246) : AC(84), Cognitive Decline/Dysfunction : CK(1138) : AC(212)
Pharmacological Actions : Neuroprotective Agents : CK(2237) : AC(1053)

The consumption of apples can prevent the decline in cognitive performance that accompanies dietary and genetic deficiencies and aging.

Pubmed Data : J Alzheimers Dis. 2006 Aug;9(3):287-91. PMID: **16914839**

Article Published Date : Aug 01, 2006

Authors : [No authors listed]

Study Type : Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Aging: Brain : CK(246) : AC(84), Cognitive Decline/Dysfunction : CK(1138) : AC(212) , Neurodegenerative Diseases : CK(3370) : AC(846)
Pharmacological Actions : Antioxidants : CK(7192) : AC(2631)

Colitis (AC 2) (CK 4)

Apple polyphenols extract (APE) improves colon damage in a rat model of colitis.

Pubmed Data : Dig Liver Dis. 2012 Feb 28. Epub 2012 Feb 28. PMID: 22381211

Article Published Date : Feb 28, 2012

Authors : Giuseppe D'Argenio, Giovanna Mazzone, Concetta Tuccillo, Maria T Ribecco, Giulia Graziani, Antonietta G Gravina, Sergio Caserta, Stefano Guido, Vincenzo Fogliano, Nicola Caporaso, Marco Romano

Study Type : Animal Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17)
Diseases : Colitis : CK(251) : AC(109)
Pharmacological Actions : Cyclooxygenase 2 Inhibitors : CK(448) : AC(267) , Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1752) : AC(641)

Apple polysaccharide extracts could be used in combination therapy for the prevention of colitis-associated colon cancer.

Pubmed Data : Nutr Cancer. 2015 ;67(1):177-90. Epub 2014 Nov 20. PMID: 25412264

Article Published Date : Dec 31, 2014

Authors : Dian Zhang, Man Mi, Fengliang Jiang, Yang Sun, Yuhua Li, Libin Yang, Lei Fan, Qian Li, Jin Meng, Zhenggang Yue, Li Liu, Qibing Mei

Study Type : Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Colitis : CK(251) : AC(109) , Colon Cancer : CK(743) : AC(426) , Colon Cancer: Prevention : CK(176) : AC(56)
Pharmacological Actions : Anti-Inflammatory Agents : CK(4499) : AC(1573) , Anticarcinogenic Agents : CK(1071) : AC(514), NF-kappaB Inhibitor : CK(1100) : AC(686)
Additional Keywords : Plant Extracts : CK(7288) : AC(2419)

Colon Cancer (AC 12) (CK 36)

Apple juice upregulates antioxidant-associated genes in the rat colon and liver, which may account for apple's anti-cancer activity.

Pubmed Data : Carcinogenesis. 2000 Aug;21(8):1461-7. PMID: **20652274**

Article Published Date : Aug 01, 2000

Authors : Bülent Soyalan, Jutta Minn, Hans J Schmitz, Dieter Schrenk, Frank Will, Helmut Dietrich, Matthias Baum, Gerhard Eisenbrand, Christine Janzowski

Study Type : Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99) , Polyphenols : CK(920) : AC(333)
Diseases : Colon Cancer : CK(743) : AC(426) , Liver Cancer : CK(1208) : AC(455)
Pharmacological Actions : Antioxidants : CK(7191) : AC(2630) , Chemopreventive : CK(2678) : AC(767)

Apple pectin and Bifidobacterium longum inhibit colorectal tumors in transgenic mice.

Pubmed Data : Exp Anim. 2000 Oct;49(4):305-7. PMID: **11109558**

Article Published Date : Oct 01, 2000

Authors : K Ohno, S Narushima, S Takeuchi, K Itoh, T Mitsuoka, H Nakayama, T Itoh, K Hioki, T Nomura

Study Type : Transgenic Animal Study
Additional Links
Substances : Apple Pectin : CK(66) : AC(15), Bifidobacterium : CK(561) : AC(58) , Bifidobacterium Longum : CK(90) : AC(18)
Diseases : Colon Cancer : CK(743) : AC(426) , Colorectal Cancer : CK(1635) : AC(611) , Colorectal Tumors : CK(5) : AC(4)

Apple pectin decrease the number and incidence of colon cancer.

Pubmed Data : J Exp Clin Cancer Res. 1997 Mar;16(1):33-8. PMID: **9148858**

Article Published Date : Mar 01, 1997

Authors : K Tazawa, H Okami, I Yamashita, Y Ohnishi, K Kobashi, M Fujimaki

Study Type : Animal Study
Additional Links
Substances : Apple Pectin : CK(66) : AC(15)
Diseases : Colon Cancer : CK(743) : AC(426)
Additional Keywords : Bacteriostatic : CK(2) : AC(1)

Apple polyphenols activate programmed cell death in

human colon cancer cells.

Pubmed Data : Biochem Biophys Res Commun. 2009 Oct 16;388(2):372-6. Epub 2009 Aug 8. PMID: **19666002**

Article Published Date : Oct 16, 2009

Authors : Maria E Maldonado-Celis, Souad Bousserouel, Francine Gossé, Annelise Lobstein, Francis Raul

Study Type : In Vitro Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Colon Cancer : CK(743) : AC(426)
Pharmacological Actions : Apoptotic : CK(2941) : AC(2062)
Additional Keywords : Proanthocyanidins : CK(203) : AC(54)

Apple polysaccharide extracts could be used in combination therapy for the prevention of colitis-associated colon cancer.

Pubmed Data : Nutr Cancer. 2015 ;67(1):177-90. Epub 2014 Nov 20. PMID: **25412264**

Article Published Date : Dec 31, 2014

Authors : Dian Zhang, Man Mi, Fengliang Jiang, Yang Sun, Yuhua Li, Libin Yang, Lei Fan, Qian Li, Jin Meng, Zhenggang Yue, Li Liu, Qibing Mei

Study Type : Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Colitis : CK(251) : AC(109), Colon Cancer : CK(743) : AC(426), Colon Cancer: Prevention : CK(176) : AC(56)
Pharmacological Actions : Anti-Inflammatory Agents : CK(4499) : AC(1573), Anticarcinogenic Agents : CK(1071) : AC(514), NF-kappaB Inhibitor : CK(1100) : AC(686)
Additional Keywords : Plant Extracts : CK(7288) : AC(2419)

Apple total triterpenoid content induced apoptosis in MDA-MB-231 cells.

Pubmed Data : J Agric Food Chem. 2012 Sep 19 ;60(37):9430-6. Epub 2012 Sep 6. PMID: **22924395**

Article Published Date : Sep 18, 2012

Authors : Xiangjiu He, Yihai Wang, Hui Hu, Zhenxue Zhang

Study Type : Animal Study, In Vitro Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Breast Cancer : CK(3492) : AC(1052), Breast Cancer: Triple Negative : CK(256) : AC(138), Colon Cancer : CK(743) : AC(426), Liver Cancer : CK(1208) : AC(455)
Pharmacological Actions : Antiproliferative : CK(2461) : AC(1673), Apoptotic : CK(2941) : AC(2062), Cell cycle arrest : CK(805) : AC(607), NF-kappaB Inhibitor : CK(1100) : AC(686)

Additional Keywords : Dose Response : CK(1035) : AC(400)

Apples may exert their colon cancer protective effects through favorably altering gene patterns resulting in protection of cells against toxicological insults.

Pubmed Data : Int J Cancer. 2008 Jun 15;122(12):2647-55. PMID: 18351577

Article Published Date : Jun 15, 2008

Authors : Selvaraju Veeriah, Claudia Miene, Nina Habermann, Thomas Hofmann, Stefanie Klenow, Julia Sauer, Frank Böhmer, Stefan Wölfl, Beatrice Louise Pool-Zobel

Study Type : Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99) , Flavonoids : CK(1194) : AC(376) , Polyphenols : CK(920) : AC(333)
Diseases : Colon Cancer : CK(743) : AC(426)
Pharmacological Actions : Chemopreventive : CK(2678) : AC(767)
Additional Keywords : Epigenetic Modification : CK(218) : AC(88)

Flavonoids from Pink Lady apples can inhibit cancer cell growth in human colon cancer LoVo cells and breast cancer MCF-7 cells.

Pubmed Data : Food Funct. 2015 Sep 29. Epub 2015 Sep 29. PMID: 26416794

Article Published Date : Sep 28, 2015

Authors : Shufang Yang, Haisheng Zhang, Xingbin Yang, Yilin Zhu, Min Zhang

Study Type : In Vitro Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17)
Diseases : Breast Cancer : CK(3492) : AC(1052) , Colon Cancer : CK(743) : AC(426)
Pharmacological Actions : Antioxidants : CK(7191) : AC(2630) , Apoptotic : CK(2941) : AC(2062)
Additional Keywords : Dose Response : CK(1035) : AC(400)

Phenolics from Fuji apple showed good antioxidant, antibacterial, and antiproliferative activities.

Pubmed Data : J Food Sci. 2016 Jun 6. Epub 2016 Jun 6. PMID: 27272442

Article Published Date : Jun 05, 2016

Authors : Jincan Luo, Pei Zhang, Siqian Li, Nagendra P Shah

Study Type : In Vitro Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17)
Diseases : Colon Cancer : CK(743) : AC(426) , Escherichia coli Infections : CK(152) : AC(90) , Listeria

Infections : CK(29) : AC(23), Staphylococcus aureus infection : CK(148) : AC(104)
Pharmacological Actions : Anti-Bacterial Agents : CK(1362) : AC(470) , Antioxidants : CK(7191) : AC(2630), Antiproliferative : CK(2461) : AC(1673)

Phloretin, which is present in apples and pears, induces programmed cell death in human colon cancer cells.

Pubmed Data : Methods. 2007 Aug;42(4):339-48. PMID: **18158826**

Article Published Date : Aug 01, 2007

Authors : [No authors listed]

Study Type : In Vitro Study
Additional Links
Substances : Apples : CK(373) : AC(99) , Pear : CK(26) : AC(5) , Phloretin : CK(4) : AC(4)
Diseases : Colon Cancer : CK(743) : AC(426)
Pharmacological Actions : Antiproliferative : CK(2461) : AC(1673), Apoptotic : CK(2941) : AC(2062)

The consumption of apples is inversely related to the risk of colorectal cancer.

Pubmed Data : Rev Environ Health. 2009 Jan-Mar;24(1):59-74. PMID: **19476292**

Article Published Date : Jan 01, 2009

Authors : Wieslaw Jedrychowski, Umberto Maugeri

Study Type : Human Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Colon Cancer : CK(743) : AC(426) , Colorectal Cancer : CK(1635) : AC(611)

Total vegetable intake, total fruit intake, and lettuce, apple, and banana consumption is associated with a reduced risk for colorectal cancer.

Pubmed Data : Nutr Cancer. 1996;25(3):297-304. PMID: **8771572**

Article Published Date : Jan 01, 1996

Authors : H Deneo-Pellegrini, E De Stefani, A Ronco

Study Type : Human Study
Additional Links
Substances : Apples : CK(373) : AC(99) , Banana : CK(194) : AC(53) , Fruit: All : CK(3530) : AC(769) , Lettuce : CK(13) : AC(3) , Vegetables: All : CK(1032) : AC(113)
Diseases : Colon Cancer : CK(743) : AC(426) , Colorectal Cancer : CK(1635) : AC(611)
Pharmacological Actions : Chemopreventive : CK(2678) : AC(767)

Colon Cancer: Prevention (AC 2) (CK 3)

Apple polysaccharide extracts could be used in combination therapy for the prevention of colitis-associated colon cancer.

Pubmed Data : Nutr Cancer. 2015 ;67(1):177-90. Epub 2014 Nov 20. PMID: **25412264**

Article Published Date : Dec 31, 2014

Authors : Dian Zhang, Man Mi, Fengliang Jiang, Yang Sun, Yuhua Li, Libin Yang, Lei Fan, Qian Li, Jin Meng, Zhenggang Yue, Li Liu, Qibing Mei

Study Type : Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Colitis : CK(251) : AC(109) , Colon Cancer : CK(743) : AC(426) , Colon Cancer: Prevention : CK(176) : AC(56)
Pharmacological Actions : Anti-Inflammatory Agents : CK(4499) : AC(1573) , Anticarcinogenic Agents : CK(1071) : AC(514), NF-kappaB Inhibitor : CK(1100) : AC(686)
Additional Keywords : Plant Extracts : CK(7288) : AC(2419)

The conclusion of the review is that these apple and berry juices will be possible candidates against colon cancer.

Pubmed Data : World J Gastroenterol. 2014 Dec 7 ;20(45):17029-36. PMID: **25493015**

Article Published Date : Dec 06, 2014

Authors : Saravana Kumar Jaganathan, Muthu Vignesh Vellayappan, Gayathri Narasimhan, Eko Supriyanto, Dyah Ekashanti Octorina Dewi, Aqilah Leela T Narayanan, Arunpandian Balaji, Aruna Priyadarshini Subramanian, Mustafa Yusof

Study Type : Review
Additional Links
Substances : Apples : CK(374) : AC(100) , Berries: All : CK(1443) : AC(356)
Diseases : Colon Cancer: Prevention : CK(176) : AC(56)
Pharmacological Actions : Anticarcinogenic Agents : CK(1071) : AC(514) , Chemopreventive : CK(2678) : AC(767)

Colon Polyps (AC 1) (CK 2)

A mixture of phytochemicals naturally present in foods represents a plausible chemopreventive agent for colorectal cancer.

Pubmed Data : Cancer Prev Res (Phila). 2011 Jun ;4(6):907-15. Epub 2011 Mar 7. PMID: **21383028**

Article Published Date : May 31, 2011

Authors : Lucia Fini, Giulia Piazzi, Yahya Daoud, Michael Selgrad, Shinji Maegawa, Melissa Garcia, Vincenzo Fogliano, Marco Romano, Giulia Graziani, Paola Vitaglione, Susanne W Carmack, Antonio Gasbarrini, Robert M Genta, Jean-Pierre Issa, C Richard Boland, Luigi Ricciardiello

Study Type : Animal Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17) , Apples : CK(373) : AC(99) , Flavonoids : CK(1194) : AC(376)
Diseases : Colon Polyps : CK(49) : AC(16) , Colorectal Cancer : CK(1635) : AC(611) , Colorectal Cancer: Prevention : CK(207) : AC(36)
Pharmacological Actions : Antioxidants : CK(7192) : AC(2631) , Chemopreventive : CK(2678) : AC(767)
Additional Keywords : Dietary Concentrations : CK(85) : AC(22)

Colorectal Cancer (AC 7) (CK 55)

A mixture of phytochemicals naturally present in foods represents a plausible chemopreventive agent for colorectal cancer.

Pubmed Data : Cancer Prev Res (Phila). 2011 Jun ;4(6):907-15. Epub 2011 Mar 7. PMID: **21383028**

Article Published Date : May 31, 2011

Authors : Lucia Fini, Giulia Piazzi, Yahya Daoud, Michael Selgrad, Shinji Maegawa, Melissa Garcia, Vincenzo Fogliano, Marco Romano, Giulia Graziani, Paola Vitaglione, Susanne W Carmack, Antonio Gasbarrini, Robert M Genta, Jean-Pierre Issa, C Richard Boland, Luigi Ricciardiello

Study Type : Animal Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17) , Apples : CK(373) : AC(99) , Flavonoids : CK(1194) : AC(376)
Diseases : Colon Polyps : CK(49) : AC(16) , Colorectal Cancer : CK(1635) : AC(611) , Colorectal Cancer: Prevention : CK(207) : AC(36)
Pharmacological Actions : Antioxidants : CK(7192) : AC(2631) , Chemopreventive : CK(2678) : AC(767)
Additional Keywords : Dietary Concentrations : CK(85) : AC(22)

Apple may exert its protective effect against colorectal cancer through acting as a histone-deacetylase inhibitor.

Pubmed Data : Nutrition. 2008 Apr;24(4):366-74. Epub 2008 Feb 11. PMID: **18262392**

Article Published Date : Apr 01, 2008

Authors : Markus Waldecker, Tanja Kautenburger, Heike Daumann, Selveraju Veeriah, Frank Will, Helmut Dietrich, Beatrice Louise Pool-Zobel, Dieter Schrenk

Study Type : In Vitro Study
Additional Links
Substances : Apples : CK(374) : AC(100)
Diseases : Colorectal Cancer : CK(1635) : AC(611)
Pharmacological Actions : Enzyme Inhibitors : CK(463) : AC(250), Histone deacetylase inhibitor : CK(48) : AC(37)
Additional Keywords : Epigenetic Modification : CK(218) : AC(88), Plant Extracts : CK(7288) : AC(2419)

Apple pectin and Bifidobacterium longum inhibit colorectal tumors in transgenic mice.

Pubmed Data : Exp Anim. 2000 Oct;49(4):305-7. PMID: **11109558**

Article Published Date : Oct 01, 2000

Authors : K Ohno, S Narushima, S Takeuchi, K Itoh, T Mitsuoka, H Nakayama, T Itoh, K Hioki, T Nomura

Study Type : Transgenic Animal Study
Additional Links
Substances : Apple Pectin : CK(66) : AC(15), Bifidobacterium : CK(561) : AC(58), Bifidobacterium Longum : CK(90) : AC(18)
Diseases : Colon Cancer : CK(743) : AC(426), Colorectal Cancer : CK(1635) : AC(611), Colorectal Tumors : CK(5) : AC(4)

Consumption of apples is associated with a reduced risk of cancer in different anatomical sites.

Pubmed Data : Public Health Nutr. 2016 Mar 22:1-15. Epub 2016 Mar 22. PMID: **27000627**

Article Published Date : Mar 21, 2016

Authors : Roberto Fabiani, Liliana Minelli, Patrizia Rosignoli

Study Type : Meta Analysis
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Breast Cancer : CK(3492) : AC(1052), Colorectal Cancer : CK(1635) : AC(611), Esophageal Cancer : CK(486) : AC(84), Oral Cancer : CK(194) : AC(78)
Additional Keywords : Risk Reduction : CK(6136) : AC(658)

The consumption of apples is inversely related to the risk of colorectal cancer.

Pubmed Data : Rev Environ Health. 2009 Jan-Mar;24(1):59-74. PMID: **19476292**

Article Published Date : Jan 01, 2009

Authors : Wieslaw Jedrychowski, Umberto Maugeri

Study Type : Human Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Colon Cancer : CK(743) : AC(426) , Colorectal Cancer : CK(1635) : AC(611)

The regular consumption of apples reduces colorectal cancer risk.

Pubmed Data : Basic Clin Pharmacol Toxicol. 2009 Mar;104(3):262-71. Epub 2009 Jan 20. PMID: **19926998**

Article Published Date : Mar 01, 2009

Authors : Wieslaw Jedrychowski, Umberto Maugeri, Tadeusz Popiela, Jan Kulig, Elzbieta Sochacka-Tatara, Agnieszka Pac, Agata Sowa, Agnieszka Musial

Study Type : Human Study
Additional Links
Substances : Apples : CK(374) : AC(100)
Diseases : Colorectal Cancer : CK(1635) : AC(611)
Pharmacological Actions : Chemopreventive : CK(2678) : AC(767)
Additional Keywords : Risk Reduction : CK(6136) : AC(658)

Total vegetable intake, total fruit intake, and lettuce, apple, and banana consumption is associated with a reduced risk for colorectal cancer.

Pubmed Data : Nutr Cancer. 1996;25(3):297-304. PMID: **8771572**

Article Published Date : Jan 01, 1996

Authors : H Deneo-Pellegrini, E De Stefani, A Ronco

Study Type : Human Study
Additional Links
Substances : Apples : CK(373) : AC(99) , Banana : CK(194) : AC(53) , Fruit: All : CK(3530) : AC(769) , Lettuce : CK(13) : AC(3) , Vegetables: All : CK(1032) : AC(113)
Diseases : Colon Cancer : CK(743) : AC(426) , Colorectal Cancer : CK(1635) : AC(611)
Pharmacological Actions : Chemopreventive : CK(2678) : AC(767)

Colorectal Cancer: Prevention (AC 1) (CK 2)

A mixture of phytochemicals naturally present in foods represents a plausible chemopreventive agent for colorectal cancer.

Pubmed Data : Cancer Prev Res (Phila). 2011 Jun ;4(6):907-15. Epub 2011 Mar 7. PMID: 21383028

Article Published Date : May 31, 2011

Authors : Lucia Fini, Giulia Piazzi, Yahya Daoud, Michael Selgrad, Shinji Maegawa, Melissa Garcia, Vincenzo Fogliano, Marco Romano, Giulia Graziani, Paola Vitaglione, Susanne W Carmack, Antonio Gasbarrini, Robert M Genta, Jean-Pierre Issa, C Richard Boland, Luigi Ricciardiello

Study Type : Animal Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17) , Apples : CK(373) : AC(99) , Flavonoids : CK(1194) : AC(376)
Diseases : Colon Polyps : CK(49) : AC(16) , Colorectal Cancer : CK(1635) : AC(611) , Colorectal Cancer: Prevention : CK(207) : AC(36)
Pharmacological Actions : Antioxidants : CK(7192) : AC(2631) , Chemopreventive : CK(2678) : AC(767)
Additional Keywords : Dietary Concentrations : CK(85) : AC(22)

Colorectal Tumors (AC 1) (CK 2)

Apple pectin and Bifidobacterium longum inhibit colorectal tumors in transgenic mice.

Pubmed Data : Exp Anim. 2000 Oct;49(4):305-7. PMID: 11109558

Article Published Date : Oct 01, 2000

Authors : K Ohno, S Narushima, S Takeuchi, K Itoh, T Mitsuoka, H Nakayama, T Itoh, K Hioki, T Nomura

Study Type : Transgenic Animal Study
Additional Links
Substances : Apple Pectin : CK(66) : AC(15), Bifidobacterium : CK(561) : AC(58) , Bifidobacterium Longum : CK(90) : AC(18)
Diseases : Colon Cancer : CK(743) : AC(426) , Colorectal Cancer : CK(1635) : AC(611) , Colorectal

Tumors : CK(5) : AC(4)

DNA damage (AC 1) (CK 1)

Phenolic extracts of different cultivars of apples have varied antimutagenicity activity, with Granny Smith showing higher levels.

Pubmed Data : J Food Sci. 2016 Jan 11. Epub 2016 Jan 11. PMID: 26753515

Article Published Date : Jan 10, 2016

Authors : Sudhanshu Saxena, Jyoti Verma, Satyendra Gautam

Study Type : In Vitro Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : DNA damage : CK(969) : AC(377)
Pharmacological Actions : Antimutagenic Agents : CK(126) : AC(72) , Antioxidants : CK(7192) : AC(2631), Prophylactic Agents : CK(129) : AC(31) , Radioprotective : CK(725) : AC(258)

Denture Stomatitis (AC 1) (CK 1)

Apple cider vinegar showed antifungal properties against Candida spp., thus representing a possible therapeutic alternative for patients with denture stomatitis.

Pubmed Data : J Prosthodont. 2015 Jun ;24(4):296-302. Epub 2014 Sep 14. PMID: 25219289

Article Published Date : May 31, 2015

Authors : Ana Carolina Loureiro Gama Mota, Ricardo Dias de Castro, Julyana de Araújo Oliveira, Edeltrudes de Oliveira Lima

Study Type : In Vitro Study
Additional Links
Substances : Apple Cider Vinegar : CK(9) : AC(5)
Diseases : Candida Albicans : CK(38) : AC(26) , Candida Infection : CK(241) : AC(112), Denture Stomatitis : CK(11) : AC(1)

Pharmacological Actions : Antifungal Agents : CK(233) : AC(145)

Diabetic Complications (AC 1) (CK 1)

Bioactive compounds isolated from apple, tea, and ginger protect against dicarbonyl induced stress in cultured human retinal epithelial cells.

Pubmed Data : Phytomedicine. 2016 Feb 15 ;23(2):200-13. Epub 2016 Jan 5. PMID: 26926182

Article Published Date : Feb 14, 2016

Authors : Chethan Sampath, Yingdong Zhu, Shengmin Sang, Mohamed Ahmedna

Study Type : In Vitro Study

Additional Links

Substances : Apple Polyphenols : CK(31) : AC(17) , EGCG (Epigallocatechin gallate) : CK(606) : AC(312), Ginger : CK(676) : AC(175)

Diseases : Advanced Glycation End products (AGE) : CK(231) : AC(73) , Diabetic Complications : CK(1512) : AC(315)

Pharmacological Actions : Anti-Glycation Agents : CK(46) : AC(19) , Antioxidants : CK(7192) : AC(2631), Nrf2 activation : CK(172) : AC(83)

Diarrhea (AC 1) (CK 10)

A combination of apple pectin and chamomile shortens the course of unspecific diarrhea in children.

Pubmed Data : Arzneimittelforschung. 2006;56(6):387-93. PMID: 16889120

Article Published Date : Jan 01, 2006

Authors : Brigitta Becker, Ulrike Kuhn, Bettina Hardewig-Budny

Study Type : Human Study

Additional Links

Substances : Apple Pectin : CK(66) : AC(15), Chamomile : CK(182) : AC(30)

Diseases : Diarrhea : CK(612) : AC(83)

Dysbiosis (AC 1) (CK 10)

The association between common foods, such as oranges and apples, with specific microorganisms reported to be decreased in SLE could be of great importance for these patients.

Pubmed Data : Nutrients. 2015 ;7(2):1301-17. Epub 2015 Feb 16. PMID: **25690419**

Article Published Date : Dec 31, 2014

Authors : Adriana Cuervo, Arancha Hevia, Patricia López, Ana Suárez, Borja Sánchez, Abelardo Margolles, Sonia González

Study Type : Human Study
Additional Links
Substances : Apples : CK(374) : AC(100), Apples : CK(374) : AC(100), Polyphenols : CK(920) : AC(333), Red Wine Extract : CK(114) : AC(32)
Diseases : Dysbiosis : CK(378) : AC(83), Systemic Lupus Erythematosus : CK(463) : AC(66)
Pharmacological Actions : Gastrointestinal Agents : CK(265) : AC(39)
Additional Keywords : Gastrointestinal Agents : CK(265) : AC(39)

Endothelial Dysfunction (AC 1) (CK 2)

These results suggest that the apple polyphenols are a beneficial nutritional supplement for the attenuation of atherosclerosis.

Pubmed Data : Nutrients. 2015 ;7(8):7085-105. Epub 2015 Aug 24. PMID: **26305254**

Article Published Date : Dec 31, 2014

Authors : Zhe-Rong Xu, Jin-You Li, Xin-Wei Dong, Zhong-Ju Tan, Wei-Zhen Wu, Qiang-Min Xie, Yun-Mei Yang

Study Type : Animal Study, In Vitro Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17)
Diseases : Atherosclerosis : CK(578) : AC(146), Endothelial Dysfunction : CK(1166) : AC(231),

Hepatic Steatosis : CK(131) : AC(35)
Pharmacological Actions : Anti-atherogenic : CK(143) : AC(36) , Anti-Inflammatory Agents : CK(4499) : AC(1573), Antioxidants : CK(7191) : AC(2630) , Catalase Up-Regulation : CK(118) : AC(42) , Hepatoprotective : CK(1342) : AC(581) , Superoxide Dismutase Up-regulation : CK(504) : AC(169)

Endotoxemia (AC 1) (CK 1)

Red beet, apple, and citrus pectins inhibit the production of staphylococcal enterotoxins type A and B.

Pubmed Data : Zh Mikrobiol Epidemiol Immunobiol. 2007 Nov-Dec(6):11-6. PMID: **18277535**

Article Published Date : Nov 01, 2007

Authors : F S Fluer, D D Men'shikov, E B Lazareva, V Ia Prokhorov, A V Vesnin

Study Type : In Vitro Study
Additional Links
Substances : Apple Pectin : CK(66) : AC(15), Beet : CK(103) : AC(26) , Pectin : CK(66) : AC(9)
Diseases : Endotoxemia : CK(83) : AC(43) , Staphylococcal Infections : CK(30) : AC(18)
Pharmacological Actions : Anti-Bacterial Agents : CK(1362) : AC(470)

Escherichia coli Infections (AC 1) (CK 1)

Phenolics from Fuji apple showed good antioxidant, antibacterial, and antiproliferative activities.

Pubmed Data : J Food Sci. 2016 Jun 6. Epub 2016 Jun 6. PMID: **27272442**

Article Published Date : Jun 05, 2016

Authors : Jincan Luo, Pei Zhang, Siqian Li, Nagendra P Shah

Study Type : In Vitro Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17)
Diseases : Colon Cancer : CK(743) : AC(426) , Escherichia coli Infections : CK(152) : AC(90) , Listeria Infections : CK(29) : AC(23), Staphylococcus aureus infection : CK(148) : AC(104)

Pharmacological Actions : Anti-Bacterial Agents : CK(1362) : AC(470) , Antioxidants : CK(7191) : AC(2630), Antiproliferative : CK(2461) : AC(1673)

Esophageal Cancer (AC 2) (CK 21)

Apple-derived procyanidin may possess chemotherapeutic effects against esophageal cancer.

Pubmed Data : Mol Nutr Food Res. 2008 Dec;52(12):1399-407. PMID: **18683822**

Article Published Date : Dec 01, 2008

Authors : Roberto Pierini, Paul A Kroon, Sylvain Guyot, Kamal Ivory, Ian T Johnson, Nigel J Belshaw

Study Type : In Vitro Study
Additional Links
Substances : Apples : CK(373) : AC(99) , Catechin : CK(512) : AC(169), Flavonoids : CK(1194) : AC(376)
Diseases : Esophageal Cancer : CK(486) : AC(84)
Pharmacological Actions : Apoptotic : CK(2941) : AC(2062) , Cell cycle arrest : CK(805) : AC(607)
Additional Keywords : Proanthocyanidins : CK(203) : AC(54)

Consumption of apples is associated with a reduced risk of cancer in different anatomical sites.

Pubmed Data : Public Health Nutr. 2016 Mar 22:1-15. Epub 2016 Mar 22. PMID: **27000627**

Article Published Date : Mar 21, 2016

Authors : Roberto Fabiani, Liliana Minelli, Patrizia Rosignoli

Study Type : Meta Analysis
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Breast Cancer : CK(3492) : AC(1052) , Colorectal Cancer : CK(1635) : AC(611) , Esophageal Cancer : CK(486) : AC(84), Oral Cancer : CK(194) : AC(78)
Additional Keywords : Risk Reduction : CK(6136) : AC(658)

Fibrinogen: Elevated (AC 1) (CK 2)

Apple juice can effectively prevent the progress of atherosclerosis.

Pubmed Data : Lipids Health Dis. 2009;8:39. Epub 2009 Oct 5. PMID: **19804641**

Article Published Date : Jan 01, 2009

Authors : Mahbubeh Setorki, Sedighe Asgary, Akram Eidi, Ali Haeri Rohani, Nafiseh Esmaeil

Study Type : Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Atherosclerosis : CK(578) : AC(146), C-Reactive Protein : CK(1628) : AC(171), Fibrinogen: Elevated : CK(104) : AC(12)

Food Allergies (AC 1) (CK 2)

Dietary unripe apple polyphenol inhibits the development of food allergies in the mouse model.

Pubmed Data : FEBS Lett. 2005 Aug 15;579(20):4485-91. PMID: **16081068**

Article Published Date : Aug 15, 2005

Authors : Hiroshi Akiyama, Yuji Sato, Takahiro Watanabe, Megumi H Nagaoka, Yasuo Yoshioka, Toshihiko Shoji, Tomomasa Kanda, Kiyoshi Yamada, Mamoru Totsuka, Reiko Teshima, Jun-Ichi Sawada, Yukihiro Goda, Tamio Maitani

Study Type : Animal Study
Additional Links
Substances : Apples : CK(374) : AC(100), Flavonoids : CK(1194) : AC(376), Polyphenols : CK(920) : AC(333), Tannic Acid : CK(25) : AC(21)
Diseases : Food Allergies : CK(507) : AC(70)
Additional Keywords : Proanthocyanidins : CK(203) : AC(54)

Hair Loss (AC 1) (CK 1)

Procyanidin B-2 from apples promotes hair growth.

Pubmed Data : Sci Total Environ. 2010 Feb 13. Epub 2010 Feb 13. PMID: 11841365

Article Published Date : Feb 13, 2010

Authors : A Kamimura, T Takahashi

Study Type : In Vitro Study
Additional Links
Substances : Apples : CK(374) : AC(100)
Diseases : Alopecia : CK(146) : AC(32), Hair Loss : CK(69) : AC(24), Male Pattern Baldness : CK(69) : AC(4)

Helicobacter Pylori Infection (AC 3) (CK 12)

Apple peel extract inhibits the growth of Helicobacter pylori, and attenuates damage to the gastric mucosa caused by neutrophils.

Pubmed Data : J Agric Food Chem. 2009 Sep 9;57(17):7743-9. PMID: 19691323

Article Published Date : Sep 09, 2009

Authors : Edgar Pastene, Hernán Speisky, Miriam Troncoso, Julio Alarcón, Guillermo Figueroa

Study Type : Human Study
Additional Links
Substances : Apples : CK(373) : AC(99), Flavonoids : CK(1194) : AC(376), Polyphenols : CK(920) : AC(333)
Diseases : Helicobacter Pylori Infection : CK(475) : AC(101)
Additional Keywords : Plant Extracts : CK(7288) : AC(2419), Proanthocyanidins : CK(203) : AC(54)

Carotenoids extracted from red paprika, Valencia orange and Golden delicious apple exhibit anti-H. pylori and anti-multidrug resistance activity.

Pubmed Data : Phytother Res. 2005 Aug;19(8):700-7. PMID: 16177974

Article Published Date : Aug 01, 2005

Authors : Péter Molnár, Masami Kawase, Kazue Satoh, Yoshitaka Sohara, Toru Tanaka, Satoru Tani, Hiroshi Sakagami, Hideki Nakashima, Noboru Motohashi, Nóra Gyémánt, Joseph Molnár

Study Type : In Vitro Study
Additional Links
Substances : Apple: Golden Delicious : CK(2) : AC(2), Carotenoids : CK(1620) : AC(306), Orange :

CK(170) : AC(35), Paprika : CK(8) : AC(6)
Diseases : Cancers: All : CK(14296) : AC(4541) , Cancers: Multi-Drug Resistant : CK(120) : AC(93) , Helicobacter Pylori Infection : CK(475) : AC(101)
Pharmacological Actions : Anti-Bacterial Agents : CK(1362) : AC(470) , Antioxidants : CK(7191) : AC(2630), Chemosensitizer : CK(391) : AC(283)

Golden delicious apples contain carotenoids with anti-Helicobacter pylori activity.

Pubmed Data : Phytother Res. 2010 May;24(5):644-8. PMID: **19591126**

Article Published Date : May 01, 2010

Authors : Péter Molnár, József Deli, Toru Tanaka, Yoshiyuki Kann, Satoru Tani, Nóra Gyémánt, Joseph Molnár, Masami Kawase

Study Type : In Vitro Study
Additional Links
Substances : Apple: Golden Delicious : CK(2) : AC(2) , Apples : CK(373) : AC(99) , Carotenoids : CK(1620) : AC(306), Neoxanthin : CK(2) : AC(2)
Diseases : Helicobacter Pylori Infection : CK(475) : AC(101)
Pharmacological Actions : Anti-Bacterial Agents : CK(1362) : AC(470)

Hepatic Steatosis (AC 1) (CK 2)

These results suggest that the apple polyphenols are a beneficial nutritional supplement for the attenuation of atherosclerosis.

Pubmed Data : Nutrients. 2015 ;7(8):7085-105. Epub 2015 Aug 24. PMID: **26305254**

Article Published Date : Dec 31, 2014

Authors : Zhe-Rong Xu, Jin-You Li, Xin-Wei Dong, Zhong-Ju Tan, Wei-Zhen Wu, Qiang-Min Xie, Yun-Mei Yang

Study Type : Animal Study, In Vitro Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17)
Diseases : Atherosclerosis : CK(578) : AC(146) , Endothelial Dysfunction : CK(1166) : AC(231) , Hepatic Steatosis : CK(131) : AC(35)
Pharmacological Actions : Anti-atherogenic : CK(143) : AC(36) , Anti-Inflammatory Agents : CK(4499) : AC(1573), Antioxidants : CK(7191) : AC(2630) , Catalase Up-Regulation : CK(118) : AC(42) , Hepatoprotective : CK(1342) : AC(581) , Superoxide Dismutase Up-regulation : CK(504) : AC(169)

Hepatoma (AC 1) (CK 1)

The apple polyphenol phloretin potentiates the anticancer actions of paclitaxel against human hepatoma cells.

Pubmed Data : Mol Carcinog. 2009 May;48(5):420-31. PMID: **18767070**

Article Published Date : May 01, 2009

Authors : Kuo-Ching Yang, Chia-Yi Tsai, Ying-Jan Wang, Po-Li Wei, Chia-Hwa Lee, Jui-Hao Chen, Chih-Hsiung Wu, Yuan-Soon Ho

Study Type : In Vitro Study
Additional Links
Substances : Apples : CK(374) : AC(100) , Phloretin : CK(4) : AC(4) , Polyphenols : CK(920) : AC(333)
Diseases : Hepatoma : CK(37) : AC(32)
Pharmacological Actions : Apoptotic : CK(2941) : AC(2062)
Additional Keywords : Drug-Plant-Vitamin Synergies : CK(965) : AC(266)

High Cholesterol (AC 1) (CK 2)

Apple cider vinegar induced a protective effect against erythrocyte, kidney, and liver oxidative injury, and lowered the serum lipid levels in mice fed high cholesterol.

Pubmed Data : J Membr Biol. 2014 Aug ;247(8):667-73. Epub 2014 Jun 4. PMID: **24894721**

Article Published Date : Jul 31, 2014

Authors : Mustafa Nazıroğlu, Mustafa Güler, Cemil Özgül, Gündüzalp Saydam, Mustafa Küçükayaz, Ercan Sözbir

Study Type : Animal Study
Additional Links
Substances : Apple Cider Vinegar : CK(9) : AC(5)
Diseases : High Cholesterol : CK(1754) : AC(265) , High Fat Diet : CK(176) : AC(85)
Pharmacological Actions : Antioxidants : CK(7192) : AC(2631) , Hepatoprotective : CK(1342) :

AC(581), Hypolipidemic : CK(1151) : AC(242) , Renoprotective : CK(551) : AC(243)
Additional Keywords : Increased Bioavailability : CK(42) : AC(17)

High Cholesterol: very low density lipoprotein (VLDL) (AC 1) (CK 2)

Apple cider vinegars, regardless of the production method, decreased triglyceride and VLDL levels in all groups when compared to animals on high-cholesterol diets without vinegar supplementation. Apple cider vinegars increased total cholesterol and HDL an

Pubmed Data : J Agric Food Chem. 2011 Jun 22;59(12):6638-44. doi: 10.1021/jf104912h. Epub 2011 May 18. PMID: 21561165

Article Published Date : Jun 21, 2011

Study Type : Animal Study
Additional Links
Substances : Apple Cider Vinegar : CK(9) : AC(5)
Diseases : High Cholesterol: very low density lipoprotein (VLDL) : CK(26) : AC(9) , Hyperlipidemia : CK(645) : AC(150), Triglycerides: Elevated : CK(678) : AC(117)
Pharmacological Actions : Hypolipidemic : CK(1151) : AC(242)

High Fat Diet (AC 3) (CK 6)

Apple cider vinegar induced a protective effect against erythrocyte, kidney, and liver oxidative injury, and lowered the serum lipid levels in mice fed high cholesterol.

Pubmed Data : J Membr Biol. 2014 Aug ;247(8):667-73. Epub 2014 Jun 4. PMID: 24894721

Article Published Date : Jul 31, 2014

Authors : Mustafa Nazıroğlu, Mustafa Güler, Cemil Özgül, Gündüzalp Saydam, Mustafa Küçükayaz, Ercan Sözbir

Study Type : Animal Study
Additional Links
Substances : Apple Cider Vinegar : CK(9) : AC(5)
Diseases : High Cholesterol : CK(1754) : AC(265) , High Fat Diet : CK(176) : AC(85)
Pharmacological Actions : Antioxidants : CK(7192) : AC(2631) , Hepatoprotective : CK(1342) : AC(581), Hypolipidemic : CK(1151) : AC(242) , Renoprotective : CK(551) : AC(243)
Additional Keywords : Increased Bioavailability : CK(42) : AC(17)

Polyphenol-rich apple peel extract, cherry extract and quercetin modulates some of the harmful effects of the consumption of an high fat diet.

Pubmed Data : J Nutr. 2016 Apr 6. Epub 2016 Apr 6. PMID: **27052533**

Article Published Date : Apr 05, 2016

Authors : Sarah M Snyder, Bingxin Zhao, Ting Luo, Clive Kaiser, George Cavender, Jill Hamilton-Reeves, Debra K Sullivan, Neil F Shay

Study Type : Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99) , Cherry: All Varieties : CK(167) : AC(31) , Quercetin : CK(557) : AC(246)
Diseases : C-Reactive Protein : CK(1628) : AC(171), High Fat Diet : CK(176) : AC(85) , Inflammation : CK(2863) : AC(839)
Pharmacological Actions : Anti-Inflammatory Agents : CK(4499) : AC(1573) , Hypoglycemic Agents : CK(1380) : AC(338)
Additional Keywords : Plant Extracts : CK(7288) : AC(2419)

Taking apple cider vinegar could reduce the metabolic disorders caused by a high fat diet.

Pubmed Data : Ann Cardiol Angeiol (Paris). 2016 Jun ;65(3):208-13. Epub 2016 May 18. PMID: **27209492**

Article Published Date : May 31, 2016

Authors : H Bouderbala, H Kaddouri, O Kheroua, D Saidi

Study Type : Animal Study
Additional Links
Substances : Apple Cider Vinegar : CK(9) : AC(5)
Diseases : High Fat Diet : CK(176) : AC(85) , Obesity : CK(2161) : AC(455)
Pharmacological Actions : Appetite Depressants : CK(8) : AC(4) , Hypoglycemic Agents : CK(1380) : AC(338), Hypolipidemic : CK(1151) : AC(242)
Additional Keywords : Anti-Obesity Agents : CK(466) : AC(102) , Risk Reduction : CK(6136) : AC(658)

Hyperglycemia (AC 1) (CK 1)

Apples have antihyperglycemic components.

Pubmed Data : J Med Food. 2010 Dec;13(6):1313-23. Epub 2010 Sep 27. PMID: **20874247**

Article Published Date : Dec 01, 2010

Authors : Ana Cristina Lopes Barbosa, Marcia da Silva Pinto, Dipayan Sarkar, Chandrakant Ankolekar, Duane Greene, Kalidas Shetty

Study Type : In Vitro Study
Additional Links
Substances : Apples : CK(374) : AC(100)
Diseases : Hyperglycemia : CK(539) : AC(130)
Pharmacological Actions : Alpha-amylase inhibitor : CK(34) : AC(20) , Alpha-glucosidase inhibitor : CK(52) : AC(37), Hypoglycemic Agents : CK(1380) : AC(338)

Hyperlipidemia (AC 2) (CK 4)

Apple and pear peel have significant positive influence on plasma lipid levels and antioxidant capacity in rats.

Pubmed Data : J Agric Food Chem. 2003 Sep 10;51(19):5780-5. PMID: **12952433**

Article Published Date : Sep 10, 2003

Authors : Maria Leontowicz, Shela Gorinstein, Hanna Leontowicz, Ryszard Krzeminski, Antonin Lojek, Elena Katrich, Milan Cíz, Olga Martin-Belloso, Robert Soliva-Fortuny, Ratiporn Haruenkit, Simon Trakhtenberg

Study Type : Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99) , Pear : CK(26) : AC(5)
Diseases : Hyperlipidemia : CK(645) : AC(150) , Oxidative Stress : CK(3800) : AC(1357)
Pharmacological Actions : Antioxidants : CK(7191) : AC(2630) , Hypolipidemic : CK(1151) : AC(242)

Apple cider vinegars, regardless of the production method, decreased triglyceride and VLDL levels in all groups when compared to animals on high-cholesterol

diets without vinegar supplementation. Apple cider vinegars increased total cholesterol and HDL an

Pubmed Data : J Agric Food Chem. 2011 Jun 22;59(12):6638-44. doi: 10.1021/jf104912h. Epub 2011 May 18. PMID: 21561165

Article Published Date : Jun 21, 2011

Study Type : Animal Study
Additional Links
Substances : Apple Cider Vinegar : CK(9) : AC(5)
Diseases : High Cholesterol: very low density lipoprotein (VLDL) : CK(26) : AC(9) , Hyperlipidemia : CK(645) : AC(150), Triglycerides: Elevated : CK(678) : AC(117)
Pharmacological Actions : Hypolipidemic : CK(1151) : AC(242)

Hypertension (AC 1) (CK 20)

Greater long-term intake and increased consumption of whole fruits may reduce the risk of developing hypertension.

Pubmed Data : Hypertension. 2016 Feb ;67(2):288-93. Epub 2015 Dec 7. PMID: 26644239

Article Published Date : Jan 31, 2016

Authors : Lea Borgi, Isao Muraki, Ambika Satija, Walter C Willett, Eric B Rimm, John P Forman

Study Type : Meta Analysis
Additional Links
Substances : Apples : CK(374) : AC(100) , Broccoli : CK(962) : AC(298) , Carrot : CK(98) : AC(29) , Fruit: All : CK(3530) : AC(769), Raisins : CK(21) : AC(1) , Vegetables: All : CK(1032) : AC(113)
Diseases : Hypertension : CK(2843) : AC(395)
Additional Keywords : Risk Reduction : CK(6136) : AC(658)

Hyperuricemia (AC 1) (CK 2)

Apple fibers and polyphenols may play a role in

preventing atherosclerosis by decreasing uric acid plasma level.

Pubmed Data : Phytomedicine. 2007 Apr;14(4):280-4. Epub 2007 Feb 12. PMID: **18558693**

Article Published Date : Apr 01, 2007

Authors : Sylvain Auclair, Mathieu Silberberg, Elyett Gueux, Christine Morand, Andrzej Mazur, Dragan Milenkovic, Augustin Scalbert

Study Type : Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99) , Fiber : CK(808) : AC(103) , Flavonoids : CK(1194) : AC(376) , Polyphenols : CK(920) : AC(333)
Diseases : Atherosclerosis : CK(578) : AC(146) , Hyperuricemia : CK(217) : AC(48)
Pharmacological Actions : Antioxidants : CK(7191) : AC(2630)
Additional Keywords : Plant Extracts : CK(7288) : AC(2419)

Inflammation (AC 1) (CK 2)

Polyphenol-rich apple peel extract, cherry extract and quercetin modulates some of the harmful effects of the consumption of an high fat diet.

Pubmed Data : J Nutr. 2016 Apr 6. Epub 2016 Apr 6. PMID: **27052533**

Article Published Date : Apr 05, 2016

Authors : Sarah M Snyder, Bingxin Zhao, Ting Luo, Clive Kaiser, George Cavender, Jill Hamilton-Reeves, Debra K Sullivan, Neil F Shay

Study Type : Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99) , Cherry: All Varieties : CK(167) : AC(31) , Quercetin : CK(557) : AC(246)
Diseases : C-Reactive Protein : CK(1628) : AC(171) , High Fat Diet : CK(176) : AC(85) , Inflammation : CK(2863) : AC(839)
Pharmacological Actions : Anti-Inflammatory Agents : CK(4499) : AC(1573) , Hypoglycemic Agents : CK(1380) : AC(338)
Additional Keywords : Plant Extracts : CK(7288) : AC(2419)

Inflammatory Bowel Diseases (AC 2) (CK 4)

Apple procyanidins protect against experimental inflammatory bowel disease in mice.

Pubmed Data : Int Immunopharmacol. 2008 Dec 20;8(13-14):1802-7. Epub 2008 Sep 29. PMID: 18824249

Article Published Date : Dec 20, 2008

Authors : Yasuo Yoshioka, Hiroshi Akiyama, Masataka Nakano, Toshihiko Shoji, Tomomasa Kanda, Yasuyuki Ohtake, Toshichika Takita, Rieko Matsuda, Tamio Maitani

Study Type : Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Inflammatory Bowel Diseases : CK(990) : AC(187)
Additional Keywords : Proanthocyanidins : CK(203) : AC(54)

Apples rich polyphenols reduce colonic inflammation in rats.

Pubmed Data : Br J Nutr. 2009 Dec;102(11):1620-8. Epub 2009 Jul 22. PMID: 19622193

Article Published Date : Dec 01, 2009

Authors : Cinzia Castagnini, Cristina Luceri, Simona Toti, Elisabetta Bigagli, Giovanna Caderni, Angelo P Femia, Lisa Giovannelli, Maura Lodovici, Vanessa Pitozzi, Maddalena Salvadori, Luca Messerini, Rocio Martin, Erwin G Zoetendal, Stan Gaj, Lars Eijssen, Chris T Evelo, Catherine M G C Renard, Alain Baron, Piero Dolara

Study Type : Transgenic Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99), Flavonoids : CK(1194) : AC(376), Polyphenols : CK(920) : AC(333)
Diseases : Inflammatory Bowel Diseases : CK(990) : AC(187), Irritable Bowel Syndrome : CK(709) : AC(91)
Pharmacological Actions : Anti-Inflammatory Agents : CK(4499) : AC(1573), Cyclooxygenase 2 Inhibitors : CK(448) : AC(267)

Influenza A (AC 1) (CK 1)

Apple pectin, citrus pectin, flaxseed mucilage, blood group A substance, gum acacia (gum arabic), and gum myrrh inhibit viral hemagglutinin in vitro.

Pubmed Data : J Exp Med. 1947 Jun 30;86(1):55-64. PMID: 19871655

Authors : R H Green, D W Woolley

Study Type : In Vitro Study
Additional Links
Substances : Apple Pectin : CK(66) : AC(15), Citrus Pectin : CK(1) : AC(1), Flaxseed : CK(451) : AC(89), Gum arabic : CK(44) : AC(8), Myrrh : CK(47) : AC(18)
Diseases : Influenza A : CK(387) : AC(101)
Pharmacological Actions : Antiviral Agents : CK(932) : AC(428), Viral Hemagglutinin Inhibitor : CK(18) : AC(14)

Insulin Resistance (AC 2) (CK 4)

A novel form of apple pectin improves the lipid profile, insulin resistance and other cardiometabolic risk factors in diabetic rats.

Pubmed Data : J Agric Food Chem. 2008 May 28;56(10):3574-81. Epub 2008 Apr 23. PMID: 18433105

Article Published Date : May 28, 2008

Authors : D Sánchez, B Muguerza, L Moulay, R Hernández, M Miguel, A Aleixandre

Study Type : Animal Study
Additional Links
Substances : Apple Pectin : CK(66) : AC(15)
Diseases : Insulin Resistance : CK(1656) : AC(340)

Apple polyphenol extracts might emerge as a promising nutritional ingredient in the management of chronic

diseases such as diabetes.

Pubmed Data : Nutr Metab (Lond). 2016 ;13:32. Epub 2016 Apr 30. PMID: 27141227

Article Published Date : Dec 31, 2015

Authors : Manuel Manzano, María D Giron, José D Vilchez, Natalia Sevillano, Nuri El-Azem, Ricardo Rueda, Rafael Salto, Jose M Lopez-Pedrosa

Study Type : Animal Study, In Vitro Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17)
Diseases : Insulin Resistance : CK(1656) : AC(340)
Pharmacological Actions : Insulin Sensitizers : CK(347) : AC(68)
Additional Keywords : Natural Substance Synergy : CK(534) : AC(244) , Plant Extracts : CK(7288) : AC(2419)

Irritable Bowel Syndrome (AC 1) (CK 2)

Apples rich polyphenols reduce colonic inflammation in rats.

Pubmed Data : Br J Nutr. 2009 Dec;102(11):1620-8. Epub 2009 Jul 22. PMID: 19622193

Article Published Date : Dec 01, 2009

Authors : Cinzia Castagnini, Cristina Luceri, Simona Toti, Elisabetta Bigagli, Giovanna Caderni, Angelo P Femia, Lisa Giovannelli, Maura Lodovici, Vanessa Pitozzi, Maddalena Salvadori, Luca Messerini, Rocio Martin, Erwin G Zoetendal, Stan Gaj, Lars Eijssen, Chris T Evelo, Catherine M G C Renard, Alain Baron, Piero Dolara

Study Type : Transgenic Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99) , Flavonoids : CK(1194) : AC(376) , Polyphenols : CK(920) : AC(333)
Diseases : Inflammatory Bowel Diseases : CK(990) : AC(187) , Irritable Bowel Syndrome : CK(709) : AC(91)
Pharmacological Actions : Anti-Inflammatory Agents : CK(4499) : AC(1573) , Cyclooxygenase 2 Inhibitors : CK(448) : AC(267)

Joint Diseases (AC 1) (CK 10)

Consumption of dried apple peel powder was associated with improved joint function and improved serum antioxidant protection status.

Pubmed Data : J Med Food. 2014 Nov ;17(11):1204-13. Epub 2014 Oct 1. PMID: **25271471**

Article Published Date : Oct 31, 2014

Authors : Gitte S Jensen, Victoria L Attridge, Kathleen F Benson, Joni L Beaman, Steve G Carter, David Ager

Study Type : Human Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Joint Diseases : CK(10) : AC(1)
Pharmacological Actions : Anti-Inflammatory Agents : CK(4500) : AC(1574) , Antinoceceptive : CK(177) : AC(47), Antioxidants : CK(7191) : AC(2630) , Cyclooxygenase 2 Inhibitors : CK(448) : AC(267), Lipoxygenase Inhibitors : CK(38) : AC(17)
Additional Keywords : Plant Extracts : CK(7288) : AC(2419) , Significant Treatment Outcome : CK(3028) : AC(365)

Libido: Low (AC 1) (CK 10)

Apple consumption is related to better sexual quality of life in young women.

Pubmed Data : Arch Gynecol Obstet. 2014 Feb 12. Epub 2014 Feb 12. PMID: **24518938**

Article Published Date : Feb 11, 2014

Authors : Tommaso Cai, Mauro Gacci, Fulvio Mattivi, Nicola Mondaini, Serena Migno, Vieri Boddi, Paolo Gacci, Beatrice Detti, Paolo Gontero, Stefano Chiodini, Liliana Mereu, Saverio Tateo, Sandra Mazzoli, Gianni Malossini, Riccardo Bartoletti

Study Type : Human Study
Additional Links
Substances : Apples : CK(374) : AC(100)
Diseases : Libido: Low : CK(95) : AC(24)
Pharmacological Actions : Aphrodisiac : CK(63) : AC(20)

Listeria Infections (AC 1) (CK 1)

Phenolics from Fuji apple showed good antioxidant, antibacterial, and antiproliferative activities.

Pubmed Data : J Food Sci. 2016 Jun 6. Epub 2016 Jun 6. PMID: 27272442

Article Published Date : Jun 05, 2016

Authors : Jincan Luo, Pei Zhang, Siqian Li, Nagendra P Shah

Study Type : In Vitro Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17)
Diseases : Colon Cancer : CK(743) : AC(426) , Escherichia coli Infections : CK(152) : AC(90) , Listeria Infections : CK(29) : AC(23), Staphylococcus aureus infection : CK(148) : AC(104)
Pharmacological Actions : Anti-Bacterial Agents : CK(1362) : AC(470) , Antioxidants : CK(7191) : AC(2630), Antiproliferative : CK(2461) : AC(1673)

Liver Cancer (AC 6) (CK 9)

An apple flavonoid enriched fraction possessed a significantly stronger antiproliferative and specific action than Sorafenib in vitro.

Pubmed Data : Nutr Cancer. 2014 Sep 25:1-10. Epub 2014 Sep 25. PMID: 25256427

Article Published Date : Sep 24, 2014

Authors : Sudhanshu Sudan, H P Vasantha Rupasinghe

Study Type : In Vitro Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17) , Flavonoids : CK(1194) : AC(376)
Diseases : Liver Cancer : CK(1208) : AC(455)
Pharmacological Actions : Antiproliferative : CK(2461) : AC(1673), Apoptotic : CK(2941) : AC(2062) , Caspase-3 Activation : CK(90) : AC(65) , Cell cycle arrest : CK(805) : AC(607) , Chemopreventive : CK(2678) : AC(767), Topoisomerase II Inhibitor : CK(3) : AC(3)
Additional Keywords : Topoisomerase II Inhibitor : CK(3) : AC(3) , Plant Extracts : CK(7288) : AC(2419), Selective Cytotoxicity : CK(155) : AC(110)

Apple juice upregulates antioxidant-associated genes in the rat colon and liver, which may account for apple's anti-cancer activity.

Pubmed Data : Carcinogenesis. 2000 Aug;21(8):1461-7. PMID: **20652274**

Article Published Date : Aug 01, 2000

Authors : Bülent Soyalan, Jutta Minn, Hans J Schmitz, Dieter Schrenk, Frank Will, Helmut Dietrich, Matthias Baum, Gerhard Eisenbrand, Christine Janzowski

Study Type : Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99) , Polyphenols : CK(920) : AC(333)
Diseases : Colon Cancer : CK(743) : AC(426) , Liver Cancer : CK(1208) : AC(455)
Pharmacological Actions : Antioxidants : CK(7191) : AC(2630) , Chemopreventive : CK(2678) : AC(767)

Apple pectin and Lactobacillus casei inhibit liver cancer metastasis.

Pubmed Data : Hum Cell. 1999 Dec;12(4):189-96. PMID: **10834105**

Article Published Date : Dec 01, 1999

Authors : K Tazawa, K Yatuzuka, M Yatuzuka, J Koike, H Ohkami, T Saito, Y Ohnishi, M Saito

Study Type : Animal Study
Additional Links
Substances : Apple Pectin : CK(66) : AC(15), Lactobacillus casei : CK(209) : AC(40)
Diseases : Cancer Metastasis : CK(442) : AC(206) , Liver Cancer : CK(1208) : AC(455)

Apple peels have significant antioxidant and antiproliferative activity against human liver cancer cells.

Pubmed Data : J Agric Food Chem. 2003 Jan 29;51(3):609-14. PMID: **12537430**

Article Published Date : Jan 29, 2003

Authors : Kelly Wolfe, Xianzhong Wu, Rui Hai Liu

Study Type : In Vitro Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Liver Cancer : CK(1208) : AC(455)
Pharmacological Actions : Antioxidants : CK(7191) : AC(2630) , Antiproliferative : CK(2461) : AC(1673)

Apple total triterpenoid content induced apoptosis in

MDA-MB-231 cells.

Pubmed Data : J Agric Food Chem. 2012 Sep 19 ;60(37):9430-6. Epub 2012 Sep 6. PMID: 22924395

Article Published Date : Sep 18, 2012

Authors : Xiangjiu He, Yihai Wang, Hui Hu, Zhenxue Zhang

Study Type : Animal Study, In Vitro Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Breast Cancer : CK(3492) : AC(1052) , Breast Cancer: Triple Negative : CK(256) : AC(138), Colon Cancer : CK(743) : AC(426) , Liver Cancer : CK(1208) : AC(455)
Pharmacological Actions : Antiproliferative : CK(2461) : AC(1673), Apoptotic : CK(2941) : AC(2062) , Cell cycle arrest : CK(805) : AC(607) , NF-kappaB Inhibitor : CK(1100) : AC(686)
Additional Keywords : Dose Response : CK(1035) : AC(400)

Phloretin (Ph), a natural product found in apples and pears, inhibits liver cancer cells.

Pubmed Data : Int J Cancer. 2009 May 1;124(9):2210-9. PMID: 19123483

Article Published Date : May 01, 2009

Authors : Chih-Hsiung Wu, Yuan-Soon Ho, Chia-Yi Tsai, Ying-Jan Wang, How Tseng, Po-Li Wei, Chia-Hwa Lee, Ren-Shyan Liu, Shyr-Yi Lin

Study Type : In Vitro Study
Additional Links
Substances : Apples : CK(373) : AC(99) , Pear : CK(26) : AC(5) , Phloretin : CK(4) : AC(4)
Diseases : Liver Cancer : CK(1208) : AC(455)
Pharmacological Actions : Antiproliferative : CK(2461) : AC(1673), Apoptotic : CK(2941) : AC(2062)

Malabsorption Syndrome (AC 1) (CK 2)

Apple pectin enhances the absorption of quercetin, probably due to its improvement of the absorptive capacity of the small intestine.

Pubmed Data : Cancer Sci. 2009 May 12. PMID: 19292474

Article Published Date : May 12, 2009

Authors : Tomohiko Nishijima, Kunihisa Iwai, Yasuo Saito, Yoshiki Takida, Hajime Matsue

Study Type : Animal Study
Additional Links

Substances : Apple Pectin : CK(66) : AC(15)
Diseases : Malabsorption Syndrome : CK(54) : AC(15)

Male Pattern Baldness (AC 1) (CK 1)

Procyanidin B-2 from apples promotes hair growth.

Pubmed Data : Sci Total Environ. 2010 Feb 13. Epub 2010 Feb 13. PMID: 11841365

Article Published Date : Feb 13, 2010

Authors : A Kamimura, T Takahashi

Study Type : In Vitro Study
Additional Links
Substances : Apples : CK(374) : AC(100)
Diseases : Alopecia : CK(146) : AC(32), Hair Loss : CK(69) : AC(24), Male Pattern Baldness : CK(69) : AC(4)

Mortality: All-Cause (AC 1) (CK 10)

Regular apple consumption may contribute to lower risk of mortality.

Pubmed Data : Br J Nutr. 2016 Jan 20:1-8. Epub 2016 Jan 20. PMID: 26787402

Article Published Date : Jan 19, 2016

Authors : Jonathan M Hodgson, Richard L Prince, Richard J Woodman, Catherine P Bondonno, Kerry L Ivey, Nicola Bondonno, Eric B Rimm, Natalie C Ward, Kevin D Croft, Joshua R Lewis

Study Type : Human Study
Additional Links
Substances : Apples : CK(374) : AC(100)
Diseases : Mortality: All-Cause : CK(713) : AC(63)
Additional Keywords : Risk Reduction : CK(6136) : AC(658)

Muscle Fatigue (AC 1) (CK 2)

Dietary apple polyphenols intake increased endurance based on fiber-type composition in rat muscle.

Pubmed Data : PLoS One. 2015;10(7):e0134303. Epub 2015 Jul 29. PMID: 26222548

Article Published Date : Dec 31, 2014

Authors : Wataru Mizunoya, Hideo Miyahara, Shinpei Okamoto, Mariko Akahoshi, Takahiro Suzuki, Mai-Khoi Q Do, Hideaki Ohtsubo, Yusuke Komiya, Mu Lan, Toshiaki Waga, Akira Iwata, Koichi Nakazato, Yoshihide Ikeuchi, Judy E Anderson, Ryuichi Tatsumi

Study Type : Animal Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17)
Diseases : Muscle Fatigue : CK(24) : AC(4)

Neurodegenerative Diseases (AC 1) (CK 2)

The consumption of apples can prevent the decline in cognitive performance that accompanies dietary and genetic deficiencies and aging.

Pubmed Data : J Alzheimers Dis. 2006 Aug;9(3):287-91. PMID: 16914839

Article Published Date : Aug 01, 2006

Authors : [No authors listed]

Study Type : Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Aging: Brain : CK(246) : AC(84), Cognitive Decline/Dysfunction : CK(1138) : AC(212), Neurodegenerative Diseases : CK(3370) : AC(846)
Pharmacological Actions : Antioxidants : CK(7192) : AC(2631)

Obesity (AC 1) (CK 2)

Taking apple cider vinegar could reduce the metabolic disorders caused by a high fat diet.

Pubmed Data : Ann Cardiol Angeiol (Paris). 2016 Jun ;65(3):208-13. Epub 2016 May 18. PMID: 27209492

Article Published Date : May 31, 2016

Authors : H Bouderbala, H Kaddouri, O Kheroua, D Saidi

Study Type : Animal Study
Additional Links
Substances : Apple Cider Vinegar : CK(9) : AC(5)
Diseases : High Fat Diet : CK(176) : AC(85) , Obesity : CK(2161) : AC(455)
Pharmacological Actions : Appetite Depressants : CK(8) : AC(4) , Hypoglycemic Agents : CK(1380) : AC(338), Hypolipidemic : CK(1151) : AC(242)
Additional Keywords : Anti-Obesity Agents : CK(466) : AC(102) , Risk Reduction : CK(6136) : AC(658)

Oral Cancer (AC 2) (CK 21)

Apple and Hop-polyphenols inhibit P. gingivalis-mediated precursor of MMP-9 activation and invasion of oral squamous cell carcinoma cells.

Pubmed Data : J Periodontol. 2016 May 13:1-21. Epub 2016 May 13. PMID: 27177287

Article Published Date : May 12, 2016

Authors : Hiroaki Inaba, Motoyuki Tagashira, Tomomasa Kanda, Yukitaka Murakami, Atsuo Amano, Michiyo Matsumoto-Nakano

Study Type : In Vitro Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17) , Hops : CK(76) : AC(26)
Diseases : Oral Cancer : CK(194) : AC(78) , Periodontal Diseases : CK(257) : AC(64) , Squamous cell carcinoma : CK(152) : AC(67)
Pharmacological Actions : Anti-metastatic : CK(609) : AC(407) , Matrix metalloproteinase-9 (MMP-9) inhibitor : CK(197) : AC(126)

Consumption of apples is associated with a reduced risk

of cancer in different anatomical sites.

Pubmed Data : Public Health Nutr. 2016 Mar 22:1-15. Epub 2016 Mar 22. PMID: 27000627

Article Published Date : Mar 21, 2016

Authors : Roberto Fabiani, Liliana Minelli, Patrizia Rosignoli

Study Type : Meta Analysis
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Breast Cancer : CK(3492) : AC(1052) , Colorectal Cancer : CK(1635) : AC(611) , Esophageal Cancer : CK(486) : AC(84), Oral Cancer : CK(194) : AC(78)
Additional Keywords : Risk Reduction : CK(6136) : AC(658)

Overweight (AC 1) (CK 10)

The consumption of fruit, such as pear and apple, contribute to weight loss.

Pubmed Data : Nutrition. 2003 Mar;19(3):253-6. PMID: 12620529

Article Published Date : Mar 01, 2003

Authors : Maria Conceição de Oliveira, Rosely Sichieri, Anibal Sanchez Moura

Study Type : Human Study
Additional Links
Substances : Apples : CK(374) : AC(100) , Fruit: All : CK(3530) : AC(769) , Pear : CK(26) : AC(5)
Diseases : Overweight : CK(3260) : AC(536)

Oxidative Stress (AC 3) (CK 14)

Antioxidant beverages could be used as a natural complementary therapy to alleviate or decrease oxidative stress in Alzheimer's disease.

Pubmed Data : Eur J Nutr. 2015 Aug 23. Epub 2015 Aug 23. PMID: 26298312

Article Published Date : Aug 22, 2015

Authors : Jose M Rubio-Perez, Maria D Albaladejo, Pilar Zafrilla, Maria L Vidal-Guevara, Juana M Morillas-Ruiz

Study Type : Human Study
Additional Links
Substances : Apples : CK(373) : AC(99) , Green Tea : CK(1934) : AC(549)
Diseases : Alzheimer's Disease : CK(1282) : AC(375) , Oxidative Stress : CK(3800) : AC(1357)
Pharmacological Actions : Antioxidants : CK(7191) : AC(2630)

Apple and pear peel have significant positive influence on plasma lipid levels and antioxidant capacity in rats.

Pubmed Data : J Agric Food Chem. 2003 Sep 10;51(19):5780-5. PMID: **12952433**

Article Published Date : Sep 10, 2003

Authors : Maria Leontowicz, Shela Gorinstein, Hanna Leontowicz, Ryszard Krzeminski, Antonin Lojek, Elena Katrich, Milan Cíz, Olga Martin-Belloso, Robert Soliva-Fortuny, Ratiporn Haruenkit, Simon Trakhtenberg

Study Type : Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99) , Pear : CK(26) : AC(5)
Diseases : Hyperlipidemia : CK(645) : AC(150) , Oxidative Stress : CK(3800) : AC(1357)
Pharmacological Actions : Antioxidants : CK(7191) : AC(2630) , Hypolipidemic : CK(1151) : AC(242)

Apple polyphenol extracts have neuroprotective effects against Aluminum induced biotoxicity.

Pubmed Data : Neurotoxicology. 2014 Dec ;45:111-20. Epub 2014 Oct 17. PMID: **25445564**

Article Published Date : Nov 30, 2014

Authors : Dai Cheng, Yu Xi, Jiankang Cao, Dongdong Cao, Yuxia Ma, Weibo Jiang

Study Type : Animal Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17) , Polyphenols : CK(920) : AC(333)
Diseases : Aluminum Toxicity : CK(195) : AC(75), Oxidative Stress : CK(3800) : AC(1357)
Pharmacological Actions : Chelating Agents : CK(12) : AC(1) , Neuroprotective Agents : CK(2235) : AC(1052)
Additional Keywords : Chelation : CK(4) : AC(2) , Plant Extracts : CK(7288) : AC(2419)

Periodontal Diseases (AC 3) (CK 4)

Apple and Hop-polyphenols inhibit P. gingivalis-mediated precursor of MMP-9 activation and invasion of oral squamous cell carcinoma cells.

Pubmed Data : J Periodontol. 2016 May 13:1-21. Epub 2016 May 13. PMID: **27177287**

Article Published Date : May 12, 2016

Authors : Hiroaki Inaba, Motoyuki Tagashira, Tomomasa Kanda, Yukitaka Murakami, Atsuo Amano, Michiyo Matsumoto-Nakano

Study Type : In Vitro Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17) , Hops : CK(76) : AC(26)
Diseases : Oral Cancer : CK(194) : AC(78) , Periodontal Diseases : CK(257) : AC(64) , Squamous cell carcinoma : CK(152) : AC(67)
Pharmacological Actions : Anti-metastatic : CK(609) : AC(407) , Matrix metalloproteinase-9 (MMP-9) inhibitor : CK(197) : AC(126)

Apple- and hop-polyphenols protect periodontal ligament cells stimulated with enamel matrix derivative from Porphyromonas gingivalis.

Pubmed Data : J Periodontol. 2005 Dec;76(12):2223-9. PMID: **16332233**

Article Published Date : Dec 01, 2005

Authors : Hiroaki Inaba, Motoyuki Tagashira, Tomomasa Kanda, Takashi Ohno, Shinji Kawai, Atsuo Amano

Study Type : In Vitro Study
Additional Links
Substances : Apples : CK(374) : AC(100) , Hops : CK(76) : AC(26)
Diseases : Periodontal Diseases : CK(257) : AC(64) , Porphyromonas gingivalis : CK(1) : AC(1)

Quercetin, as found in apples and tea, inhibit significant antimicrobial properties on periodontal pathogens.

Pubmed Data : Phytother Res. 2009 Dec 2. Epub 2009 Dec 2. PMID: **19957242**

Article Published Date : Dec 02, 2009

Authors : F Geoghegan, R W K Wong, A B M Rabie

Study Type : Animal Study
Additional Links
Substances : Apples : CK(374) : AC(100) , Black Tea : CK(360) : AC(80) , Green Tea : CK(1934) : AC(549), Quercetin : CK(557) : AC(246)
Diseases : Periodontal Diseases : CK(257) : AC(64)
Pharmacological Actions : Anti-Bacterial Agents : CK(1362) : AC(470)

Porphyromonas gingivalis (AC 1) (CK 1)

Apple- and hop-polyphenols protect periodontal ligament cells stimulated with enamel matrix derivative from Porphyromonas gingivalis.

Pubmed Data : J Periodontol. 2005 Dec;76(12):2223-9. PMID: **16332233**

Article Published Date : Dec 01, 2005

Authors : Hiroaki Inaba, Motoyuki Tagashira, Tomomasa Kanda, Takashi Ohno, Shinji Kawai, Atsuo Amano

Study Type : In Vitro Study
Additional Links
Substances : Apples : CK(374) : AC(100) , Hops : CK(76) : AC(26)
Diseases : Periodontal Diseases : CK(257) : AC(64) , Porphyromonas gingivalis : CK(1) : AC(1)

Radiation Disaster Associated Toxicity (AC 1) (CK 1)

From 1996 to 2007 a total of more than 160,000 "Chernobyl" children received pectin food additives. As a result, levels of Cs-137 in children's organs decreased after each course of pectin additives by an average of 30-40%.

Pubmed Data : Phytother Res. 2009 Apr;23(4):564-71. PMID: **20002057**

Article Published Date : Apr 01, 2009

Authors : Vassily B Nesterenko, Alexey V Nesterenko

Study Type : Review
Additional Links

Substances : Apple Pectin : CK(66) : AC(15)
Diseases : Radiation Disaster Associated Toxicity : CK(996) : AC(288) , Radiation-Induced Illness: Cesium-137 Exposure : CK(96) : AC(25)
Pharmacological Actions : Detoxifier : CK(408) : AC(131) , Radioprotective : CK(725) : AC(258)

Radiation Induced Illness (AC 1) (CK 2)

A drug named "Medetopect" consisting of apple pectins, vitamin C and calcium phosphate reduces absorption of Plutonium-239 and Americium-241 from the gastrointestinal tract of animals.

Pubmed Data : Radiats Biol Radioecol. 1998 Jan-Feb;38(1):35-41. PMID: **9606404**

Article Published Date : Jan 01, 1998

Authors : V S Kalistratova, G A Zalikin, P G Nisimov, I B Romanova

Study Type : Animal Study
Additional Links
Substances : Apple Pectin : CK(66) : AC(15), Calcium : CK(287) : AC(44) , Vitamin C : CK(1953) : AC(401)
Diseases : Radiation Induced Illness : CK(1046) : AC(264) , Radiation-Induced Illness: Americium : CK(4) : AC(2), Radiation-Induced Illness: Plutonium : CK(15) : AC(8)
Pharmacological Actions : Radioprotective : CK(725) : AC(258)

Radiation-Induced Illness: Americium (AC 1) (CK 2)

A drug named "Medetopect" consisting of apple pectins, vitamin C and calcium phosphate reduces absorption of Plutonium-239 and Americium-241 from the gastrointestinal tract of animals.

Pubmed Data : Radiats Biol Radioecol. 1998 Jan-Feb;38(1):35-41. PMID: 9606404

Article Published Date : Jan 01, 1998

Authors : V S Kalistratova, G A Zalikin, P G Nisimov, I B Romanova

Study Type : Animal Study
Additional Links
Substances : Apple Pectin : CK(66) : AC(15), Calcium : CK(287) : AC(44) , Vitamin C : CK(1953) : AC(401)
Diseases : Radiation Induced Illness : CK(1046) : AC(264) , Radiation-Induced Illness: Americium : CK(4) : AC(2), Radiation-Induced Illness: Plutonium : CK(15) : AC(8)
Pharmacological Actions : Radioprotective : CK(725) : AC(258)

Radiation-Induced Illness: Cesium-137 Exposure (AC 4) (CK 31)

Apple pectin reduced Cesium-137 levels by 62.6% in "Chenobyl" children.

Pubmed Data : Swiss Med Wkly. 2004 Jan 10;134(1-2):24-7. PMID: 14745664

Article Published Date : Jan 10, 2004

Authors : V B Nesterenko, A V Nesterenko, V I Babenko, T V Yerkovich, I V Babenko

Study Type : Human Study
Additional Links
Substances : Apple Pectin : CK(66) : AC(15)
Diseases : Radiation-Induced Illness: Cesium-137 Exposure : CK(96) : AC(25)
Pharmacological Actions : Radioprotective : CK(725) : AC(258)

Apple pectin reduces the body burden of Cesium-137 in "Chernobyl" children.

Pubmed Data : Mol Cell Biochem. 1990 Jun 1;95(1):21-30. PMID: 17314090

Article Published Date : Jun 01, 1990

Authors : P Hill, M Schläger, V Vogel, R Hille, A V Nesterenko, V B Nesterenko

Study Type : Human Study
Additional Links
Substances : Apple Pectin : CK(66) : AC(15)
Diseases : Radiation-Induced Illness: Cesium-137 Exposure : CK(96) : AC(25)
Pharmacological Actions : Detoxifier : CK(408) : AC(131) , Detoxifier: Radionuclide Removal : CK(23) : AC(4)

Apple pectin significantly reduces Cesium-137 load within 16 days in children exposed to radioisotopes as a result of Chernobyl.

Pubmed Data : Swiss Med Wkly. 2004 Dec 18;134(49-50):725-9. PMID: **15635491**

Article Published Date : Dec 18, 2004

Authors : G S Bandazhevskaya, V B Nesterenko, V I Babenko, T V Yerkovich, Y I Bandazhevsky

Study Type : Human Study
Additional Links
Substances : Apple Pectin : CK(66) : AC(15)
Diseases : Cardiovascular Diseases : CK(7018) : AC(887) , Radiation-Induced Illness: Cesium-137 Exposure : CK(96) : AC(25)
Pharmacological Actions : Detoxifier : CK(408) : AC(131) , Detoxifier: Radionuclide Removal : CK(23) : AC(4), Radioprotective : CK(725) : AC(258)

From 1996 to 2007 a total of more than 160,000 "Chernobyl" children received pectin food additives. As a result, levels of Cs-137 in children's organs decreased after each course of pectin additives by an average of 30-40%.

Pubmed Data : Phytother Res. 2009 Apr;23(4):564-71. PMID: **20002057**

Article Published Date : Apr 01, 2009

Authors : Vassily B Nesterenko, Alexey V Nesterenko

Study Type : Review
Additional Links
Substances : Apple Pectin : CK(66) : AC(15)
Diseases : Radiation Disaster Associated Toxicity : CK(996) : AC(288) , Radiation-Induced Illness: Cesium-137 Exposure : CK(96) : AC(25)
Pharmacological Actions : Detoxifier : CK(408) : AC(131) , Radioprotective : CK(725) : AC(258)

Radiation-Induced Illness: Plutonium (AC 1) (CK 2)

A drug named "Medetopect" consisting of apple pectins, vitamin C and calcium phosphate reduces absorption of Plutonium-239 and Americium-241 from the gastrointestinal tract of animals.

Pubmed Data : Radiats Biol Radioecol. 1998 Jan-Feb;38(1):35-41. PMID: **9606404**

Article Published Date : Jan 01, 1998

Authors : V S Kalistratova, G A Zalikin, P G Nisimov, I B Romanova

Study Type : Animal Study
Additional Links
Substances : Apple Pectin : CK(66) : AC(15), Calcium : CK(287) : AC(44) , Vitamin C : CK(1953) : AC(401)
Diseases : Radiation Induced Illness : CK(1046) : AC(264) , Radiation-Induced Illness: Americium : CK(4) : AC(2), Radiation-Induced Illness: Plutonium : CK(15) : AC(8)
Pharmacological Actions : Radioprotective : CK(725) : AC(258)

Radiotherapy (AC 1) (CK 2)

Phenolic extracts from the fruits of wild apple could be used as a radioprotector against gamma radiation induced oxidative damage.

Pubmed Data : Food Funct. 2016 Jan 7. Epub 2016 Jan 7. PMID: **26741951**

Article Published Date : Jan 06, 2016

Authors : Lu Wang, Xiaoyu Li, Zhenyu Wang

Study Type : Animal Study
Additional Links
Substances : Apples : CK(374) : AC(100)
Diseases : Radiotherapy : CK(45) : AC(2)
Pharmacological Actions : Immunomodulatory : CK(1284) : AC(355) , Radioprotective : CK(725) : AC(258)

Squamous cell carcinoma (AC 1) (CK 1)

Apple and Hop-polyphenols inhibit P. gingivalis-mediated precursor of MMP-9 activation and invasion of oral squamous cell carcinoma cells.

Pubmed Data : J Periodontol. 2016 May 13:1-21. Epub 2016 May 13. PMID: 27177287

Article Published Date : May 12, 2016

Authors : Hiroaki Inaba, Motoyuki Tagashira, Tomomasa Kanda, Yukitaka Murakami, Atsuo Amano, Michiyo Matsumoto-Nakano

Study Type : In Vitro Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17) , Hops : CK(76) : AC(26)
Diseases : Oral Cancer : CK(194) : AC(78) , Periodontal Diseases : CK(257) : AC(64) , Squamous cell carcinoma : CK(152) : AC(67)
Pharmacological Actions : Anti-metastatic : CK(609) : AC(407) , Matrix metalloproteinase-9 (MMP-9) inhibitor : CK(197) : AC(126)

Staphylococcal Infections (AC 1) (CK 1)

Red beet, apple, and citrus pectins inhibit the production of staphylococcal enterotoxins type A and B.

Pubmed Data : Zh Mikrobiol Epidemiol Immunobiol. 2007 Nov-Dec(6):11-6. PMID: 18277535

Article Published Date : Nov 01, 2007

Authors : F S Fluer, D D Men'shikov, E B Lazareva, V Ia Prokhorov, A V Vesnin

Study Type : In Vitro Study
Additional Links
Substances : Apple Pectin : CK(66) : AC(15), Beet : CK(103) : AC(26) , Pectin : CK(66) : AC(9)
Diseases : Endotoxemia : CK(83) : AC(43) , Staphylococcal Infections : CK(30) : AC(18)
Pharmacological Actions : Anti-Bacterial Agents : CK(1362) : AC(470)

Staphylococcus aureus infection (AC 2) (CK 2)

Phenolics from Fuji apple showed good antioxidant, antibacterial, and antiproliferative activities.

Pubmed Data : J Food Sci. 2016 Jun 6. Epub 2016 Jun 6. PMID: 27272442

Article Published Date : Jun 05, 2016

Authors : Jincan Luo, Pei Zhang, Siqian Li, Nagendra P Shah

Study Type : In Vitro Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17)
Diseases : Colon Cancer : CK(743) : AC(426) , Escherichia coli Infections : CK(152) : AC(90) , Listeria Infections : CK(29) : AC(23), Staphylococcus aureus infection : CK(148) : AC(104)
Pharmacological Actions : Anti-Bacterial Agents : CK(1362) : AC(470) , Antioxidants : CK(7191) : AC(2630), Antiproliferative : CK(2461) : AC(1673)

Phloridzin and phloretin have the potential to be used as natural alternatives to synthetic antioxidants and antimicrobials.

Pubmed Data : Chem Cent J. 2016 ;10:47. Epub 2016 Aug 2. PMID: 27486478

Article Published Date : Dec 31, 2015

Authors : Tingjing Zhang, Xinyuan Wei, Zhuang Miao, Hamada Hassan, Yunbo Song, Mingtao Fan

Study Type : In Vitro Study
Additional Links
Substances : Apples : CK(374) : AC(100)
Diseases : Staphylococcus aureus infection : CK(148) : AC(104)
Pharmacological Actions : Anti-Bacterial Agents : CK(1362) : AC(470) , Antioxidants : CK(7194) : AC(2632)

Stomach Cancer (AC 1) (CK 1)

Apples contain compounds which induce programmed cell death in human stomach cancer cells.

Pubmed Data : Int J Mol Med. 2004 Jun;13(6):795-9. PMID: 15138614

Article Published Date : Jun 01, 2004

Authors : Hiroshige Hibasami, Toshihiko Shohji, Ichirou Shibuya, Kazuko Higo, Tomomasa Kanda

Study Type : In Vitro Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Stomach Cancer : CK(579) : AC(194)
Pharmacological Actions : Apoptotic : CK(2941) : AC(2062)

Stroke (AC 1) (CK 10)

Higher fruit and vegetable consumption might reduce the risk of stroke.

Pubmed Data : Atherosclerosis. 2013 Mar ;227(1):147-52. Epub 2012 Dec 28. PMID: 23294925

Article Published Date : Feb 28, 2013

Authors : Susanna C Larsson, Jarmo Virtamo, Alicja Wolk

Study Type : Human Study
Additional Links
Substances : Apples : CK(374) : AC(100) , Fruit: All : CK(3530) : AC(769) , Green Leafy Vegetables : CK(341) : AC(67), Pear : CK(26) : AC(5) , Vegetables: All : CK(1032) : AC(113)
Diseases : Stroke : CK(1322) : AC(163)
Additional Keywords : Risk Reduction : CK(6136) : AC(658)

Systemic Lupus Erythematosus (AC 1) (CK 10)

The association between common foods, such as oranges

and apples, with specific microorganisms reported to be decreased in SLE could be of great importance for these patients.

Pubmed Data : Nutrients. 2015 ;7(2):1301-17. Epub 2015 Feb 16. PMID: 25690419

Article Published Date : Dec 31, 2014

Authors : Adriana Cuervo, Arancha Hevia, Patricia López, Ana Suárez, Borja Sánchez, Abelardo Margolles, Sonia González

Study Type : Human Study
Additional Links
Substances : Apples : CK(374) : AC(100) , Apples : CK(374) : AC(100) , Polyphenols : CK(920) : AC(333) , Red Wine Extract : CK(114) : AC(32)
Diseases : Dysbiosis : CK(378) : AC(83) , Systemic Lupus Erythematosus : CK(463) : AC(66)
Pharmacological Actions : Gastrointestinal Agents : CK(265) : AC(39)
Additional Keywords : Gastrointestinal Agents : CK(265) : AC(39)

Tongue Cancer (AC 1) (CK 2)

Apple extract is able to modulate medium term oral carcinogenesis as a result of antioxidant activity.

Pubmed Data : Toxicol Mech Methods. 2015 Jun 10:1-6. Epub 2015 Jun 10. PMID: 26062009

Article Published Date : Jun 09, 2015

Authors : Flávia Andressa Pidone Ribeiro, Rogerio Correa Peres, Celina Tizuko Fujiyama Oshima, Luiz Carlos Spolidorio, Luciana Le Sueur Maluf, Daniel Araki Ribeiro

Study Type : Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Tongue Cancer : CK(40) : AC(18)
Pharmacological Actions : Anticarcinogenic Agents : CK(1071) : AC(514) , Antioxidants : CK(7192) : AC(2631), Chemopreventive : CK(2678) : AC(767)
Additional Keywords : Plant Extracts : CK(7288) : AC(2419)

Triglycerides: Elevated (AC 1) (CK 2)

Apple cider vinegars, regardless of the production method, decreased triglyceride and VLDL levels in all groups when compared to animals on high-cholesterol diets without vinegar supplementation. Apple cider vinegars increased total cholesterol and HDL an

Pubmed Data : J Agric Food Chem. 2011 Jun 22;59(12):6638-44. doi: 10.1021/jf104912h. Epub 2011 May 18. PMID: 21561165

Article Published Date : Jun 21, 2011

Study Type : Animal Study
Additional Links
Substances : Apple Cider Vinegar : CK(9) : AC(5)
Diseases : High Cholesterol: very low density lipoprotein (VLDL) : CK(26) : AC(9) , Hyperlipidemia : CK(645) : AC(150), Triglycerides: Elevated : CK(678) : AC(117)
Pharmacological Actions : Hypolipidemic : CK(1151) : AC(242)

Tumors (AC 1) (CK 2)

Apple cider vinegar contains an antitumor agent in experimental mouse tumors.

Pubmed Data : Biosci Biotechnol Biochem. 2007 Sep;71(9):2124-9. Epub 2007 Sep 7. PMID: 17827702

Article Published Date : Sep 01, 2007

Authors : Kaoru Abe, Toshisada Kushibiki, Hajime Matsue, Ken-Ichi Furukawa, Shigeru Motomura

Study Type : Animal Study
Additional Links
Substances : Apple Cider Vinegar : CK(9) : AC(5)
Diseases : Tumors : CK(203) : AC(119)
Additional Keywords : Alpha-Glycan : CK(2) : AC(1)

Vaccine-induced Toxicity (AC 1) (CK 2)

Apple polyphenol may reduce the adverse effects of the immunization adjuvant cholera toxin.

Pubmed Data : Vaccine. 2009 Jul 30;27(35):4808-17. Epub 2009 Jun 17. PMID: **19539583**

Article Published Date : Jul 30, 2009

Authors : Naoto Yoshino, Kohtaro Fujihashi, Yukari Hagiwara, Hiroyuki Kanno, Kiyomi Takahashi, Ryoki Kobayashi, Noriyuki Inaba, Masatoshi Noda, Shigehiro Sato

Study Type : Animal Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17) , Apples : CK(374) : AC(100) , Polyphenols : CK(920) : AC(333)
Diseases : Cholera : CK(66) : AC(24) , Vaccine-induced Toxicity : CK(1288) : AC(194)
Additional Keywords : Drug Side Effect Attenuation : CK(251) : AC(49)

Category : Pharmacological Actions

Alpha-amylase inhibitor (AC 1) (CK 1)

Apples have antihyperglycemic components.

Pubmed Data : J Med Food. 2010 Dec;13(6):1313-23. Epub 2010 Sep 27. PMID: **20874247**

Article Published Date : Dec 01, 2010

Authors : Ana Cristina Lopes Barbosa, Marcia da Silva Pinto, Dipayan Sarkar, Chandrakant Ankolekar, Duane Greene, Kalidas Shetty

Study Type : In Vitro Study
Additional Links
Substances : Apples : CK(374) : AC(100)
Diseases : Hyperglycemia : CK(539) : AC(130)
Pharmacological Actions : Alpha-amylase inhibitor : CK(34) : AC(20) , Alpha-glucosidase inhibitor : CK(52) : AC(37), Hypoglycemic Agents : CK(1380) : AC(338)

Alpha-glucosidase inhibitor (AC 1) (CK 1)

Apples have antihyperglycemic components.

Pubmed Data : J Med Food. 2010 Dec;13(6):1313-23. Epub 2010 Sep 27. PMID: 20874247

Article Published Date : Dec 01, 2010

Authors : Ana Cristina Lopes Barbosa, Marcia da Silva Pinto, Dipayan Sarkar, Chandrakant Ankolekar, Duane Greene, Kalidas Shetty

Study Type : In Vitro Study
Additional Links
Substances : Apples : CK(374) : AC(100)
Diseases : Hyperglycemia : CK(539) : AC(130)
Pharmacological Actions : Alpha-amylase inhibitor : CK(34) : AC(20) , Alpha-glucosidase inhibitor : CK(52) : AC(37), Hypoglycemic Agents : CK(1380) : AC(338)

Angiogenesis Inhibitors (AC 1) (CK 5)

VEGF is a key molecular target for specific polyphenols found in tea, apples and cocoa which potently inhibit VEGF signalling and angiogenesis at physiological concentrations.

Pubmed Data : Mol Nutr Food Res. 2015 Mar ;59(3):401-12. Epub 2015 Jan 22. PMID: 25546248

Article Published Date : Feb 28, 2015

Authors : Christina W A Moyle, Ana B Cerezo, Mark S Winterbone, Wendy J Hollands, Yuri Alexeev, Paul W Needs, Paul A Kroon

Study Type : Human In Vitro
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17) , EGCG (Epigallocatechin gallate) : CK(606) : AC(312), Polyphenols : CK(920) : AC(333)
Diseases : Cancers: All : CK(14297) : AC(4542)
Pharmacological Actions : Angiogenesis Inhibitors : CK(112) : AC(61) , Vascular Endothelial Growth Factor Inhibitors : CK(123) : AC(61)
Additional Keywords : Diet : CK(75) : AC(8)

Anti-Allergic Agents (AC 1) (CK 1)

Procyanidin-enriched apple extract exhibits anti-allergic properties.

Pubmed Data : Int Arch Allergy Immunol. 2008;147(3):213-21. Epub 2008 Jul 2. PMID: 18594151

Article Published Date : Jan 01, 2008

Authors : [No authors listed]

Study Type : In Vitro Study
Additional Links
Substances : Apples : CK(374) : AC(100) , Polyphenols : CK(920) : AC(333)
Diseases : Allergies : CK(672) : AC(128)
Pharmacological Actions : Anti-Allergic Agents : CK(167) : AC(61)
Additional Keywords : Plant Extracts : CK(7288) : AC(2419) , Proanthocyanidins : CK(203) : AC(54)

Anti-Apoptotic (AC 1) (CK 2)

The results of the present study revealed the hepatoprotective efficacy of APE by inhibiting carbon tetrachloride induced apoptosis.

Pubmed Data : Hum Exp Toxicol. 2016 Jan 25. Epub 2016 Jan 25. PMID: 26811344

Article Published Date : Jan 24, 2016

Authors : S Sharma, S Rana, V Patial, M Gupta, S Bhushan, Y S Padwad

Study Type : Animal Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17) , Apples : CK(373) : AC(99)
Diseases : Chemically-Induced Liver Damage : CK(629) : AC(252)
Pharmacological Actions : Anti-Apoptotic : CK(360) : AC(201) , Antioxidants : CK(7192) : AC(2631) , Hepatoprotective : CK(1342) : AC(581)
Additional Keywords : Dose Response : CK(1035) : AC(400)

Anti-Bacterial Agents (AC 6) (CK 7)

Carotenoids extracted from red paprika, Valencia orange and Golden delicious apple exhibit anti-H. pylori and anti-multidrug resistance activity.

Pubmed Data : Phytother Res. 2005 Aug;19(8):700-7. PMID: 16177974

Article Published Date : Aug 01, 2005

Authors : Péter Molnár, Masami Kawase, Kazue Satoh, Yoshitaka Sohara, Toru Tanaka, Satoru Tani, Hiroshi Sakagami, Hideki Nakashima, Noboru Motohashi, Nóra Gyémánt, Joseph Molnár

Study Type : In Vitro Study
Additional Links
Substances : Apple: Golden Delicious : CK(2) : AC(2) , Carotenoids : CK(1620) : AC(306) , Orange : CK(170) : AC(35), Paprika : CK(8) : AC(6)
Diseases : Cancers: All : CK(14296) : AC(4541) , Cancers: Multi-Drug Resistant : CK(120) : AC(93) , Helicobacter Pylori Infection : CK(475) : AC(101)
Pharmacological Actions : Anti-Bacterial Agents : CK(1362) : AC(470) , Antioxidants : CK(7191) : AC(2630), Chemosensitizer : CK(391) : AC(283)

Golden delicious apples contain carotenoids with anti-Helicobacter pylori activity.

Pubmed Data : Phytother Res. 2010 May;24(5):644-8. PMID: 19591126

Article Published Date : May 01, 2010

Authors : Péter Molnár, József Deli, Toru Tanaka, Yoshiyuki Kann, Satoru Tani, Nóra Gyémánt, Joseph Molnár, Masami Kawase

Study Type : In Vitro Study
Additional Links
Substances : Apple: Golden Delicious : CK(2) : AC(2) , Apples : CK(373) : AC(99) , Carotenoids : CK(1620) : AC(306), Neoxanthin : CK(2) : AC(2)
Diseases : Helicobacter Pylori Infection : CK(475) : AC(101)
Pharmacological Actions : Anti-Bacterial Agents : CK(1362) : AC(470)

Phenolics from Fuji apple showed good antioxidant, antibacterial, and antiproliferative activities.

Pubmed Data : J Food Sci. 2016 Jun 6. Epub 2016 Jun 6. PMID: 27272442

Article Published Date : Jun 05, 2016

Authors : Jincan Luo, Pei Zhang, Siqian Li, Nagendra P Shah

Study Type : In Vitro Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17)
Diseases : Colon Cancer : CK(743) : AC(426) , Escherichia coli Infections : CK(152) : AC(90) , Listeria Infections : CK(29) : AC(23), Staphylococcus aureus infection : CK(148) : AC(104)
Pharmacological Actions : Anti-Bacterial Agents : CK(1362) : AC(470) , Antioxidants : CK(7191) : AC(2630), Antiproliferative : CK(2461) : AC(1673)

Phloridzin and phloretin have the potential to be used as natural alternatives to synthetic antioxidants and antimicrobials.

Pubmed Data : Chem Cent J. 2016 ;10:47. Epub 2016 Aug 2. PMID: **27486478**

Article Published Date : Dec 31, 2015

Authors : Tingjing Zhang, Xinyuan Wei, Zhuang Miao, Hamada Hassan, Yunbo Song, Mingtao Fan

Study Type : In Vitro Study
Additional Links
Substances : Apples : CK(374) : AC(100)
Diseases : Staphylococcus aureus infection : CK(148) : AC(104)
Pharmacological Actions : Anti-Bacterial Agents : CK(1362) : AC(470) , Antioxidants : CK(7194) : AC(2632)

Quercetin, as found in apples and tea, inhibit significant antimicrobial properties on periodontal pathogens.

Pubmed Data : Phytother Res. 2009 Dec 2. Epub 2009 Dec 2. PMID: **19957242**

Article Published Date : Dec 02, 2009

Authors : F Geoghegan, R W K Wong, A B M Rabie

Study Type : Animal Study
Additional Links
Substances : Apples : CK(374) : AC(100) , Black Tea : CK(360) : AC(80) , Green Tea : CK(1934) : AC(549), Quercetin : CK(557) : AC(246)
Diseases : Periodontal Diseases : CK(257) : AC(64)
Pharmacological Actions : Anti-Bacterial Agents : CK(1362) : AC(470)

Red beet, apple, and citrus pectins inhibit the production of staphylococcal enterotoxins type A and B.

Pubmed Data : Zh Mikrobiol Epidemiol Immunobiol. 2007 Nov-Dec(6):11-6. PMID: **18277535**

Article Published Date : Nov 01, 2007

Authors : F S Fluer, D D Men'shikov, E B Lazareva, V Ia Prokhorov, A V Vesnin

Study Type : In Vitro Study
Additional Links
Substances : Apple Pectin : CK(66) : AC(15), Beet : CK(103) : AC(26) , Pectin : CK(66) : AC(9)
Diseases : Endotoxemia : CK(83) : AC(43) , Staphylococcal Infections : CK(30) : AC(18)
Pharmacological Actions : Anti-Bacterial Agents : CK(1362) : AC(470)

Anti-Glycation Agents (AC 1) (CK 1)

Bioactive compounds isolated from apple, tea, and ginger protect against dicarbonyl induced stress in cultured human retinal epithelial cells.

Pubmed Data : Phytomedicine. 2016 Feb 15 ;23(2):200-13. Epub 2016 Jan 5. PMID: 26926182
Article Published Date : Feb 14, 2016
Authors : Chethan Sampath, Yingdong Zhu, Shengmin Sang, Mohamed Ahmedna
Study Type : In Vitro Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17) , EGCG (Epigallocatechin gallate) : CK(606) : AC(312), Ginger : CK(676) : AC(175)
Diseases : Advanced Glycation End products (AGE) : CK(231) : AC(73) , Diabetic Complications : CK(1512) : AC(315)
Pharmacological Actions : Anti-Glycation Agents : CK(46) : AC(19) , Antioxidants : CK(7192) : AC(2631), Nrf2 activation : CK(172) : AC(83)

Anti-Inflammatory Agents (AC 6) (CK 20)

Apple leaves contain compounds which may have therapeutic value against advanced glycation end-productions and vasoconstriction.

Pubmed Data : Phytochemistry. 2009 Dec 18. Epub 2009 Dec 18. PMID: 20022617

Article Published Date : Dec 18, 2009

Authors : Thomas Dugé de Bernonville, Sylvain Guyot, Jean-Pierre Paulin, Matthieu Gaucher, Laurent Loufrani, Daniel Henrion, Séverine Derbré, David Guilet, Pascal Richomme, James F Dat, Marie-Noëlle Brisset

Study Type : Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Advanced Glycation End products (AGE) : CK(231) : AC(73)
Pharmacological Actions : Anti-Inflammatory Agents : CK(4500) : AC(1574), Vasodilator Agents : CK(342) : AC(73)

Apple polysaccharide extracts could be used in combination therapy for the prevention of colitis-associated colon cancer.

Pubmed Data : Nutr Cancer. 2015 ;67(1):177-90. Epub 2014 Nov 20. PMID: **25412264**

Article Published Date : Dec 31, 2014

Authors : Dian Zhang, Man Mi, Fengliang Jiang, Yang Sun, Yuhua Li, Libin Yang, Lei Fan, Qian Li, Jin Meng, Zhenggang Yue, Li Liu, Qibing Mei

Study Type : Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Colitis : CK(251) : AC(109), Colon Cancer : CK(743) : AC(426), Colon Cancer: Prevention : CK(176) : AC(56)
Pharmacological Actions : Anti-Inflammatory Agents : CK(4499) : AC(1573), Anticarcinogenic Agents : CK(1071) : AC(514), NF-kappaB Inhibitor : CK(1100) : AC(686)
Additional Keywords : Plant Extracts : CK(7288) : AC(2419)

Apples rich polyphenols reduce colonic inflammation in rats.

Pubmed Data : Br J Nutr. 2009 Dec;102(11):1620-8. Epub 2009 Jul 22. PMID: **19622193**

Article Published Date : Dec 01, 2009

Authors : Cinzia Castagnini, Cristina Luceri, Simona Toti, Elisabetta Bigagli, Giovanna Caderni, Angelo P Femia, Lisa Giovannelli, Maura Lodovici, Vanessa Pitozzi, Maddalena Salvadori, Luca Messerini, Rocio Martin, Erwin G Zoetendal, Stan Gaj, Lars Eijssen, Chris T Evelo, Catherine M G C Renard, Alain Baron, Piero Dolara

Study Type : Transgenic Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99), Flavonoids : CK(1194) : AC(376), Polyphenols : CK(920) : AC(333)
Diseases : Inflammatory Bowel Diseases : CK(990) : AC(187), Irritable Bowel Syndrome : CK(709) : AC(91)
Pharmacological Actions : Anti-Inflammatory Agents : CK(4499) : AC(1573), Cyclooxygenase 2 Inhibitors : CK(448) : AC(267)

Consumption of dried apple peel powder was associated with improved joint function and improved serum antioxidant protection status.

Pubmed Data : J Med Food. 2014 Nov ;17(11):1204-13. Epub 2014 Oct 1. PMID: **25271471**

Article Published Date : Oct 31, 2014

Authors : Gitte S Jensen, Victoria L Attridge, Kathleen F Benson, Joni L Beaman, Steve G Carter, David Ager

Study Type : Human Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Joint Diseases : CK(10) : AC(1)
Pharmacological Actions : Anti-Inflammatory Agents : CK(4500) : AC(1574) , Antinoceceptive : CK(177) : AC(47), Antioxidants : CK(7191) : AC(2630) , Cyclooxygenase 2 Inhibitors : CK(448) : AC(267), Lipoxygenase Inhibitors : CK(38) : AC(17)
Additional Keywords : Plant Extracts : CK(7288) : AC(2419) , Significant Treatment Outcome : CK(3028) : AC(365)

Polyphenol-rich apple peel extract, cherry extract and quercetin modulates some of the harmful effects of the consumption of an high fat diet.

Pubmed Data : J Nutr. 2016 Apr 6. Epub 2016 Apr 6. PMID: **27052533**

Article Published Date : Apr 05, 2016

Authors : Sarah M Snyder, Bingxin Zhao, Ting Luo, Clive Kaiser, George Cavender, Jill Hamilton-Reeves, Debra K Sullivan, Neil F Shay

Study Type : Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99) , Cherry: All Varieties : CK(167) : AC(31) , Quercetin : CK(557) : AC(246)
Diseases : C-Reactive Protein : CK(1628) : AC(171), High Fat Diet : CK(176) : AC(85) , Inflammation : CK(2863) : AC(839)
Pharmacological Actions : Anti-Inflammatory Agents : CK(4499) : AC(1573) , Hypoglycemic Agents : CK(1380) : AC(338)
Additional Keywords : Plant Extracts : CK(7288) : AC(2419)

These results suggest that the apple polyphenols are a beneficial nutritional supplement for the attenuation of atherosclerosis.

Pubmed Data : Nutrients. 2015 ;7(8):7085-105. Epub 2015 Aug 24. PMID: **26305254**

Article Published Date : Dec 31, 2014

Authors : Zhe-Rong Xu, Jin-You Li, Xin-Wei Dong, Zhong-Ju Tan, Wei-Zhen Wu, Qiang-Min Xie, Yun-Mei Yang

Study Type : Animal Study, In Vitro Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17)
Diseases : Atherosclerosis : CK(578) : AC(146), Endothelial Dysfunction : CK(1166) : AC(231), Hepatic Steatosis : CK(131) : AC(35)
Pharmacological Actions : Anti-atherogenic : CK(143) : AC(36), Anti-Inflammatory Agents : CK(4499) : AC(1573), Antioxidants : CK(7191) : AC(2630), Catalase Up-Regulation : CK(118) : AC(42), Hepatoprotective : CK(1342) : AC(581), Superoxide Dismutase Up-regulation : CK(504) : AC(169)

Anti-atherogenic (AC 1) (CK 2)

These results suggest that the apple polyphenols are a beneficial nutritional supplement for the attenuation of atherosclerosis.

Pubmed Data : Nutrients. 2015 ;7(8):7085-105. Epub 2015 Aug 24. PMID: **26305254**

Article Published Date : Dec 31, 2014

Authors : Zhe-Rong Xu, Jin-You Li, Xin-Wei Dong, Zhong-Ju Tan, Wei-Zhen Wu, Qiang-Min Xie, Yun-Mei Yang

Study Type : Animal Study, In Vitro Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17)
Diseases : Atherosclerosis : CK(578) : AC(146), Endothelial Dysfunction : CK(1166) : AC(231), Hepatic Steatosis : CK(131) : AC(35)
Pharmacological Actions : Anti-atherogenic : CK(143) : AC(36), Anti-Inflammatory Agents : CK(4499) : AC(1573), Antioxidants : CK(7191) : AC(2630), Catalase Up-Regulation : CK(118) : AC(42), Hepatoprotective : CK(1342) : AC(581), Superoxide Dismutase Up-regulation : CK(504) : AC(169)

Anti-metastatic (AC 1) (CK 1)

Apple and Hop-polyphenols inhibit P. gingivalis-mediated

precursor of MMP-9 activation and invasion of oral squamous cell carcinoma cells.

Pubmed Data : J Periodontol. 2016 May 13:1-21. Epub 2016 May 13. PMID: 27177287

Article Published Date : May 12, 2016

Authors : Hiroaki Inaba, Motoyuki Tagashira, Tomomasa Kanda, Yukitaka Murakami, Atsuo Amano, Michiyo Matsumoto-Nakano

Study Type : In Vitro Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17) , Hops : CK(76) : AC(26)
Diseases : Oral Cancer : CK(194) : AC(78) , Periodontal Diseases : CK(257) : AC(64) , Squamous cell carcinoma : CK(152) : AC(67)
Pharmacological Actions : Anti-metastatic : CK(609) : AC(407) , Matrix metalloproteinase-9 (MMP-9) inhibitor : CK(197) : AC(126)

Anticarcinogenic Agents (AC 5) (CK 8)

Apple extract is able to modulate medium term oral carcinogenesis as a result of antioxidant activity.

Pubmed Data : Toxicol Mech Methods. 2015 Jun 10:1-6. Epub 2015 Jun 10. PMID: 26062009

Article Published Date : Jun 09, 2015

Authors : Flávia Andressa Pidone Ribeiro, Rogerio Correa Peres, Celina Tizuko Fujiyama Oshima, Luiz Carlos Spolidorio, Luciana Le Sueur Maluf, Daniel Araki Ribeiro

Study Type : Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Tongue Cancer : CK(40) : AC(18)
Pharmacological Actions : Anticarcinogenic Agents : CK(1071) : AC(514) , Antioxidants : CK(7192) : AC(2631), Chemopreventive : CK(2678) : AC(767)
Additional Keywords : Plant Extracts : CK(7288) : AC(2419)

Apple polysaccharide extracts could be used in combination therapy for the prevention of colitis-associated colon cancer.

Pubmed Data : Nutr Cancer. 2015 ;67(1):177-90. Epub 2014 Nov 20. PMID: 25412264

Article Published Date : Dec 31, 2014

Authors : Dian Zhang, Man Mi, Fengliang Jiang, Yang Sun, Yuhua Li, Libin Yang, Lei Fan, Qian Li, Jin Meng, Zhenggang Yue, Li Liu, Qibing Mei

Study Type : Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Colitis : CK(251) : AC(109) , Colon Cancer : CK(743) : AC(426) , Colon Cancer: Prevention : CK(176) : AC(56)
Pharmacological Actions : Anti-Inflammatory Agents : CK(4499) : AC(1573) , Anticarcinogenic Agents : CK(1071) : AC(514), NF-kappaB Inhibitor : CK(1100) : AC(686)
Additional Keywords : Plant Extracts : CK(7288) : AC(2419)

Apples contain a wide range of health benefits.

Pubmed Data : J Endocrinol. 2011 Mar;208(3):273-83. Epub 2011 Jan 6. PMID: **18855307**

Article Published Date : Mar 01, 2011

Authors : Clarissa Gerhauser

Study Type : Review
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Cancers: All : CK(14297) : AC(4542)
Pharmacological Actions : Anticarcinogenic Agents : CK(1071) : AC(514)
Additional Keywords : Risk Reduction : CK(6136) : AC(658)

Fresh apples suppress mammary carcinogenesis in rats.

Pubmed Data : J Agric Food Chem. 2009 Jan 14;57(1):297-304. PMID: **19072049**

Article Published Date : Jan 14, 2009

Authors : Jia-Ren Liu, Hong-Wei Dong, Bing-Qing Chen, Peng Zhao, Rui Hai Liu

Study Type : Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Breast Cancer : CK(3492) : AC(1052)
Pharmacological Actions : Anticarcinogenic Agents : CK(1071) : AC(514) , Antiproliferative : CK(2461) : AC(1673), Apoptotic : CK(2941) : AC(2062)
Additional Keywords : Plant Extracts : CK(7288) : AC(2419)

The conclusion of the review is that these apple and berry juices will be possible candidates against colon cancer.

Pubmed Data : World J Gastroenterol. 2014 Dec 7 ;20(45):17029-36. PMID: **25493015**

Article Published Date : Dec 06, 2014

Authors : Saravana Kumar Jaganathan, Muthu Vignesh Vellayappan, Gayathri Narasimhan, Eko Supriyanto, Dyah Ekashanti Octorina Dewi, Aqilah Leela T Narayanan, Arunpandian Balaji, Aruna Priyadarshini Subramanian, Mustafa Yusof

Study Type : Review
Additional Links
Substances : Apples : CK(374) : AC(100) , Berries: All : CK(1443) : AC(356)
Diseases : Colon Cancer: Prevention : CK(176) : AC(56)
Pharmacological Actions : Anticarcinogenic Agents : CK(1071) : AC(514) , Chemopreventive : CK(2678) : AC(767)

Anticholesteremic Agents (AC 1) (CK 10)

A joint consumption of apple juice, natural antioxidants and polyphenols might provide mild favorable effects on cardiometabolic markers, as compared to apple polyphenols alone.

Pubmed Data : Eur J Nutr. 2014 Dec ;53(8):1645-57. Epub 2014 Feb 16. PMID: 24531755

Article Published Date : Nov 30, 2014

Authors : Alberto Soriano-Maldonado, María Hidalgo, Patricia Arteaga, Sonia de Pascual-Teresa, Esther Nova

Study Type : Human Study
Additional Links
Substances : Apples : CK(373) : AC(99) , Polyphenols : CK(920) : AC(333) , Vitamin C : CK(1953) : AC(401)
Pharmacological Actions : Anticholesteremic Agents : CK(1232) : AC(228) , Antioxidants : CK(7192) : AC(2631)
Additional Keywords : Fruit Juice : CK(85) : AC(11) , Natural Substance Synergy : CK(534) : AC(244)

Antidiarrheals (AC 1) (CK 2)

Polymerized catechin compounds in apple polyphenol extracts inhibit the biological and enzymatic activities of

cholera toxin.

Pubmed Data : Microbiol Immunol. 2002 ;46(4):249-55. PMID: 12061627

Article Published Date : Dec 31, 2001

Authors : Takao Saito, Masami Miyake, Masamichi Toba, Hiroshi Okamatsu, Seiichi Shimizu, Masatoshi Noda

Study Type : Animal Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17) , Catechin : CK(512) : AC(169), Flavonoids : CK(1194) : AC(376)
Diseases : Cholera : CK(66) : AC(24)
Pharmacological Actions : Antidiarrheals : CK(110) : AC(20) , Antimicrobial : CK(290) : AC(125) , Enzyme Inhibitors : CK(463) : AC(250)
Additional Keywords : Dose Response : CK(1035) : AC(400) , Plant Extracts : CK(7288) : AC(2419)

Antifungal Agents (AC 1) (CK 1)

Apple cider vinegar showed antifungal properties against Candida spp., thus representing a possible therapeutic alternative for patients with denture stomatitis.

Pubmed Data : J Prosthodont. 2015 Jun ;24(4):296-302. Epub 2014 Sep 14. PMID: 25219289

Article Published Date : May 31, 2015

Authors : Ana Carolina Loureiro Gama Mota, Ricardo Dias de Castro, Julyana de Araújo Oliveira, Edeltrudes de Oliveira Lima

Study Type : In Vitro Study
Additional Links
Substances : Apple Cider Vinegar : CK(9) : AC(5)
Diseases : Candida Albicans : CK(38) : AC(26) , Candida Infection : CK(241) : AC(112), Denture Stomatitis : CK(11) : AC(1)
Pharmacological Actions : Antifungal Agents : CK(233) : AC(145)

Antimicrobial (AC 1) (CK 2)

Polymerized catechin compounds in apple polyphenol extracts inhibit the biological and enzymatic activities of cholera toxin.

Pubmed Data : Microbiol Immunol. 2002 ;46(4):249-55. PMID: 12061627

Article Published Date : Dec 31, 2001

Authors : Takao Saito, Masami Miyake, Masamichi Toba, Hiroshi Okamatsu, Seiichi Shimizu, Masatoshi Noda

Study Type : Animal Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17) , Catechin : CK(512) : AC(169), Flavonoids : CK(1194) : AC(376)
Diseases : Cholera : CK(66) : AC(24)
Pharmacological Actions : Antidiarrheals : CK(110) : AC(20) , Antimicrobial : CK(290) : AC(125) , Enzyme Inhibitors : CK(463) : AC(250)
Additional Keywords : Dose Response : CK(1035) : AC(400) , Plant Extracts : CK(7288) : AC(2419)

Antimutagenic Agents (AC 1) (CK 1)

Phenolic extracts of different cultivars of apples have varied antimutagenicity activity, with Granny Smith showing higher levels.

Pubmed Data : J Food Sci. 2016 Jan 11. Epub 2016 Jan 11. PMID: 26753515

Article Published Date : Jan 10, 2016

Authors : Sudhanshu Saxena, Jyoti Verma, Satyendra Gautam

Study Type : In Vitro Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : DNA damage : CK(969) : AC(377)
Pharmacological Actions : Antimutagenic Agents : CK(126) : AC(72) , Antioxidants : CK(7192) : AC(2631), Prophylactic Agents : CK(129) : AC(31) , Radioprotective : CK(725) : AC(258)

Antinoceptive (AC 1) (CK 10)

Consumption of dried apple peel powder was associated with improved joint function and improved serum antioxidant protection status.

Pubmed Data : J Med Food. 2014 Nov ;17(11):1204-13. Epub 2014 Oct 1. PMID: **25271471**

Article Published Date : Oct 31, 2014

Authors : Gitte S Jensen, Victoria L Attridge, Kathleen F Benson, Joni L Beaman, Steve G Carter, David Ager

Study Type : Human Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Joint Diseases : CK(10) : AC(1)
Pharmacological Actions : Anti-Inflammatory Agents : CK(4500) : AC(1574) , Antinoceptive : CK(177) : AC(47), Antioxidants : CK(7191) : AC(2630) , Cyclooxygenase 2 Inhibitors : CK(448) : AC(267), Lipoxygenase Inhibitors : CK(38) : AC(17)
Additional Keywords : Plant Extracts : CK(7288) : AC(2419) , Significant Treatment Outcome : CK(3028) : AC(365)

Antioxidants (AC 22) (CK 68)

A joint consumption of apple juice, natural antioxidants and polyphenols might provide mild favorable effects on cardiometabolic markers, as compared to apple polyphenols alone.

Pubmed Data : Eur J Nutr. 2014 Dec ;53(8):1645-57. Epub 2014 Feb 16. PMID: **24531755**

Article Published Date : Nov 30, 2014

Authors : Alberto Soriano-Maldonado, María Hidalgo, Patricia Arteaga, Sonia de Pascual-Teresa, Esther Nova

Study Type : Human Study
Additional Links
Substances : Apples : CK(373) : AC(99) , Polyphenols : CK(920) : AC(333) , Vitamin C : CK(1953) : AC(401)

Pharmacological Actions : Anticholesteremic Agents : CK(1232) : AC(228) , Antioxidants : CK(7192) : AC(2631)
Additional Keywords : Fruit Juice : CK(85) : AC(11) , Natural Substance Synergy : CK(534) : AC(244)

A mixture of phytochemicals naturally present in foods represents a plausible chemopreventive agent for colorectal cancer.

Pubmed Data : Cancer Prev Res (Phila). 2011 Jun ;4(6):907-15. Epub 2011 Mar 7. PMID: **21383028**

Article Published Date : May 31, 2011

Authors : Lucia Fini, Giulia Piazzi, Yahya Daoud, Michael Selgrad, Shinji Maegawa, Melissa Garcia, Vincenzo Fogliano, Marco Romano, Giulia Graziani, Paola Vitaglione, Susanne W Carmack, Antonio Gasbarrini, Robert M Genta, Jean-Pierre Issa, C Richard Boland, Luigi Ricciardiello

Study Type : Animal Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17) , Apples : CK(373) : AC(99) , Flavonoids : CK(1194) : AC(376)
Diseases : Colon Polyps : CK(49) : AC(16) , Colorectal Cancer : CK(1635) : AC(611) , Colorectal Cancer: Prevention : CK(207) : AC(36)
Pharmacological Actions : Antioxidants : CK(7192) : AC(2631) , Chemopreventive : CK(2678) : AC(767)
Additional Keywords : Dietary Concentrations : CK(85) : AC(22)

Antioxidant beverages could be used as a natural complementary therapy to alleviate or decrease oxidative stress in Alzheimer's disease.

Pubmed Data : Eur J Nutr. 2015 Aug 23. Epub 2015 Aug 23. PMID: **26298312**

Article Published Date : Aug 22, 2015

Authors : Jose M Rubio-Perez, Maria D Albaladejo, Pilar Zafrilla, Maria L Vidal-Guevara, Juana M Morillas-Ruiz

Study Type : Human Study
Additional Links
Substances : Apples : CK(373) : AC(99) , Green Tea : CK(1934) : AC(549)
Diseases : Alzheimer's Disease : CK(1282) : AC(375) , Oxidative Stress : CK(3800) : AC(1357)
Pharmacological Actions : Antioxidants : CK(7191) : AC(2630)

Apple and pear peel have significant positive influence on plasma lipid levels and antioxidant capacity in rats.

Pubmed Data : J Agric Food Chem. 2003 Sep 10;51(19):5780-5. PMID: **12952433**

Article Published Date : Sep 10, 2003

Authors : Maria Leontowicz, Shela Gorinstein, Hanna Leontowicz, Ryszard Krzeminski, Antonin Lojek, Elena Katrich, Milan Cíz, Olga Martin-Belloso, Robert Soliva-Fortuny, Ratiporn Haruenkit, Simon Trakhtenberg

Study Type : Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99) , Pear : CK(26) : AC(5)
Diseases : Hyperlipidemia : CK(645) : AC(150) , Oxidative Stress : CK(3800) : AC(1357)
Pharmacological Actions : Antioxidants : CK(7191) : AC(2630) , Hypolipidemic : CK(1151) : AC(242)

Apple cider vinegar induced a protective effect against erythrocyte, kidney, and liver oxidative injury, and lowered the serum lipid levels in mice fed high cholesterol.

Pubmed Data : J Membr Biol. 2014 Aug ;247(8):667-73. Epub 2014 Jun 4. PMID: **24894721**

Article Published Date : Jul 31, 2014

Authors : Mustafa Nazıroğlu, Mustafa Güler, Cemil Özgül, Gündüzalp Saydam, Mustafa Küçükayaz, Ercan Sözbir

Study Type : Animal Study
Additional Links
Substances : Apple Cider Vinegar : CK(9) : AC(5)
Diseases : High Cholesterol : CK(1754) : AC(265) , High Fat Diet : CK(176) : AC(85)
Pharmacological Actions : Antioxidants : CK(7192) : AC(2631) , Hepatoprotective : CK(1342) : AC(581), Hypolipidemic : CK(1151) : AC(242) , Renoprotective : CK(551) : AC(243)
Additional Keywords : Increased Bioavailability : CK(42) : AC(17)

Apple extract is able to modulate medium term oral carcinogenesis as a result of antioxidant activity.

Pubmed Data : Toxicol Mech Methods. 2015 Jun 10:1-6. Epub 2015 Jun 10. PMID: **26062009**

Article Published Date : Jun 09, 2015

Authors : Flávia Andressa Pidone Ribeiro, Rogerio Correa Peres, Celina Tizuko Fujiyama Oshima, Luiz Carlos Spolidorio, Luciana Le Sueur Maluf, Daniel Araki Ribeiro

Study Type : Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Tongue Cancer : CK(40) : AC(18)
Pharmacological Actions : Anticarcinogenic Agents : CK(1071) : AC(514) , Antioxidants : CK(7192) : AC(2631), Chemopreventive : CK(2678) : AC(767)
Additional Keywords : Plant Extracts : CK(7288) : AC(2419)

Apple fibers and polyphenols may play a role in

preventing atherosclerosis by decreasing uric acid plasma level.

Pubmed Data : Phytomedicine. 2007 Apr;14(4):280-4. Epub 2007 Feb 12. PMID: **18558693**

Article Published Date : Apr 01, 2007

Authors : Sylvain Auclair, Mathieu Silberberg, Elyett Gueux, Christine Morand, Andrzej Mazur, Dragan Milenkovic, Augustin Scalbert

Study Type : Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99) , Fiber : CK(808) : AC(103) , Flavonoids : CK(1194) : AC(376) , Polyphenols : CK(920) : AC(333)
Diseases : Atherosclerosis : CK(578) : AC(146) , Hyperuricemia : CK(217) : AC(48)
Pharmacological Actions : Antioxidants : CK(7191) : AC(2630)
Additional Keywords : Plant Extracts : CK(7288) : AC(2419)

Apple juice upregulates antioxidant-associated genes in the rat colon and liver, which may account for apple's anti-cancer activity.

Pubmed Data : Carcinogenesis. 2000 Aug;21(8):1461-7. PMID: **20652274**

Article Published Date : Aug 01, 2000

Authors : Bülent Soyalan, Jutta Minn, Hans J Schmitz, Dieter Schrenk, Frank Will, Helmut Dietrich, Matthias Baum, Gerhard Eisenbrand, Christine Janzowski

Study Type : Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99) , Polyphenols : CK(920) : AC(333)
Diseases : Colon Cancer : CK(743) : AC(426) , Liver Cancer : CK(1208) : AC(455)
Pharmacological Actions : Antioxidants : CK(7191) : AC(2630) , Chemopreventive : CK(2678) : AC(767)

Apple peels have antiproliferative and antioxidant properties.

Pubmed Data : J Agric Food Chem. 2008 Nov 12;56(21):9905-10. Epub 2008 Oct 2. PMID: **18828600**

Article Published Date : Nov 12, 2008

Authors : Xiangjiu He, Rui Hai Liu

Study Type : In Vitro Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Pharmacological Actions : Antioxidants : CK(7192) : AC(2631) , Antiproliferative : CK(2461) : AC(1673)

Apple peels have significant antioxidant and antiproliferative activity against human liver cancer cells.

Pubmed Data : J Agric Food Chem. 2003 Jan 29;51(3):609-14. PMID: **12537430**

Article Published Date : Jan 29, 2003

Authors : Kelly Wolfe, Xianzhong Wu, Rui Hai Liu

Study Type : In Vitro Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Liver Cancer : CK(1208) : AC(455)
Pharmacological Actions : Antioxidants : CK(7191) : AC(2630) , Antiproliferative : CK(2461) : AC(1673)

Apples prevent mammary tumors in rats.

Pubmed Data : J Altern Complement Med. 2010 Sep;16(9):973-8. PMID: **15769178**

Article Published Date : Sep 01, 2010

Authors : Rui Hai Liu, Jiaren Liu, Bingqing Chen

Study Type : Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Breast Cancer : CK(3492) : AC(1052)
Pharmacological Actions : Antioxidants : CK(7191) : AC(2630) , Chemopreventive : CK(2678) : AC(767)

Bioactive compounds isolated from apple, tea, and ginger protect against dicarbonyl induced stress in cultured human retinal epithelial cells.

Pubmed Data : Phytomedicine. 2016 Feb 15 ;23(2):200-13. Epub 2016 Jan 5. PMID: **26926182**

Article Published Date : Feb 14, 2016

Authors : Chethan Sampath, Yingdong Zhu, Shengmin Sang, Mohamed Ahmedna

Study Type : In Vitro Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17) , EGCG (Epigallocatechin gallate) : CK(606) : AC(312), Ginger : CK(676) : AC(175)
Diseases : Advanced Glycation End products (AGE) : CK(231) : AC(73) , Diabetic Complications : CK(1512) : AC(315)
Pharmacological Actions : Anti-Glycation Agents : CK(46) : AC(19) , Antioxidants : CK(7192) : AC(2631), Nrf2 activation : CK(172) : AC(83)

Carotenoids extracted from red paprika, Valencia orange

and Golden delicious apple exhibit anti-H. pylori and anti-multidrug resistance activity.

Pubmed Data : Phytother Res. 2005 Aug;19(8):700-7. PMID: **16177974**

Article Published Date : Aug 01, 2005

Authors : Péter Molnár, Masami Kawase, Kazue Satoh, Yoshitaka Sohara, Toru Tanaka, Satoru Tani, Hiroshi Sakagami, Hideki Nakashima, Noboru Motohashi, Nóra Gyémánt, Joseph Molnár

Study Type : In Vitro Study
Additional Links
Substances : Apple: Golden Delicious : CK(2) : AC(2) , Carotenoids : CK(1620) : AC(306) , Orange : CK(170) : AC(35), Paprika : CK(8) : AC(6)
Diseases : Cancers: All : CK(14296) : AC(4541) , Cancers: Multi-Drug Resistant : CK(120) : AC(93) , Helicobacter Pylori Infection : CK(475) : AC(101)
Pharmacological Actions : Anti-Bacterial Agents : CK(1362) : AC(470) , Antioxidants : CK(7191) : AC(2630), Chemosensitizer : CK(391) : AC(283)

Consumption of dried apple peel powder was associated with improved joint function and improved serum antioxidant protection status.

Pubmed Data : J Med Food. 2014 Nov ;17(11):1204-13. Epub 2014 Oct 1. PMID: **25271471**

Article Published Date : Oct 31, 2014

Authors : Gitte S Jensen, Victoria L Attridge, Kathleen F Benson, Joni L Beaman, Steve G Carter, David Ager

Study Type : Human Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Joint Diseases : CK(10) : AC(1)
Pharmacological Actions : Anti-Inflammatory Agents : CK(4500) : AC(1574) , Antinoceceptive : CK(177) : AC(47), Antioxidants : CK(7191) : AC(2630) , Cyclooxygenase 2 Inhibitors : CK(448) : AC(267), Lipoxygenase Inhibitors : CK(38) : AC(17)
Additional Keywords : Plant Extracts : CK(7288) : AC(2419) , Significant Treatment Outcome : CK(3028) : AC(365)

Flavonoids from Pink Lady apples can inhibit cancer cell growth in human colon cancer LoVo cells and breast cancer MCF-7 cells.

Pubmed Data : Food Funct. 2015 Sep 29. Epub 2015 Sep 29. PMID: **26416794**

Article Published Date : Sep 28, 2015

Authors : Shufang Yang, Haisheng Zhang, Xingbin Yang, Yilin Zhu, Min Zhang

Study Type : In Vitro Study
Additional Links

Substances : Apple Polyphenols : CK(31) : AC(17)
Diseases : Breast Cancer : CK(3492) : AC(1052) , Colon Cancer : CK(743) : AC(426)
Pharmacological Actions : Antioxidants : CK(7191) : AC(2630) , Apoptotic : CK(2941) : AC(2062)
Additional Keywords : Dose Response : CK(1035) : AC(400)

Phenolic extracts of different cultivars of apples have varied antimutagenicity activity, with Granny Smith showing higher levels.

Pubmed Data : J Food Sci. 2016 Jan 11. Epub 2016 Jan 11. PMID: **26753515**

Article Published Date : Jan 10, 2016

Authors : Sudhanshu Saxena, Jyoti Verma, Satyendra Gautam

Study Type : In Vitro Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : DNA damage : CK(969) : AC(377)
Pharmacological Actions : Antimutagenic Agents : CK(126) : AC(72) , Antioxidants : CK(7192) : AC(2631), Prophylactic Agents : CK(129) : AC(31) , Radioprotective : CK(725) : AC(258)

Phenolics from Fuji apple showed good antioxidant, antibacterial, and antiproliferative activities.

Pubmed Data : J Food Sci. 2016 Jun 6. Epub 2016 Jun 6. PMID: **27272442**

Article Published Date : Jun 05, 2016

Authors : Jincan Luo, Pei Zhang, Siqian Li, Nagendra P Shah

Study Type : In Vitro Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17)
Diseases : Colon Cancer : CK(743) : AC(426) , Escherichia coli Infections : CK(152) : AC(90) , Listeria Infections : CK(29) : AC(23), Staphylococcus aureus infection : CK(148) : AC(104)
Pharmacological Actions : Anti-Bacterial Agents : CK(1362) : AC(470) , Antioxidants : CK(7191) : AC(2630), Antiproliferative : CK(2461) : AC(1673)

Phloridzin and phloretin have the potential to be used as natural alternatives to synthetic antioxidants and antimicrobials.

Pubmed Data : Chem Cent J. 2016 ;10:47. Epub 2016 Aug 2. PMID: **27486478**

Article Published Date : Dec 31, 2015

Authors : Tingjing Zhang, Xinyuan Wei, Zhuang Miao, Hamada Hassan, Yunbo Song, Mingtao Fan

Study Type : In Vitro Study
Additional Links

Substances : Apples : CK(374) : AC(100)
Diseases : Staphylococcus aureus infection : CK(148) : AC(104)
Pharmacological Actions : Anti-Bacterial Agents : CK(1362) : AC(470) , Antioxidants : CK(7194) : AC(2632)

The consumption of apples can prevent the decline in cognitive performance that accompanies dietary and genetic deficiencies and aging.

Pubmed Data : J Alzheimers Dis. 2006 Aug;9(3):287-91. PMID: **16914839**

Article Published Date : Aug 01, 2006

Authors : [No authors listed]

Study Type : Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Aging: Brain : CK(246) : AC(84), Cognitive Decline/Dysfunction : CK(1138) : AC(212), Neurodegenerative Diseases : CK(3370) : AC(846)
Pharmacological Actions : Antioxidants : CK(7192) : AC(2631)

The results of the present study revealed the hepatoprotective efficacy of APE by inhibiting carbon tetrachloride induced apoptosis.

Pubmed Data : Hum Exp Toxicol. 2016 Jan 25. Epub 2016 Jan 25. PMID: **26811344**

Article Published Date : Jan 24, 2016

Authors : S Sharma, S Rana, V Patial, M Gupta, S Bhushan, Y S Padwad

Study Type : Animal Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17) , Apples : CK(373) : AC(99)
Diseases : Chemically-Induced Liver Damage : CK(629) : AC(252)
Pharmacological Actions : Anti-Apoptotic : CK(360) : AC(201) , Antioxidants : CK(7192) : AC(2631) , Hepatoprotective : CK(1342) : AC(581)
Additional Keywords : Dose Response : CK(1035) : AC(400)

These results elucidated that apple pectin immediately enhanced quercetin absorption in human subjects.

Pubmed Data : Br J Nutr. 2015 May 28 ;113(10):1531-8. Epub 2015 Apr 13. PMID: **25865751**

Article Published Date : May 27, 2015

Authors : Tomohiko Nishijima, Yoshiki Takida, Yasuo Saito, Takayuki Ikeda, Kunihisa Iwai

Study Type : Human Study
Additional Links

Substances : Apple Pectin : CK(66) : AC(15), Quercetin : CK(557) : AC(246)
Pharmacological Actions : Antioxidants : CK(7192) : AC(2631)
Additional Keywords : Dose Response : CK(1035) : AC(400)

These results suggest that the apple polyphenols are a beneficial nutritional supplement for the attenuation of atherosclerosis.

Pubmed Data : Nutrients. 2015 ;7(8):7085-105. Epub 2015 Aug 24. PMID: **26305254**

Article Published Date : Dec 31, 2014

Authors : Zhe-Rong Xu, Jin-You Li, Xin-Wei Dong, Zhong-Ju Tan, Wei-Zhen Wu, Qiang-Min Xie, Yun-Mei Yang

Study Type : Animal Study, In Vitro Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17)
Diseases : Atherosclerosis : CK(578) : AC(146), Endothelial Dysfunction : CK(1166) : AC(231), Hepatic Steatosis : CK(131) : AC(35)
Pharmacological Actions : Anti-atherogenic : CK(143) : AC(36), Anti-Inflammatory Agents : CK(4499) : AC(1573), Antioxidants : CK(7191) : AC(2630), Catalase Up-Regulation : CK(118) : AC(42), Hepatoprotective : CK(1342) : AC(581), Superoxide Dismutase Up-regulation : CK(504) : AC(169)

Antiproliferative (AC 11) (CK 13)

An apple flavonoid enriched fraction possessed a significantly stronger antiproliferative and specific action than Sorafenib in vitro.

Pubmed Data : Nutr Cancer. 2014 Sep 25:1-10. Epub 2014 Sep 25. PMID: **25256427**

Article Published Date : Sep 24, 2014

Authors : Sudhanshu Sudan, H P Vasantha Rupasinghe

Study Type : In Vitro Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17), Flavonoids : CK(1194) : AC(376)
Diseases : Liver Cancer : CK(1208) : AC(455)
Pharmacological Actions : Antiproliferative : CK(2461) : AC(1673), Apoptotic : CK(2941) : AC(2062), Caspase-3 Activation : CK(90) : AC(65), Cell cycle arrest : CK(805) : AC(607), Chemopreventive : CK(2678) : AC(767), Topoisomerase II Inhibitor : CK(3) : AC(3)
Additional Keywords : Topoisomerase II Inhibitor : CK(3) : AC(3), Plant Extracts : CK(7288) : AC(2419), Selective Cytotoxicity : CK(155) : AC(110)

Apple pectic acid without any modification could trigger apoptosis in MDA-MB-231 human breast cancer cells and has potential to improve cancer treatment as a natural product.

Pubmed Data : Asian Pac J Cancer Prev. 2015 ;16(13):5265-71. PMID: **26225664**

Article Published Date : Dec 31, 2014

Authors : Ladan Delphi, Houri Sepehri, Mohammad Reza Khorramizadeh, Fatemeh Mansoori

Study Type : In Vitro Study
Additional Links
Substances : Apple Pectin : CK(66) : AC(15)
Diseases : Breast Cancer: Triple Negative : CK(256) : AC(138)
Pharmacological Actions : Antiproliferative : CK(2461) : AC(1673), Apoptotic : CK(2941) : AC(2062), Cell cycle arrest : CK(805) : AC(607)

Apple peels have antiproliferative and antioxidant properties.

Pubmed Data : J Agric Food Chem. 2008 Nov 12;56(21):9905-10. Epub 2008 Oct 2. PMID: **18828600**

Article Published Date : Nov 12, 2008

Authors : Xiangjiu He, Rui Hai Liu

Study Type : In Vitro Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Pharmacological Actions : Antioxidants : CK(7192) : AC(2631), Antiproliferative : CK(2461) : AC(1673)

Apple peels have significant antioxidant and antiproliferative activity against human liver cancer cells.

Pubmed Data : J Agric Food Chem. 2003 Jan 29;51(3):609-14. PMID: **12537430**

Article Published Date : Jan 29, 2003

Authors : Kelly Wolfe, Xianzhong Wu, Rui Hai Liu

Study Type : In Vitro Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Liver Cancer : CK(1208) : AC(455)
Pharmacological Actions : Antioxidants : CK(7191) : AC(2630), Antiproliferative : CK(2461) : AC(1673)

Apple phytochemical extracts inhibit proliferation of estrogen-dependent and estrogen-independent human breast cancer cells.

Pubmed Data : J Agric Food Chem. 2008 Dec 24;56(24):11661-7. PMID: **19053381**

Article Published Date : Dec 24, 2008

Authors : Jie Sun, Rui Hai Liu

Study Type : In Vitro Study
Additional Links
Substances : Apples : CK(373) : AC(99) , Flavonoids : CK(1194) : AC(376)
Diseases : Breast Cancer : CK(3492) : AC(1052)
Pharmacological Actions : Antiproliferative : CK(2461) : AC(1673), Cell cycle arrest : CK(805) : AC(607)
Additional Keywords : Plant Extracts : CK(7288) : AC(2419)

Apple total triterpenoid content induced apoptosis in MDA-MB-231 cells.

Pubmed Data : J Agric Food Chem. 2012 Sep 19 ;60(37):9430-6. Epub 2012 Sep 6. PMID: **22924395**

Article Published Date : Sep 18, 2012

Authors : Xiangjiu He, Yihai Wang, Hui Hu, Zhenxue Zhang

Study Type : Animal Study, In Vitro Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Breast Cancer : CK(3492) : AC(1052) , Breast Cancer: Triple Negative : CK(256) : AC(138), Colon Cancer : CK(743) : AC(426) , Liver Cancer : CK(1208) : AC(455)
Pharmacological Actions : Antiproliferative : CK(2461) : AC(1673), Apoptotic : CK(2941) : AC(2062) , Cell cycle arrest : CK(805) : AC(607) , NF-kappaB Inhibitor : CK(1100) : AC(686)
Additional Keywords : Dose Response : CK(1035) : AC(400)

Fresh apples suppress mammary carcinogenesis in rats.

Pubmed Data : J Agric Food Chem. 2009 Jan 14;57(1):297-304. PMID: **19072049**

Article Published Date : Jan 14, 2009

Authors : Jia-Ren Liu, Hong-Wei Dong, Bing-Qing Chen, Peng Zhao, Rui Hai Liu

Study Type : Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Breast Cancer : CK(3492) : AC(1052)
Pharmacological Actions : Anticarcinogenic Agents : CK(1071) : AC(514) , Antiproliferative : CK(2461) : AC(1673), Apoptotic : CK(2941) : AC(2062)
Additional Keywords : Plant Extracts : CK(7288) : AC(2419)

Pelingo apple is rich in food components that can markedly inhibit in vitro tumorigenesis and growth of human breast cancer cells.

Pubmed Data : PLoS One. 2015 ;10(8):e0135840. Epub 2015 Aug 18. PMID: **26284516**

Article Published Date : Dec 31, 2014

Authors : Giuditta Fiorella Schiavano, Mauro De Santi, Giorgio Brandi, Mirco Fanelli, Anahi Bucchini, Laura Giamperi, Giovanna Giomaro

Study Type : In Vitro Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Breast Cancer : CK(3492) : AC(1052) , Breast Cancer: Triple Negative : CK(256) : AC(138)
Pharmacological Actions : Antiproliferative : CK(2461) : AC(1673), Cell cycle arrest : CK(805) : AC(607), Chemopreventive : CK(2678) : AC(767) , P21 Activation : CK(72) : AC(47)

Phenolics from Fuji apple showed good antioxidant, antibacterial, and antiproliferative activities.

Pubmed Data : J Food Sci. 2016 Jun 6. Epub 2016 Jun 6. PMID: **27272442**

Article Published Date : Jun 05, 2016

Authors : Jincan Luo, Pei Zhang, Siqian Li, Nagendra P Shah

Study Type : In Vitro Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17)
Diseases : Colon Cancer : CK(743) : AC(426) , Escherichia coli Infections : CK(152) : AC(90) , Listeria Infections : CK(29) : AC(23), Staphylococcus aureus infection : CK(148) : AC(104)
Pharmacological Actions : Anti-Bacterial Agents : CK(1362) : AC(470) , Antioxidants : CK(7191) : AC(2630), Antiproliferative : CK(2461) : AC(1673)

Phloretin (Ph), a natural product found in apples and pears, inhibits liver cancer cells.

Pubmed Data : Int J Cancer. 2009 May 1;124(9):2210-9. PMID: **19123483**

Article Published Date : May 01, 2009

Authors : Chih-Hsiung Wu, Yuan-Soon Ho, Chia-Yi Tsai, Ying-Jan Wang, How Tseng, Po-Li Wei, Chia-Hwa Lee, Ren-Shyan Liu, Shyr-Yi Lin

Study Type : In Vitro Study
Additional Links
Substances : Apples : CK(373) : AC(99) , Pear : CK(26) : AC(5) , Phloretin : CK(4) : AC(4)
Diseases : Liver Cancer : CK(1208) : AC(455)
Pharmacological Actions : Antiproliferative : CK(2461) : AC(1673), Apoptotic : CK(2941) : AC(2062)

Phloretin, which is present in apples and pears, induces programmed cell death in human colon cancer cells.

Pubmed Data : Methods. 2007 Aug;42(4):339-48. PMID: 18158826

Article Published Date : Aug 01, 2007

Authors : [No authors listed]

Study Type : In Vitro Study
Additional Links
Substances : Apples : CK(373) : AC(99) , Pear : CK(26) : AC(5) , Phloretin : CK(4) : AC(4)
Diseases : Colon Cancer : CK(743) : AC(426)
Pharmacological Actions : Antiproliferative : CK(2461) : AC(1673), Apoptotic : CK(2941) : AC(2062)

Antiviral Agents (AC 1) (CK 1)

Apple pectin, citrus pectin, flaxseed mucilage, blood group A substance, gum acacia (gum arabic), and gum myrrh inhibit viral hemagglutinin in vitro.

Pubmed Data : J Exp Med. 1947 Jun 30;86(1):55-64. PMID: 19871655

Authors : R H Green, D W Woolley

Study Type : In Vitro Study
Additional Links
Substances : Apple Pectin : CK(66) : AC(15), Citrus Pectin : CK(1) : AC(1), Flaxseed : CK(451) : AC(89) , Gum arabic : CK(44) : AC(8), Myrrh : CK(47) : AC(18)
Diseases : Influenza A : CK(387) : AC(101)
Pharmacological Actions : Antiviral Agents : CK(932) : AC(428) , Viral Hemagglutinin Inhibitor : CK(18) : AC(14)

Aphrodisiac (AC 1) (CK 10)

Apple consumption is related to better sexual quality of life in young women.

Pubmed Data : Arch Gynecol Obstet. 2014 Feb 12. Epub 2014 Feb 12. PMID: 24518938

Article Published Date : Feb 11, 2014

Authors : Tommaso Cai, Mauro Gacci, Fulvio Mattivi, Nicola Mondaini, Serena Migno, Vieri Boddi, Paolo Gacci, Beatrice Detti, Paolo Gontero, Stefano Chiodini, Liliana Mereu, Saverio Tateo, Sandra Mazzoli, Gianni Malossini, Riccardo Bartoletti

Study Type : Human Study
Additional Links
Substances : Apples : CK(374) : AC(100)
Diseases : Libido: Low : CK(95) : AC(24)
Pharmacological Actions : Aphrodisiac : CK(63) : AC(20)

Apoptotic (AC 11) (CK 13)

An apple flavonoid enriched fraction possessed a significantly stronger antiproliferative and specific action than Sorafenib in vitro.

Pubmed Data : Nutr Cancer. 2014 Sep 25:1-10. Epub 2014 Sep 25. PMID: 25256427

Article Published Date : Sep 24, 2014

Authors : Sudhanshu Sudan, H P Vasantha Rupasinghe

Study Type : In Vitro Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17) , Flavonoids : CK(1194) : AC(376)
Diseases : Liver Cancer : CK(1208) : AC(455)
Pharmacological Actions : Antiproliferative : CK(2461) : AC(1673), Apoptotic : CK(2941) : AC(2062) , Caspase-3 Activation : CK(90) : AC(65) , Cell cycle arrest : CK(805) : AC(607) , Chemopreventive : CK(2678) : AC(767), Topoisomerase II Inhibitor : CK(3) : AC(3)
Additional Keywords : Topoisomerase II Inhibitor : CK(3) : AC(3) , Plant Extracts : CK(7288) : AC(2419), Selective Cytotoxicity : CK(155) : AC(110)

Apple pectic acid without any modification could trigger apoptosis in MDA-MB-231 human breast cancer cells and has potential to improve cancer treatment as a natural product.

Pubmed Data : Asian Pac J Cancer Prev. 2015 ;16(13):5265-71. PMID: 26225664

Article Published Date : Dec 31, 2014

Authors : Ladan Delphi, Houri Sepehri, Mohammad Reza Khorramizadeh, Fatemeh Mansoori

Study Type : In Vitro Study
Additional Links
Substances : Apple Pectin : CK(66) : AC(15)
Diseases : Breast Cancer: Triple Negative : CK(256) : AC(138)
Pharmacological Actions : Antiproliferative : CK(2461) : AC(1673), Apoptotic : CK(2941) : AC(2062), Cell cycle arrest : CK(805) : AC(607)

Apple polyphenols activate programmed cell death in human colon cancer cells.

Pubmed Data : Biochem Biophys Res Commun. 2009 Oct 16;388(2):372-6. Epub 2009 Aug 8. PMID: **19666002**

Article Published Date : Oct 16, 2009

Authors : Maria E Maldonado-Celis, Souad Bousserouel, Francine Gossé, Annelise Lobstein, Francis Raul

Study Type : In Vitro Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Colon Cancer : CK(743) : AC(426)
Pharmacological Actions : Apoptotic : CK(2941) : AC(2062)
Additional Keywords : Proanthocyanidins : CK(203) : AC(54)

Apple total triterpenoid content induced apoptosis in MDA-MB-231 cells.

Pubmed Data : J Agric Food Chem. 2012 Sep 19 ;60(37):9430-6. Epub 2012 Sep 6. PMID: **22924395**

Article Published Date : Sep 18, 2012

Authors : Xiangjiu He, Yihai Wang, Hui Hu, Zhenxue Zhang

Study Type : Animal Study, In Vitro Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Breast Cancer : CK(3492) : AC(1052), Breast Cancer: Triple Negative : CK(256) : AC(138), Colon Cancer : CK(743) : AC(426), Liver Cancer : CK(1208) : AC(455)
Pharmacological Actions : Antiproliferative : CK(2461) : AC(1673), Apoptotic : CK(2941) : AC(2062), Cell cycle arrest : CK(805) : AC(607), NF-kappaB Inhibitor : CK(1100) : AC(686)
Additional Keywords : Dose Response : CK(1035) : AC(400)

Apple-derived procyanidin may possess chemotherapeutic effects against esophageal cancer.

Pubmed Data : Mol Nutr Food Res. 2008 Dec;52(12):1399-407. PMID: **18683822**

Article Published Date : Dec 01, 2008

Authors : Roberto Pierini, Paul A Kroon, Sylvain Guyot, Kamal Ivory, Ian T Johnson, Nigel J Belshaw

Study Type : In Vitro Study
Additional Links
Substances : Apples : CK(373) : AC(99) , Catechin : CK(512) : AC(169), Flavonoids : CK(1194) : AC(376)
Diseases : Esophageal Cancer : CK(486) : AC(84)
Pharmacological Actions : Apoptotic : CK(2941) : AC(2062) , Cell cycle arrest : CK(805) : AC(607)
Additional Keywords : Proanthocyanidins : CK(203) : AC(54)

Apples contain compounds which induce programmed cell death in human stomach cancer cells.

Pubmed Data : Int J Mol Med. 2004 Jun;13(6):795-9. PMID: **15138614**

Article Published Date : Jun 01, 2004

Authors : Hiroshige Hibasami, Toshihiko Shohji, Ichirou Shibuya, Kazuko Higo, Tomomasa Kanda

Study Type : In Vitro Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Stomach Cancer : CK(579) : AC(194)
Pharmacological Actions : Apoptotic : CK(2941) : AC(2062)

Flavonoids from Pink Lady apples can inhibit cancer cell growth in human colon cancer LoVo cells and breast cancer MCF-7 cells.

Pubmed Data : Food Funct. 2015 Sep 29. Epub 2015 Sep 29. PMID: **26416794**

Article Published Date : Sep 28, 2015

Authors : Shufang Yang, Haisheng Zhang, Xingbin Yang, Yilin Zhu, Min Zhang

Study Type : In Vitro Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17)
Diseases : Breast Cancer : CK(3492) : AC(1052) , Colon Cancer : CK(743) : AC(426)
Pharmacological Actions : Antioxidants : CK(7191) : AC(2630) , Apoptotic : CK(2941) : AC(2062)
Additional Keywords : Dose Response : CK(1035) : AC(400)

Fresh apples suppress mammary carcinogenesis in rats.

Pubmed Data : J Agric Food Chem. 2009 Jan 14;57(1):297-304. PMID: **19072049**

Article Published Date : Jan 14, 2009

Authors : Jia-Ren Liu, Hong-Wei Dong, Bing-Qing Chen, Peng Zhao, Rui Hai Liu

Study Type : Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Breast Cancer : CK(3492) : AC(1052)

Pharmacological Actions : Anticarcinogenic Agents : CK(1071) : AC(514) , Antiproliferative : CK(2461) : AC(1673), Apoptotic : CK(2941) : AC(2062)
Additional Keywords : Plant Extracts : CK(7288) : AC(2419)

Phloretin (Ph), a natural product found in apples and pears, inhibits liver cancer cells.

Pubmed Data : Int J Cancer. 2009 May 1;124(9):2210-9. PMID: **19123483**

Article Published Date : May 01, 2009

Authors : Chih-Hsiung Wu, Yuan-Soon Ho, Chia-Yi Tsai, Ying-Jan Wang, How Tseng, Po-Li Wei, Chia-Hwa Lee, Ren-Shyan Liu, Shyr-Yi Lin

Study Type : In Vitro Study
Additional Links
Substances : Apples : CK(373) : AC(99) , Pear : CK(26) : AC(5) , Phloretin : CK(4) : AC(4)
Diseases : Liver Cancer : CK(1208) : AC(455)
Pharmacological Actions : Antiproliferative : CK(2461) : AC(1673), Apoptotic : CK(2941) : AC(2062)

Phloretin, which is present in apples and pears, induces programmed cell death in human colon cancer cells.

Pubmed Data : Methods. 2007 Aug;42(4):339-48. PMID: **18158826**

Article Published Date : Aug 01, 2007

Authors : [No authors listed]

Study Type : In Vitro Study
Additional Links
Substances : Apples : CK(373) : AC(99) , Pear : CK(26) : AC(5) , Phloretin : CK(4) : AC(4)
Diseases : Colon Cancer : CK(743) : AC(426)
Pharmacological Actions : Antiproliferative : CK(2461) : AC(1673), Apoptotic : CK(2941) : AC(2062)

The apple polyphenol phloretin potentiates the anticancer actions of paclitaxel against human hepatoma cells.

Pubmed Data : Mol Carcinog. 2009 May;48(5):420-31. PMID: **18767070**

Article Published Date : May 01, 2009

Authors : Kuo-Ching Yang, Chia-Yi Tsai, Ying-Jan Wang, Po-Li Wei, Chia-Hwa Lee, Jui-Hao Chen, Chih-Hsiung Wu, Yuan-Soon Ho

Study Type : In Vitro Study
Additional Links
Substances : Apples : CK(374) : AC(100) , Phloretin : CK(4) : AC(4) , Polyphenols : CK(920) : AC(333)
Diseases : Hepatoma : CK(37) : AC(32)
Pharmacological Actions : Apoptotic : CK(2941) : AC(2062)
Additional Keywords : Drug-Plant-Vitamin Synergies : CK(965) : AC(266)

Appetite Depressants (AC 1) (CK 2)

Taking apple cider vinegar could reduce the metabolic disorders caused by a high fat diet.

Pubmed Data : Ann Cardiol Angeiol (Paris). 2016 Jun ;65(3):208-13. Epub 2016 May 18. PMID: 27209492

Article Published Date : May 31, 2016

Authors : H Bouderbala, H Kaddouri, O Kheroua, D Saidi

Study Type : Animal Study
Additional Links
Substances : Apple Cider Vinegar : CK(9) : AC(5)
Diseases : High Fat Diet : CK(176) : AC(85) , Obesity : CK(2161) : AC(455)
Pharmacological Actions : Appetite Depressants : CK(8) : AC(4) , Hypoglycemic Agents : CK(1380) : AC(338), Hypolipidemic : CK(1151) : AC(242)
Additional Keywords : Anti-Obesity Agents : CK(466) : AC(102) , Risk Reduction : CK(6136) : AC(658)

Cardioprotective (AC 2) (CK 3)

Phenolics from purple grape, apple, purple grape juice and apple juice prevent early atherosclerosis induced by an atherogenic diet in hamsters.

Pubmed Data : Mol Nutr Food Res. 2008 Apr;52(4):400-7. PMID: 18214852

Article Published Date : Apr 01, 2008

Authors : [No authors listed]

Study Type : Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99) , Grape : CK(1720) : AC(430)
Diseases : Atherosclerosis : CK(578) : AC(146)
Pharmacological Actions : Cardioprotective : CK(1574) : AC(400)

This review will focus on the reciprocal interaction between apple components and the gut microbiota and the potential link to cardiovascular health and the possible mechanisms of action.

Pubmed Data : Nutrients. 2015;7(6):3959-3998. Epub 2015 May 26. PMID: **26016654**

Article Published Date : Dec 31, 2014

Authors : Athanasios Koutsos, Kieran M Tuohy, Julie A Lovegrove

Study Type : Review
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17) , Apples : CK(374) : AC(100)
Diseases : Cardiovascular Disease: Prevention : CK(3094) : AC(415) , Cardiovascular Diseases : CK(7018) : AC(887)
Pharmacological Actions : Cardioprotective : CK(1574) : AC(400)
Additional Keywords : Cardioprotective : CK(1574) : AC(400)

Caspase-3 Activation (AC 1) (CK 1)

An apple flavonoid enriched fraction possessed a significantly stronger antiproliferative and specific action than Sorafenib in vitro.

Pubmed Data : Nutr Cancer. 2014 Sep 25:1-10. Epub 2014 Sep 25. PMID: **25256427**

Article Published Date : Sep 24, 2014

Authors : Sudhanshu Sudan, H P Vasantha Rupasinghe

Study Type : In Vitro Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17) , Flavonoids : CK(1194) : AC(376)
Diseases : Liver Cancer : CK(1208) : AC(455)
Pharmacological Actions : Antiproliferative : CK(2461) : AC(1673), Apoptotic : CK(2941) : AC(2062) , Caspase-3 Activation : CK(90) : AC(65) , Cell cycle arrest : CK(805) : AC(607) , Chemopreventive : CK(2678) : AC(767), Topoisomerase II Inhibitor : CK(3) : AC(3)
Additional Keywords : Topoisomerase II Inhibitor : CK(3) : AC(3) , Plant Extracts : CK(7288) : AC(2419), Selective Cytotoxicity : CK(155) : AC(110)

Catalase Up-Regulation (AC 1) (CK 2)

These results suggest that the apple polyphenols are a beneficial nutritional supplement for the attenuation of atherosclerosis.

Pubmed Data : Nutrients. 2015 ;7(8):7085-105. Epub 2015 Aug 24. PMID: **26305254**

Article Published Date : Dec 31, 2014

Authors : Zhe-Rong Xu, Jin-You Li, Xin-Wei Dong, Zhong-Ju Tan, Wei-Zhen Wu, Qiang-Min Xie, Yun-Mei Yang

Study Type : Animal Study, In Vitro Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17)
Diseases : Atherosclerosis : CK(578) : AC(146) , Endothelial Dysfunction : CK(1166) : AC(231) , Hepatic Steatosis : CK(131) : AC(35)
Pharmacological Actions : Anti-atherogenic : CK(143) : AC(36) , Anti-Inflammatory Agents : CK(4499) : AC(1573), Antioxidants : CK(7191) : AC(2630) , Catalase Up-Regulation : CK(118) : AC(42) , Hepatoprotective : CK(1342) : AC(581) , Superoxide Dismutase Up-regulation : CK(504) : AC(169)

Cell cycle arrest (AC 6) (CK 7)

An apple flavonoid enriched fraction possessed a significantly stronger antiproliferative and specific action than Sorafenib in vitro.

Pubmed Data : Nutr Cancer. 2014 Sep 25:1-10. Epub 2014 Sep 25. PMID: **25256427**

Article Published Date : Sep 24, 2014

Authors : Sudhanshu Sudan, H P Vasantha Rupasinghe

Study Type : In Vitro Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17) , Flavonoids : CK(1194) : AC(376)
Diseases : Liver Cancer : CK(1208) : AC(455)
Pharmacological Actions : Antiproliferative : CK(2461) : AC(1673), Apoptotic : CK(2941) : AC(2062) , Caspase-3 Activation : CK(90) : AC(65) , Cell cycle arrest : CK(805) : AC(607) , Chemopreventive : CK(2678) : AC(767), Topoisomerase II Inhibitor : CK(3) : AC(3)
Additional Keywords : Topoisomerase II Inhibitor : CK(3) : AC(3) , Plant Extracts : CK(7288) : AC(2419), Selective Cytotoxicity : CK(155) : AC(110)

Apple pectic acid without any modification could trigger apoptosis in MDA-MB-231 human breast cancer cells and has potential to improve cancer treatment as a natural product.

Pubmed Data : Asian Pac J Cancer Prev. 2015 ;16(13):5265-71. PMID: **26225664**

Article Published Date : Dec 31, 2014

Authors : Ladan Delphi, Houri Sepehri, Mohammad Reza Khorramizadeh, Fatemeh Mansoori

Study Type : In Vitro Study
Additional Links
Substances : Apple Pectin : CK(66) : AC(15)
Diseases : Breast Cancer: Triple Negative : CK(256) : AC(138)
Pharmacological Actions : Antiproliferative : CK(2461) : AC(1673), Apoptotic : CK(2941) : AC(2062), Cell cycle arrest : CK(805) : AC(607)

Apple phytochemical extracts inhibit proliferation of estrogen-dependent and estrogen-independent human breast cancer cells.

Pubmed Data : J Agric Food Chem. 2008 Dec 24;56(24):11661-7. PMID: **19053381**

Article Published Date : Dec 24, 2008

Authors : Jie Sun, Rui Hai Liu

Study Type : In Vitro Study
Additional Links
Substances : Apples : CK(373) : AC(99), Flavonoids : CK(1194) : AC(376)
Diseases : Breast Cancer : CK(3492) : AC(1052)
Pharmacological Actions : Antiproliferative : CK(2461) : AC(1673), Cell cycle arrest : CK(805) : AC(607)
Additional Keywords : Plant Extracts : CK(7288) : AC(2419)

Apple total triterpenoid content induced apoptosis in MDA-MB-231 cells.

Pubmed Data : J Agric Food Chem. 2012 Sep 19 ;60(37):9430-6. Epub 2012 Sep 6. PMID: **22924395**

Article Published Date : Sep 18, 2012

Authors : Xiangjiu He, Yihai Wang, Hui Hu, Zhenxue Zhang

Study Type : Animal Study, In Vitro Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Breast Cancer : CK(3492) : AC(1052), Breast Cancer: Triple Negative : CK(256) : AC(138), Colon Cancer : CK(743) : AC(426), Liver Cancer : CK(1208) : AC(455)

Pharmacological Actions : Antiproliferative : CK(2461) : AC(1673), Apoptotic : CK(2941) : AC(2062), Cell cycle arrest : CK(805) : AC(607) , NF-kappaB Inhibitor : CK(1100) : AC(686)
Additional Keywords : Dose Response : CK(1035) : AC(400)

Apple-derived procyanidin may possess chemotherapeutic effects against esophageal cancer.

Pubmed Data : Mol Nutr Food Res. 2008 Dec;52(12):1399-407. PMID: **18683822**

Article Published Date : Dec 01, 2008

Authors : Roberto Pierini, Paul A Kroon, Sylvain Guyot, Kamal Ivory, Ian T Johnson, Nigel J Belshaw

Study Type : In Vitro Study
Additional Links
Substances : Apples : CK(373) : AC(99) , Catechin : CK(512) : AC(169), Flavonoids : CK(1194) : AC(376)
Diseases : Esophageal Cancer : CK(486) : AC(84)
Pharmacological Actions : Apoptotic : CK(2941) : AC(2062) , Cell cycle arrest : CK(805) : AC(607)
Additional Keywords : Proanthocyanidins : CK(203) : AC(54)

Pelingo apple is rich in food components that can markedly inhibit in vitro tumorigenesis and growth of human breast cancer cells.

Pubmed Data : PLoS One. 2015 ;10(8):e0135840. Epub 2015 Aug 18. PMID: **26284516**

Article Published Date : Dec 31, 2014

Authors : Giuditta Fiorella Schiavano, Mauro De Santi, Giorgio Brandi, Mirco Fanelli, Anahi Bucchini, Laura Giamperi, Giovanna Giomaro

Study Type : In Vitro Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Breast Cancer : CK(3492) : AC(1052) , Breast Cancer: Triple Negative : CK(256) : AC(138)
Pharmacological Actions : Antiproliferative : CK(2461) : AC(1673), Cell cycle arrest : CK(805) : AC(607), Chemopreventive : CK(2678) : AC(767) , P21 Activation : CK(72) : AC(47)

Chelating Agents (AC 1) (CK 2)

Apple polyphenol extracts have neuroprotective effects against Aluminum induced biotoxicity.

Pubmed Data : Neurotoxicology. 2014 Dec ;45:111-20. Epub 2014 Oct 17. PMID: 25445564

Article Published Date : Nov 30, 2014

Authors : Dai Cheng, Yu Xi, Jiankang Cao, Dongdong Cao, Yuxia Ma, Weibo Jiang

Study Type : Animal Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17) , Polyphenols : CK(920) : AC(333)
Diseases : Aluminum Toxicity : CK(195) : AC(75), Oxidative Stress : CK(3800) : AC(1357)
Pharmacological Actions : Chelating Agents : CK(12) : AC(1) , Neuroprotective Agents : CK(2235) : AC(1052)
Additional Keywords : Chelation : CK(4) : AC(2) , Plant Extracts : CK(7288) : AC(2419)

Chemopreventive (AC 10) (CK 33)

A mixture of phytochemicals naturally present in foods represents a plausible chemopreventive agent for colorectal cancer.

Pubmed Data : Cancer Prev Res (Phila). 2011 Jun ;4(6):907-15. Epub 2011 Mar 7. PMID: 21383028

Article Published Date : May 31, 2011

Authors : Lucia Fini, Giulia Piazzi, Yahya Daoud, Michael Selgrad, Shinji Maegawa, Melissa Garcia, Vincenzo Fogliano, Marco Romano, Giulia Graziani, Paola Vitaglione, Susanne W Carmack, Antonio Gasbarrini, Robert M Genta, Jean-Pierre Issa, C Richard Boland, Luigi Ricciardiello

Study Type : Animal Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17) , Apples : CK(373) : AC(99) , Flavonoids : CK(1194) : AC(376)
Diseases : Colon Polyps : CK(49) : AC(16) , Colorectal Cancer : CK(1635) : AC(611) , Colorectal Cancer: Prevention : CK(207) : AC(36)
Pharmacological Actions : Antioxidants : CK(7192) : AC(2631) , Chemopreventive : CK(2678) : AC(767)
Additional Keywords : Dietary Concentrations : CK(85) : AC(22)

An apple flavonoid enriched fraction possessed a significantly stronger antiproliferative and specific action than Sorafenib in vitro.

Pubmed Data : Nutr Cancer. 2014 Sep 25:1-10. Epub 2014 Sep 25. PMID: 25256427

Article Published Date : Sep 24, 2014

Authors : Sudhanshu Sudan, H P Vasantha Rupasinghe

Study Type : In Vitro Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17) , Flavonoids : CK(1194) : AC(376)
Diseases : Liver Cancer : CK(1208) : AC(455)
Pharmacological Actions : Antiproliferative : CK(2461) : AC(1673), Apoptotic : CK(2941) : AC(2062) , Caspase-3 Activation : CK(90) : AC(65) , Cell cycle arrest : CK(805) : AC(607) , Chemopreventive : CK(2678) : AC(767), Topoisomerase II Inhibitor : CK(3) : AC(3)
Additional Keywords : Topoisomerase II Inhibitor : CK(3) : AC(3) , Plant Extracts : CK(7288) : AC(2419), Selective Cytotoxicity : CK(155) : AC(110)

Apple extract is able to modulate medium term oral carcinogenesis as a result of antioxidant activity.

Pubmed Data : Toxicol Mech Methods. 2015 Jun 10:1-6. Epub 2015 Jun 10. PMID: **26062009**

Article Published Date : Jun 09, 2015

Authors : Flávia Andressa Pidone Ribeiro, Rogerio Correa Peres, Celina Tizuko Fujiyama Oshima, Luiz Carlos Spolidorio, Luciana Le Sueur Maluf, Daniel Araki Ribeiro

Study Type : Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Tongue Cancer : CK(40) : AC(18)
Pharmacological Actions : Anticarcinogenic Agents : CK(1071) : AC(514) , Antioxidants : CK(7192) : AC(2631), Chemopreventive : CK(2678) : AC(767)
Additional Keywords : Plant Extracts : CK(7288) : AC(2419)

Apple juice upregulates antioxidant-associated genes in the rat colon and liver, which may account for apple's anti-cancer activity.

Pubmed Data : Carcinogenesis. 2000 Aug;21(8):1461-7. PMID: **20652274**

Article Published Date : Aug 01, 2000

Authors : Bülent Soyalan, Jutta Minn, Hans J Schmitz, Dieter Schrenk, Frank Will, Helmut Dietrich, Matthias Baum, Gerhard Eisenbrand, Christine Janzowski

Study Type : Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99) , Polyphenols : CK(920) : AC(333)
Diseases : Colon Cancer : CK(743) : AC(426) , Liver Cancer : CK(1208) : AC(455)
Pharmacological Actions : Antioxidants : CK(7191) : AC(2630) , Chemopreventive : CK(2678) : AC(767)

Apples may exert their colon cancer protective effects through favorably altering gene patterns resulting in

protection of cells against toxicological insults.

Pubmed Data : Int J Cancer. 2008 Jun 15;122(12):2647-55. PMID: **18351577**

Article Published Date : Jun 15, 2008

Authors : Selvaraju Veeriah, Claudia Miene, Nina Habermann, Thomas Hofmann, Stefanie Klenow, Julia Sauer, Frank Böhmer, Stefan Wölfl, Beatrice Louise Pool-Zobel

Study Type : Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99) , Flavonoids : CK(1194) : AC(376) , Polyphenols : CK(920) : AC(333)
Diseases : Colon Cancer : CK(743) : AC(426)
Pharmacological Actions : Chemopreventive : CK(2678) : AC(767)
Additional Keywords : Epigenetic Modification : CK(218) : AC(88)

Apples prevent mammary tumors in rats.

Pubmed Data : J Altern Complement Med. 2010 Sep;16(9):973-8. PMID: **15769178**

Article Published Date : Sep 01, 2010

Authors : Rui Hai Liu, Jiaren Liu, Bingqing Chen

Study Type : Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Breast Cancer : CK(3492) : AC(1052)
Pharmacological Actions : Antioxidants : CK(7191) : AC(2630) , Chemopreventive : CK(2678) : AC(767)

Pelingo apple is rich in food components that can markedly inhibit in vitro tumorigenesis and growth of human breast cancer cells.

Pubmed Data : PLoS One. 2015 ;10(8):e0135840. Epub 2015 Aug 18. PMID: **26284516**

Article Published Date : Dec 31, 2014

Authors : Giuditta Fiorella Schiavano, Mauro De Santi, Giorgio Brandi, Mirco Fanelli, Anahi Bucchini, Laura Giamperi, Giovanna Giomaro

Study Type : In Vitro Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Breast Cancer : CK(3492) : AC(1052) , Breast Cancer: Triple Negative : CK(256) : AC(138)
Pharmacological Actions : Antiproliferative : CK(2461) : AC(1673), Cell cycle arrest : CK(805) : AC(607), Chemopreventive : CK(2678) : AC(767) , P21 Activation : CK(72) : AC(47)

The conclusion of the review is that these apple and berry juices will be possible candidates against colon cancer.

Pubmed Data : World J Gastroenterol. 2014 Dec 7 ;20(45):17029-36. PMID: **25493015**

Article Published Date : Dec 06, 2014

Authors : Saravana Kumar Jaganathan, Muthu Vignesh Vellayappan, Gayathri Narasimhan, Eko Supriyanto, Dyah Ekashanti Octorina Dewi, Aqilah Leela T Narayanan, Arunpandian Balaji, Aruna Priyadarshini Subramanian, Mustafa Yusof

Study Type : Review
Additional Links
Substances : Apples : CK(374) : AC(100) , Berries: All : CK(1443) : AC(356)
Diseases : Colon Cancer: Prevention : CK(176) : AC(56)
Pharmacological Actions : Anticarcinogenic Agents : CK(1071) : AC(514) , Chemopreventive : CK(2678) : AC(767)

The regular consumption of apples reduces colorectal cancer risk.

Pubmed Data : Basic Clin Pharmacol Toxicol. 2009 Mar;104(3):262-71. Epub 2009 Jan 20. PMID: **19926998**

Article Published Date : Mar 01, 2009

Authors : Wieslaw Jedrychowski, Umberto Maugeri, Tadeusz Popiela, Jan Kulig, Elzbieta Sochacka-Tatara, Agnieszka Pac, Agata Sowa, Agnieszka Musial

Study Type : Human Study
Additional Links
Substances : Apples : CK(374) : AC(100)
Diseases : Colorectal Cancer : CK(1635) : AC(611)
Pharmacological Actions : Chemopreventive : CK(2678) : AC(767)
Additional Keywords : Risk Reduction : CK(6136) : AC(658)

Total vegetable intake, total fruit intake, and lettuce, apple, and banana consumption is associated with a reduced risk for colorectal cancer.

Pubmed Data : Nutr Cancer. 1996;25(3):297-304. PMID: **8771572**

Article Published Date : Jan 01, 1996

Authors : H Deneo-Pellegrini, E De Stefani, A Ronco

Study Type : Human Study
Additional Links
Substances : Apples : CK(373) : AC(99) , Banana : CK(194) : AC(53) , Fruit: All : CK(3530) : AC(769) , Lettuce : CK(13) : AC(3) , Vegetables: All : CK(1032) : AC(113)
Diseases : Colon Cancer : CK(743) : AC(426) , Colorectal Cancer : CK(1635) : AC(611)
Pharmacological Actions : Chemopreventive : CK(2678) : AC(767)

Chemosensitizer (AC 1) (CK 1)

Carotenoids extracted from red paprika, Valencia orange and Golden delicious apple exhibit anti-H. pylori and anti-multidrug resistance activity.

Pubmed Data : Phytother Res. 2005 Aug;19(8):700-7. PMID: **16177974**

Article Published Date : Aug 01, 2005

Authors : Péter Molnár, Masami Kawase, Kazue Satoh, Yoshitaka Sohara, Toru Tanaka, Satoru Tani, Hiroshi Sakagami, Hideki Nakashima, Noboru Motohashi, Nóra Gyémánt, Joseph Molnár

Study Type : In Vitro Study
Additional Links
Substances : Apple: Golden Delicious : CK(2) : AC(2) , Carotenoids : CK(1620) : AC(306) , Orange : CK(170) : AC(35), Paprika : CK(8) : AC(6)
Diseases : Cancers: All : CK(14296) : AC(4541) , Cancers: Multi-Drug Resistant : CK(120) : AC(93) , Helicobacter Pylori Infection : CK(475) : AC(101)
Pharmacological Actions : Anti-Bacterial Agents : CK(1362) : AC(470) , Antioxidants : CK(7191) : AC(2630), Chemosensitizer : CK(391) : AC(283)

Cyclooxygenase 2 Inhibitors (AC 3) (CK 14)

Apple polyphenols extract (APE) improves colon damage in a rat model of colitis.

Pubmed Data : Dig Liver Dis. 2012 Feb 28. Epub 2012 Feb 28. PMID: **22381211**

Article Published Date : Feb 28, 2012

Authors : Giuseppe D'Argenio, Giovanna Mazzone, Concetta Tuccillo, Maria T Ribecco, Giulia Graziani, Antonietta G Gravina, Sergio Caserta, Stefano Guido, Vincenzo Fogliano, Nicola Caporaso, Marco Romano

Study Type : Animal Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17)
Diseases : Colitis : CK(251) : AC(109)
Pharmacological Actions : Cyclooxygenase 2 Inhibitors : CK(448) : AC(267) , Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1752) : AC(641)

Apples rich polyphenols reduce colonic inflammation in rats.

Pubmed Data : Br J Nutr. 2009 Dec;102(11):1620-8. Epub 2009 Jul 22. PMID: 19622193

Article Published Date : Dec 01, 2009

Authors : Cinzia Castagnini, Cristina Luceri, Simona Toti, Elisabetta Bigagli, Giovanna Caderni, Angelo P Femia, Lisa Giovannelli, Maura Lodovici, Vanessa Pitozzi, Maddalena Salvadori, Luca Messerini, Rocio Martin, Erwin G Zoetendal, Stan Gaj, Lars Eijssen, Chris T Evelo, Catherine M G C Renard, Alain Baron, Piero Dolara

Study Type : Transgenic Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99) , Flavonoids : CK(1194) : AC(376) , Polyphenols : CK(920) : AC(333)
Diseases : Inflammatory Bowel Diseases : CK(990) : AC(187) , Irritable Bowel Syndrome : CK(709) : AC(91)
Pharmacological Actions : Anti-Inflammatory Agents : CK(4499) : AC(1573) , Cyclooxygenase 2 Inhibitors : CK(448) : AC(267)

Consumption of dried apple peel powder was associated with improved joint function and improved serum antioxidant protection status.

Pubmed Data : J Med Food. 2014 Nov ;17(11):1204-13. Epub 2014 Oct 1. PMID: 25271471

Article Published Date : Oct 31, 2014

Authors : Gitte S Jensen, Victoria L Attridge, Kathleen F Benson, Joni L Beaman, Steve G Carter, David Ager

Study Type : Human Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Joint Diseases : CK(10) : AC(1)
Pharmacological Actions : Anti-Inflammatory Agents : CK(4500) : AC(1574) , Antinoceceptive : CK(177) : AC(47), Antioxidants : CK(7191) : AC(2630) , Cyclooxygenase 2 Inhibitors : CK(448) : AC(267), Lipoxygenase Inhibitors : CK(38) : AC(17)
Additional Keywords : Plant Extracts : CK(7288) : AC(2419) , Significant Treatment Outcome : CK(3028) : AC(365)

Detoxifier (AC 3) (CK 21)

Apple pectin reduces the body burden of Cesium-137 in "Chernobyl" children.

Pubmed Data : Mol Cell Biochem. 1990 Jun 1;95(1):21-30. PMID: **17314090**

Article Published Date : Jun 01, 1990

Authors : P Hill, M Schläger, V Vogel, R Hille, A V Nesterenko, V B Nesterenko

Study Type : Human Study
Additional Links
Substances : Apple Pectin : CK(66) : AC(15)
Diseases : Radiation-Induced Illness: Cesium-137 Exposure : CK(96) : AC(25)
Pharmacological Actions : Detoxifier : CK(408) : AC(131) , Detoxifier: Radionuclide Removal : CK(23) : AC(4)

Apple pectin significantly reduces Cesium-137 load within 16 days in children exposed to radioisotopes as a result of Chernobyl.

Pubmed Data : Swiss Med Wkly. 2004 Dec 18;134(49-50):725-9. PMID: **15635491**

Article Published Date : Dec 18, 2004

Authors : G S Bandazhevskaya, V B Nesterenko, V I Babenko, T V Yerkovich, Y I Bandazhevsky

Study Type : Human Study
Additional Links
Substances : Apple Pectin : CK(66) : AC(15)
Diseases : Cardiovascular Diseases : CK(7018) : AC(887) , Radiation-Induced Illness: Cesium-137 Exposure : CK(96) : AC(25)
Pharmacological Actions : Detoxifier : CK(408) : AC(131) , Detoxifier: Radionuclide Removal : CK(23) : AC(4), Radioprotective : CK(725) : AC(258)

From 1996 to 2007 a total of more than 160,000 "Chernobyl" children received pectin food additives. As a result, levels of Cs-137 in children's organs decreased after each course of pectin additives by an average of 30-40%.

Pubmed Data : Phytother Res. 2009 Apr;23(4):564-71. PMID: **20002057**

Article Published Date : Apr 01, 2009

Authors : Vassily B Nesterenko, Alexey V Nesterenko

Study Type : Review
Additional Links
Substances : Apple Pectin : CK(66) : AC(15)
Diseases : Radiation Disaster Associated Toxicity : CK(996) : AC(288) , Radiation-Induced Illness:

Cesium-137 Exposure : CK(96) : AC(25)
Pharmacological Actions : Detoxifier : CK(408) : AC(131) , Radioprotective : CK(725) : AC(258)

Detoxifier: Radionuclide Removal (AC 2) (CK 20)

Apple pectin reduces the body burden of Cesium-137 in "Chernobyl" children.

Pubmed Data : Mol Cell Biochem. 1990 Jun 1;95(1):21-30. PMID: **17314090**

Article Published Date : Jun 01, 1990

Authors : P Hill, M Schläger, V Vogel, R Hille, A V Nesterenko, V B Nesterenko

Study Type : Human Study
Additional Links
Substances : Apple Pectin : CK(66) : AC(15)
Diseases : Radiation-Induced Illness: Cesium-137 Exposure : CK(96) : AC(25)
Pharmacological Actions : Detoxifier : CK(408) : AC(131) , Detoxifier: Radionuclide Removal : CK(23) : AC(4)

Apple pectin significantly reduces Cesium-137 load within 16 days in children exposed to radioisotopes as a result of Chernobyl.

Pubmed Data : Swiss Med Wkly. 2004 Dec 18;134(49-50):725-9. PMID: **15635491**

Article Published Date : Dec 18, 2004

Authors : G S Bandazhevskaya, V B Nesterenko, V I Babenko, T V Yerkovich, Y I Bandazhevsky

Study Type : Human Study
Additional Links
Substances : Apple Pectin : CK(66) : AC(15)
Diseases : Cardiovascular Diseases : CK(7018) : AC(887) , Radiation-Induced Illness: Cesium-137 Exposure : CK(96) : AC(25)
Pharmacological Actions : Detoxifier : CK(408) : AC(131) , Detoxifier: Radionuclide Removal : CK(23) : AC(4), Radioprotective : CK(725) : AC(258)

Enzyme Inhibitors (AC 2) (CK 3)

Apple may exert its protective effect against colorectal cancer through acting as a histone-deacetylase inhibitor.

Pubmed Data : Nutrition. 2008 Apr;24(4):366-74. Epub 2008 Feb 11. PMID: 18262392

Article Published Date : Apr 01, 2008

Authors : Markus Waldecker, Tanja Kautenburger, Heike Daumann, Selveraju Veeriah, Frank Will, Helmut Dietrich, Beatrice Louise Pool-Zobel, Dieter Schrenk

Study Type : In Vitro Study
Additional Links
Substances : Apples : CK(374) : AC(100)
Diseases : Colorectal Cancer : CK(1635) : AC(611)
Pharmacological Actions : Enzyme Inhibitors : CK(463) : AC(250) , Histone deacetylase inhibitor : CK(48) : AC(37)
Additional Keywords : Epigenetic Modification : CK(218) : AC(88) , Plant Extracts : CK(7288) : AC(2419)

Polymerized catechin compounds in apple polyphenol extracts inhibit the biological and enzymatic activities of cholera toxin.

Pubmed Data : Microbiol Immunol. 2002 ;46(4):249-55. PMID: 12061627

Article Published Date : Dec 31, 2001

Authors : Takao Saito, Masami Miyake, Masamichi Toba, Hiroshi Okamatsu, Seiichi Shimizu, Masatoshi Noda

Study Type : Animal Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17) , Catechin : CK(512) : AC(169), Flavonoids : CK(1194) : AC(376)
Diseases : Cholera : CK(66) : AC(24)
Pharmacological Actions : Antidiarrheals : CK(110) : AC(20) , Antimicrobial : CK(290) : AC(125) , Enzyme Inhibitors : CK(463) : AC(250)
Additional Keywords : Dose Response : CK(1035) : AC(400) , Plant Extracts : CK(7288) : AC(2419)

Gastrointestinal Agents (AC 1) (CK 10)

The association between common foods, such as oranges and apples, with specific microorganisms reported to be decreased in SLE could be of great importance for these patients.

Pubmed Data : Nutrients. 2015 ;7(2):1301-17. Epub 2015 Feb 16. PMID: 25690419

Article Published Date : Dec 31, 2014

Authors : Adriana Cuervo, Arancha Hevia, Patricia López, Ana Suárez, Borja Sánchez, Abelardo Margolles, Sonia González

Study Type : Human Study
Additional Links
Substances : Apples : CK(374) : AC(100) , Apples : CK(374) : AC(100) , Polyphenols : CK(920) : AC(333) , Red Wine Extract : CK(114) : AC(32)
Diseases : Dysbiosis : CK(378) : AC(83) , Systemic Lupus Erythematosus : CK(463) : AC(66)
Pharmacological Actions : Gastrointestinal Agents : CK(265) : AC(39)
Additional Keywords : Gastrointestinal Agents : CK(265) : AC(39)

Gastroprotective (AC 1) (CK 2)

Apple extracts assisted in protecting the gastric mucosa following acute aspirin administration

Pubmed Data : Phytother Res. 2014 Jul 28. Epub 2014 Jul 28. PMID: 25069887

Article Published Date : Jul 27, 2014

Authors : Gunaranjan Paturi, Christine A Butts, Kerry L Bentley-Hewitt, Tony K McGhie, Zaid S Saleh, Andrew McLeod

Study Type : Animal Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17) , Apples : CK(374) : AC(100)
Diseases : Aspirin-Induced Toxicity : CK(87) : AC(28)
Pharmacological Actions : Gastroprotective : CK(152) : AC(71)
Additional Keywords : Plant Extracts : CK(7288) : AC(2419)

Hepatoprotective (AC 3) (CK 6)

Apple cider vinegar induced a protective effect against erythrocyte, kidney, and liver oxidative injury, and lowered the serum lipid levels in mice fed high cholesterol.

Pubmed Data : J Membr Biol. 2014 Aug ;247(8):667-73. Epub 2014 Jun 4. PMID: 24894721

Article Published Date : Jul 31, 2014

Authors : Mustafa Nazıroğlu, Mustafa Güler, Cemil Özgül, Gündüzalp Saydam, Mustafa Küçükayaz, Ercan Sözbir

Study Type : Animal Study
Additional Links
Substances : Apple Cider Vinegar : CK(9) : AC(5)
Diseases : High Cholesterol : CK(1754) : AC(265) , High Fat Diet : CK(176) : AC(85)
Pharmacological Actions : Antioxidants : CK(7192) : AC(2631) , Hepatoprotective : CK(1342) : AC(581), Hypolipidemic : CK(1151) : AC(242) , Renoprotective : CK(551) : AC(243)
Additional Keywords : Increased Bioavailability : CK(42) : AC(17)

The results of the present study revealed the hepatoprotective efficacy of APE by inhibiting carbon tetrachloride induced apoptosis.

Pubmed Data : Hum Exp Toxicol. 2016 Jan 25. Epub 2016 Jan 25. PMID: 26811344

Article Published Date : Jan 24, 2016

Authors : S Sharma, S Rana, V Patial, M Gupta, S Bhushan, Y S Padwad

Study Type : Animal Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17) , Apples : CK(373) : AC(99)
Diseases : Chemically-Induced Liver Damage : CK(629) : AC(252)
Pharmacological Actions : Anti-Apoptotic : CK(360) : AC(201) , Antioxidants : CK(7192) : AC(2631) , Hepatoprotective : CK(1342) : AC(581)
Additional Keywords : Dose Response : CK(1035) : AC(400)

These results suggest that the apple polyphenols are a beneficial nutritional supplement for the attenuation of atherosclerosis.

Pubmed Data : Nutrients. 2015 ;7(8):7085-105. Epub 2015 Aug 24. PMID: 26305254

Article Published Date : Dec 31, 2014

Authors : Zhe-Rong Xu, Jin-You Li, Xin-Wei Dong, Zhong-Ju Tan, Wei-Zhen Wu, Qiang-Min Xie, Yun-Mei Yang

Study Type : Animal Study, In Vitro Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17)
Diseases : Atherosclerosis : CK(578) : AC(146), Endothelial Dysfunction : CK(1166) : AC(231), Hepatic Steatosis : CK(131) : AC(35)
Pharmacological Actions : Anti-atherogenic : CK(143) : AC(36), Anti-Inflammatory Agents : CK(4499) : AC(1573), Antioxidants : CK(7191) : AC(2630), Catalase Up-Regulation : CK(118) : AC(42), Hepatoprotective : CK(1342) : AC(581), Superoxide Dismutase Up-regulation : CK(504) : AC(169)

Histone deacetylase inhibitor (AC 1) (CK 1)

Apple may exert its protective effect against colorectal cancer through acting as a histone-deacetylase inhibitor.

Pubmed Data : Nutrition. 2008 Apr;24(4):366-74. Epub 2008 Feb 11. PMID: 18262392

Article Published Date : Apr 01, 2008

Authors : Markus Waldecker, Tanja Kautenburger, Heike Daumann, Selveraju Veeriah, Frank Will, Helmut Dietrich, Beatrice Louise Pool-Zobel, Dieter Schrenk

Study Type : In Vitro Study
Additional Links
Substances : Apples : CK(374) : AC(100)
Diseases : Colorectal Cancer : CK(1635) : AC(611)
Pharmacological Actions : Enzyme Inhibitors : CK(463) : AC(250), Histone deacetylase inhibitor : CK(48) : AC(37)
Additional Keywords : Epigenetic Modification : CK(218) : AC(88), Plant Extracts : CK(7288) : AC(2419)

Hypoglycemic Agents (AC 3) (CK 5)

Apples have antihyperglycemic components.

Pubmed Data : J Med Food. 2010 Dec;13(6):1313-23. Epub 2010 Sep 27. PMID: **20874247**

Article Published Date : Dec 01, 2010

Authors : Ana Cristina Lopes Barbosa, Marcia da Silva Pinto, Dipayan Sarkar, Chandrakant Ankolekar, Duane Greene, Kalidas Shetty

Study Type : In Vitro Study
Additional Links
Substances : Apples : CK(374) : AC(100)
Diseases : Hyperglycemia : CK(539) : AC(130)
Pharmacological Actions : Alpha-amylase inhibitor : CK(34) : AC(20) , Alpha-glucosidase inhibitor : CK(52) : AC(37), Hypoglycemic Agents : CK(1380) : AC(338)

Polyphenol-rich apple peel extract, cherry extract and quercetin modulates some of the harmful effects of the consumption of an high fat diet.

Pubmed Data : J Nutr. 2016 Apr 6. Epub 2016 Apr 6. PMID: **27052533**

Article Published Date : Apr 05, 2016

Authors : Sarah M Snyder, Bingxin Zhao, Ting Luo, Clive Kaiser, George Cavender, Jill Hamilton-Reeves, Debra K Sullivan, Neil F Shay

Study Type : Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99) , Cherry: All Varieties : CK(167) : AC(31) , Quercetin : CK(557) : AC(246)
Diseases : C-Reactive Protein : CK(1628) : AC(171), High Fat Diet : CK(176) : AC(85) , Inflammation : CK(2863) : AC(839)
Pharmacological Actions : Anti-Inflammatory Agents : CK(4499) : AC(1573) , Hypoglycemic Agents : CK(1380) : AC(338)
Additional Keywords : Plant Extracts : CK(7288) : AC(2419)

Taking apple cider vinegar could reduce the metabolic disorders caused by a high fat diet.

Pubmed Data : Ann Cardiol Angeiol (Paris). 2016 Jun ;65(3):208-13. Epub 2016 May 18. PMID: **27209492**

Article Published Date : May 31, 2016

Authors : H Bouderbala, H Kaddouri, O Kheroua, D Saidi

Study Type : Animal Study
Additional Links
Substances : Apple Cider Vinegar : CK(9) : AC(5)
Diseases : High Fat Diet : CK(176) : AC(85) , Obesity : CK(2161) : AC(455)
Pharmacological Actions : Appetite Depressants : CK(8) : AC(4) , Hypoglycemic Agents : CK(1380) : AC(338), Hypolipidemic : CK(1151) : AC(242)

Additional Keywords : Anti-Obesity Agents : CK(466) : AC(102) , Risk Reduction : CK(6136) : AC(658)

Hypolipidemic (AC 4) (CK 8)

Apple and pear peel have significant positive influence on plasma lipid levels and antioxidant capacity in rats.

Pubmed Data : J Agric Food Chem. 2003 Sep 10;51(19):5780-5. PMID: **12952433**

Article Published Date : Sep 10, 2003

Authors : Maria Leontowicz, Shela Gorinstein, Hanna Leontowicz, Ryszard Krzeminski, Antonin Lojek, Elena Katrich, Milan Cíz, Olga Martin-Belloso, Robert Soliva-Fortuny, Ratiporn Haruenkit, Simon Trakhtenberg

Study Type : Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99) , Pear : CK(26) : AC(5)
Diseases : Hyperlipidemia : CK(645) : AC(150) , Oxidative Stress : CK(3800) : AC(1357)
Pharmacological Actions : Antioxidants : CK(7191) : AC(2630) , Hypolipidemic : CK(1151) : AC(242)

Apple cider vinegar induced a protective effect against erythrocyte, kidney, and liver oxidative injury, and lowered the serum lipid levels in mice fed high cholesterol.

Pubmed Data : J Membr Biol. 2014 Aug ;247(8):667-73. Epub 2014 Jun 4. PMID: **24894721**

Article Published Date : Jul 31, 2014

Authors : Mustafa Nazıroğlu, Mustafa Güler, Cemil Özgül, Gündüzalp Saydam, Mustafa Küçükayaz, Ercan Sözbir

Study Type : Animal Study
Additional Links
Substances : Apple Cider Vinegar : CK(9) : AC(5)
Diseases : High Cholesterol : CK(1754) : AC(265) , High Fat Diet : CK(176) : AC(85)
Pharmacological Actions : Antioxidants : CK(7192) : AC(2631) , Hepatoprotective : CK(1342) : AC(581), Hypolipidemic : CK(1151) : AC(242) , Renoprotective : CK(551) : AC(243)
Additional Keywords : Increased Bioavailability : CK(42) : AC(17)

Apple cider vinegars, regardless of the production method, decreased triglyceride and VLDL levels in all

groups when compared to animals on high-cholesterol diets without vinegar supplementation. Apple cider vinegars increased total cholesterol and HDL an

Pubmed Data : J Agric Food Chem. 2011 Jun 22;59(12):6638-44. doi: 10.1021/jf104912h. Epub 2011 May 18. PMID: 21561165

Article Published Date : Jun 21, 2011

Study Type : Animal Study
Additional Links
Substances : Apple Cider Vinegar : CK(9) : AC(5)
Diseases : High Cholesterol: very low density lipoprotein (VLDL) : CK(26) : AC(9) , Hyperlipidemia : CK(645) : AC(150), Triglycerides: Elevated : CK(678) : AC(117)
Pharmacological Actions : Hypolipidemic : CK(1151) : AC(242)

Taking apple cider vinegar could reduce the metabolic disorders caused by a high fat diet.

Pubmed Data : Ann Cardiol Angeiol (Paris). 2016 Jun ;65(3):208-13. Epub 2016 May 18. PMID: 27209492

Article Published Date : May 31, 2016

Authors : H Bouderbala, H Kaddouri, O Kheroua, D Saidi

Study Type : Animal Study
Additional Links
Substances : Apple Cider Vinegar : CK(9) : AC(5)
Diseases : High Fat Diet : CK(176) : AC(85) , Obesity : CK(2161) : AC(455)
Pharmacological Actions : Appetite Depressants : CK(8) : AC(4) , Hypoglycemic Agents : CK(1380) : AC(338), Hypolipidemic : CK(1151) : AC(242)
Additional Keywords : Anti-Obesity Agents : CK(466) : AC(102) , Risk Reduction : CK(6136) : AC(658)

Immunomodulatory (AC 1) (CK 2)

Phenolic extracts from the fruits of wild apple could be used as a radioprotector against gamma radiation induced oxidative damage.

Pubmed Data : Food Funct. 2016 Jan 7. Epub 2016 Jan 7. PMID: 26741951

Article Published Date : Jan 06, 2016

Authors : Lu Wang, Xiaoyu Li, Zhenyu Wang

Study Type : Animal Study
Additional Links
Substances : Apples : CK(374) : AC(100)
Diseases : Radiotherapy : CK(45) : AC(2)
Pharmacological Actions : Immunomodulatory : CK(1284) : AC(355) , Radioprotective : CK(725) : AC(258)

Insulin Sensitizers (AC 1) (CK 2)

Apple polyphenol extracts might emerge as a promising nutritional ingredient in the management of chronic diseases such as diabetes.

Pubmed Data : Nutr Metab (Lond). 2016 ;13:32. Epub 2016 Apr 30. PMID: **27141227**

Article Published Date : Dec 31, 2015

Authors : Manuel Manzano, María D Giron, José D Vilchez, Natalia Sevillano, Nuri El-Azem, Ricardo Rueda, Rafael Salto, Jose M Lopez-Pedrosa

Study Type : Animal Study, In Vitro Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17)
Diseases : Insulin Resistance : CK(1656) : AC(340)
Pharmacological Actions : Insulin Sensitizers : CK(347) : AC(68)
Additional Keywords : Natural Substance Synergy : CK(534) : AC(244) , Plant Extracts : CK(7288) : AC(2419)

Lipoxygenase Inhibitors (AC 1) (CK 10)

Consumption of dried apple peel powder was associated with improved joint function and improved serum antioxidant protection status.

Pubmed Data : J Med Food. 2014 Nov ;17(11):1204-13. Epub 2014 Oct 1. PMID: **25271471**

Article Published Date : Oct 31, 2014

Authors : Gitte S Jensen, Victoria L Attridge, Kathleen F Benson, Joni L Beaman, Steve G Carter, David Ager

Study Type : Human Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Joint Diseases : CK(10) : AC(1)
Pharmacological Actions : Anti-Inflammatory Agents : CK(4500) : AC(1574), Antinoceceptive : CK(177) : AC(47), Antioxidants : CK(7191) : AC(2630), Cyclooxygenase 2 Inhibitors : CK(448) : AC(267), Lipoxygenase Inhibitors : CK(38) : AC(17)
Additional Keywords : Plant Extracts : CK(7288) : AC(2419), Significant Treatment Outcome : CK(3028) : AC(365)

Matrix metalloproteinase-9 (MMP-9) inhibitor (AC 1) (CK 1)

Apple and Hop-polyphenols inhibit P. gingivalis-mediated precursor of MMP-9 activation and invasion of oral squamous cell carcinoma cells.

Pubmed Data : J Periodontol. 2016 May 13:1-21. Epub 2016 May 13. PMID: 27177287

Article Published Date : May 12, 2016

Authors : Hiroaki Inaba, Motoyuki Tagashira, Tomomasa Kanda, Yukitaka Murakami, Atsuo Amano, Michiyo Matsumoto-Nakano

Study Type : In Vitro Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17), Hops : CK(76) : AC(26)
Diseases : Oral Cancer : CK(194) : AC(78), Periodontal Diseases : CK(257) : AC(64), Squamous cell carcinoma : CK(152) : AC(67)
Pharmacological Actions : Anti-metastatic : CK(609) : AC(407), Matrix metalloproteinase-9 (MMP-9) inhibitor : CK(197) : AC(126)

NF-kappaB Inhibitor (AC 3) (CK 5)

Apple and curcumin extracts contain phytochemicals which inhibit cellular processes associated with breast cancer cell resistance to chemotherapy.

Pubmed Data : J Agric Food Chem. 2007 Apr 18;55(8):3167-73. Epub 2007 Mar 21. PMID: 17373813

Article Published Date : Apr 18, 2007

Authors : Hyungeun Yoon, Rui Hai Liu

Study Type : In Vitro Study
Additional Links
Substances : Apples : CK(373) : AC(99) , Curcumin : CK(4128) : AC(2171)
Diseases : Breast Cancer : CK(3492) : AC(1052)
Pharmacological Actions : NF-kappaB Inhibitor : CK(1100) : AC(686)

Apple polysaccharide extracts could be used in combination therapy for the prevention of colitis-associated colon cancer.

Pubmed Data : Nutr Cancer. 2015 ;67(1):177-90. Epub 2014 Nov 20. PMID: 25412264

Article Published Date : Dec 31, 2014

Authors : Dian Zhang, Man Mi, Fengliang Jiang, Yang Sun, Yuhua Li, Libin Yang, Lei Fan, Qian Li, Jin Meng, Zhenggang Yue, Li Liu, Qibing Mei

Study Type : Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Colitis : CK(251) : AC(109) , Colon Cancer : CK(743) : AC(426) , Colon Cancer: Prevention : CK(176) : AC(56)
Pharmacological Actions : Anti-Inflammatory Agents : CK(4499) : AC(1573) , Anticarcinogenic Agents : CK(1071) : AC(514), NF-kappaB Inhibitor : CK(1100) : AC(686)
Additional Keywords : Plant Extracts : CK(7288) : AC(2419)

Apple total triterpenoid content induced apoptosis in MDA-MB-231 cells.

Pubmed Data : J Agric Food Chem. 2012 Sep 19 ;60(37):9430-6. Epub 2012 Sep 6. PMID: 22924395

Article Published Date : Sep 18, 2012

Authors : Xiangjiu He, Yihai Wang, Hui Hu, Zhenxue Zhang

Study Type : Animal Study, In Vitro Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Breast Cancer : CK(3492) : AC(1052) , Breast Cancer: Triple Negative : CK(256) : AC(138), Colon Cancer : CK(743) : AC(426) , Liver Cancer : CK(1208) : AC(455)
Pharmacological Actions : Antiproliferative : CK(2461) : AC(1673), Apoptotic : CK(2941) : AC(2062) ,

Cell cycle arrest : CK(805) : AC(607) , NF-kappaB Inhibitor : CK(1100) : AC(686)
Additional Keywords : Dose Response : CK(1035) : AC(400)

Neuroprotective Agents (AC 3) (CK 6)

Apple juice concentrate prevents oxidative damage and impaired maze performance in aged mice.

Pubmed Data : Ann Clin Psychiatry. 2009 Jul-Sep;21(3):148-61. PMID: **16340085**

Article Published Date : Jul 01, 2009

Authors : Flaubert Tchantchou, Amy Chan, Lydia Kifle, Daniela Ortiz, Thomas B Shea

Study Type : Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Aging: Brain : CK(246) : AC(84), Cognitive Decline/Dysfunction : CK(1138) : AC(212)
Pharmacological Actions : Neuroprotective Agents : CK(2237) : AC(1053)

Apple polyphenol extracts have neuroprotective effects against Aluminum induced biotoxicity.

Pubmed Data : Neurotoxicology. 2014 Dec ;45:111-20. Epub 2014 Oct 17. PMID: **25445564**

Article Published Date : Nov 30, 2014

Authors : Dai Cheng, Yu Xi, Jiankang Cao, Dongdong Cao, Yuxia Ma, Weibo Jiang

Study Type : Animal Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17) , Polyphenols : CK(920) : AC(333)
Diseases : Aluminum Toxicity : CK(195) : AC(75), Oxidative Stress : CK(3800) : AC(1357)
Pharmacological Actions : Chelating Agents : CK(12) : AC(1) , Neuroprotective Agents : CK(2235) : AC(1052)
Additional Keywords : Chelation : CK(4) : AC(2) , Plant Extracts : CK(7288) : AC(2419)

Dietary supplementation with apple juice decreases endogenous amyloid-beta levels in mouse brain.

Pubmed Data : Int J Mol Med. 2010 Oct;26(4):447-55. PMID: **19158432**

Article Published Date : Oct 01, 2010

Authors : Amy Chan, Thomas B Shea

Study Type : Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Alzheimer's Disease : CK(1282) : AC(375)
Pharmacological Actions : Neuroprotective Agents : CK(2237) : AC(1053)

Nrf2 activation (AC 1) (CK 1)

Bioactive compounds isolated from apple, tea, and ginger protect against dicarbonyl induced stress in cultured human retinal epithelial cells.

Pubmed Data : Phytomedicine. 2016 Feb 15 ;23(2):200-13. Epub 2016 Jan 5. PMID: 26926182

Article Published Date : Feb 14, 2016

Authors : Chethan Sampath, Yingdong Zhu, Shengmin Sang, Mohamed Ahmedna

Study Type : In Vitro Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17) , EGCG (Epigallocatechin gallate) : CK(606) : AC(312), Ginger : CK(676) : AC(175)
Diseases : Advanced Glycation End products (AGE) : CK(231) : AC(73) , Diabetic Complications : CK(1512) : AC(315)
Pharmacological Actions : Anti-Glycation Agents : CK(46) : AC(19) , Antioxidants : CK(7192) : AC(2631), Nrf2 activation : CK(172) : AC(83)

P21 Activation (AC 1) (CK 1)

Pelingo apple is rich in food components that can markedly inhibit in vitro tumorigenesis and growth of human breast cancer cells.

Pubmed Data : PLoS One. 2015 ;10(8):e0135840. Epub 2015 Aug 18. PMID: 26284516

Article Published Date : Dec 31, 2014

Authors : Giuditta Fiorella Schiavano, Mauro De Santi, Giorgio Brandi, Mirco Fanelli, Anahi

Bucchini, Laura Giamperi, Giovanna Giomaro

Study Type : In Vitro Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Breast Cancer : CK(3492) : AC(1052) , Breast Cancer: Triple Negative : CK(256) : AC(138)
Pharmacological Actions : Antiproliferative : CK(2461) : AC(1673), Cell cycle arrest : CK(805) : AC(607), Chemopreventive : CK(2678) : AC(767) , P21 Activation : CK(72) : AC(47)

Prophylactic Agents (AC 1) (CK 1)

Phenolic extracts of different cultivars of apples have varied antimutagenicity activity, with Granny Smith showing higher levels.

Pubmed Data : J Food Sci. 2016 Jan 11. Epub 2016 Jan 11. PMID: **26753515**

Article Published Date : Jan 10, 2016

Authors : Sudhanshu Saxena, Jyoti Verma, Satyendra Gautam

Study Type : In Vitro Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : DNA damage : CK(969) : AC(377)
Pharmacological Actions : Antimutagenic Agents : CK(126) : AC(72) , Antioxidants : CK(7192) : AC(2631), Prophylactic Agents : CK(129) : AC(31) , Radioprotective : CK(725) : AC(258)

Radioprotective (AC 6) (CK 26)

A drug named "Medetopect" consisting of apple pectins, vitamin C and calcium phosphate reduces absorption of Plutonium-239 and Americium-241 from the gastrointestinal tract of animals.

Pubmed Data : Radiats Biol Radioecol. 1998 Jan-Feb;38(1):35-41. PMID: **9606404**

Article Published Date : Jan 01, 1998

Authors : V S Kalistratova, G A Zalikin, P G Nisimov, I B Romanova

Study Type : Animal Study
Additional Links
Substances : Apple Pectin : CK(66) : AC(15), Calcium : CK(287) : AC(44) , Vitamin C : CK(1953) : AC(401)
Diseases : Radiation Induced Illness : CK(1046) : AC(264) , Radiation-Induced Illness: Americium : CK(4) : AC(2), Radiation-Induced Illness: Plutonium : CK(15) : AC(8)
Pharmacological Actions : Radioprotective : CK(725) : AC(258)

Apple pectin reduced Cesium-137 levels by 62.6% in "Chenobyl" children.

Pubmed Data : Swiss Med Wkly. 2004 Jan 10;134(1-2):24-7. PMID: **14745664**

Article Published Date : Jan 10, 2004

Authors : V B Nesterenko, A V Nesterenko, V I Babenko, T V Yerkovich, I V Babenko

Study Type : Human Study
Additional Links
Substances : Apple Pectin : CK(66) : AC(15)
Diseases : Radiation-Induced Illness: Cesium-137 Exposure : CK(96) : AC(25)
Pharmacological Actions : Radioprotective : CK(725) : AC(258)

Apple pectin significantly reduces Cesium-137 load within 16 days in children exposed to radioisotopes as a result of Chernobyl.

Pubmed Data : Swiss Med Wkly. 2004 Dec 18;134(49-50):725-9. PMID: **15635491**

Article Published Date : Dec 18, 2004

Authors : G S Bandazhevskaya, V B Nesterenko, V I Babenko, T V Yerkovich, Y I Bandazhevsky

Study Type : Human Study
Additional Links
Substances : Apple Pectin : CK(66) : AC(15)
Diseases : Cardiovascular Diseases : CK(7018) : AC(887) , Radiation-Induced Illness: Cesium-137 Exposure : CK(96) : AC(25)
Pharmacological Actions : Detoxifier : CK(408) : AC(131) , Detoxifier: Radionuclide Removal : CK(23) : AC(4), Radioprotective : CK(725) : AC(258)

From 1996 to 2007 a total of more than 160,000 "Chernobyl" children received pectin food additives. As a result, levels of Cs-137 in children's organs decreased after each course of pectin additives by an average of 30-

40%.

Pubmed Data : Phytother Res. 2009 Apr;23(4):564-71. PMID: **20002057**

Article Published Date : Apr 01, 2009

Authors : Vassily B Nesterenko, Alexey V Nesterenko

Study Type : Review
Additional Links
Substances : Apple Pectin : CK(66) : AC(15)
Diseases : Radiation Disaster Associated Toxicity : CK(996) : AC(288) , Radiation-Induced Illness: Cesium-137 Exposure : CK(96) : AC(25)
Pharmacological Actions : Detoxifier : CK(408) : AC(131) , Radioprotective : CK(725) : AC(258)

Phenolic extracts from the fruits of wild apple could be used as a radioprotector against gamma radiation induced oxidative damage.

Pubmed Data : Food Funct. 2016 Jan 7. Epub 2016 Jan 7. PMID: **26741951**

Article Published Date : Jan 06, 2016

Authors : Lu Wang, Xiaoyu Li, Zhenyu Wang

Study Type : Animal Study
Additional Links
Substances : Apples : CK(374) : AC(100)
Diseases : Radiotherapy : CK(45) : AC(2)
Pharmacological Actions : Immunomodulatory : CK(1284) : AC(355) , Radioprotective : CK(725) : AC(258)

Phenolic extracts of different cultivars of apples have varied antimutagenicity activity, with Granny Smith showing higher levels.

Pubmed Data : J Food Sci. 2016 Jan 11. Epub 2016 Jan 11. PMID: **26753515**

Article Published Date : Jan 10, 2016

Authors : Sudhanshu Saxena, Jyoti Verma, Satyendra Gautam

Study Type : In Vitro Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : DNA damage : CK(969) : AC(377)
Pharmacological Actions : Antimutagenic Agents : CK(126) : AC(72) , Antioxidants : CK(7192) : AC(2631), Prophylactic Agents : CK(129) : AC(31) , Radioprotective : CK(725) : AC(258)

Renoprotective (AC 1) (CK 2)

Apple cider vinegar induced a protective effect against erythrocyte, kidney, and liver oxidative injury, and lowered the serum lipid levels in mice fed high cholesterol.

Pubmed Data : J Membr Biol. 2014 Aug ;247(8):667-73. Epub 2014 Jun 4. PMID: 24894721

Article Published Date : Jul 31, 2014

Authors : Mustafa Nazıroğlu, Mustafa Güler, Cemil Özgül, Gündüzalp Saydam, Mustafa Küçükayaz, Ercan Sözbir

Study Type : Animal Study
Additional Links
Substances : Apple Cider Vinegar : CK(9) : AC(5)
Diseases : High Cholesterol : CK(1754) : AC(265) , High Fat Diet : CK(176) : AC(85)
Pharmacological Actions : Antioxidants : CK(7192) : AC(2631) , Hepatoprotective : CK(1342) : AC(581), Hypolipidemic : CK(1151) : AC(242) , Renoprotective : CK(551) : AC(243)
Additional Keywords : Increased Bioavailability : CK(42) : AC(17)

Superoxide Dismutase Up-regulation (AC 1) (CK 2)

These results suggest that the apple polyphenols are a beneficial nutritional supplement for the attenuation of atherosclerosis.

Pubmed Data : Nutrients. 2015 ;7(8):7085-105. Epub 2015 Aug 24. PMID: 26305254

Article Published Date : Dec 31, 2014

Authors : Zhe-Rong Xu, Jin-You Li, Xin-Wei Dong, Zhong-Ju Tan, Wei-Zhen Wu, Qiang-Min Xie, Yun-Mei Yang

Study Type : Animal Study, In Vitro Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17)
Diseases : Atherosclerosis : CK(578) : AC(146) , Endothelial Dysfunction : CK(1166) : AC(231) , Hepatic Steatosis : CK(131) : AC(35)

Pharmacological Actions : Anti-atherogenic : CK(143) : AC(36) , Anti-Inflammatory Agents : CK(4499) : AC(1573), Antioxidants : CK(7191) : AC(2630) , Catalase Up-Regulation : CK(118) : AC(42) , Hepatoprotective : CK(1342) : AC(581) , Superoxide Dismutase Up-regulation : CK(504) : AC(169)

Topoisomerase II Inhibitor (AC 1) (CK 1)

An apple flavonoid enriched fraction possessed a significantly stronger antiproliferative and specific action than Sorafenib in vitro.

Pubmed Data : Nutr Cancer. 2014 Sep 25:1-10. Epub 2014 Sep 25. PMID: **25256427**

Article Published Date : Sep 24, 2014

Authors : Sudhanshu Sudan, H P Vasantha Rupasinghe

Study Type : In Vitro Study

Additional Links

Substances : Apple Polyphenols : CK(31) : AC(17) , Flavonoids : CK(1194) : AC(376)

Diseases : Liver Cancer : CK(1208) : AC(455)

Pharmacological Actions : Antiproliferative : CK(2461) : AC(1673), Apoptotic : CK(2941) : AC(2062) , Caspase-3 Activation : CK(90) : AC(65) , Cell cycle arrest : CK(805) : AC(607) , Chemopreventive : CK(2678) : AC(767), Topoisomerase II Inhibitor : CK(3) : AC(3)

Additional Keywords : Topoisomerase II Inhibitor : CK(3) : AC(3) , Plant Extracts : CK(7288) : AC(2419), Selective Cytotoxicity : CK(155) : AC(110)

Tumor Necrosis Factor (TNF) Alpha Inhibitor (AC 1) (CK 2)

Apple polyphenols extract (APE) improves colon damage in a rat model of colitis.

Pubmed Data : Dig Liver Dis. 2012 Feb 28. Epub 2012 Feb 28. PMID: **22381211**

Article Published Date : Feb 28, 2012

Authors : Giuseppe D'Argenio, Giovanna Mazzone, Concetta Tuccillo, Maria T Ribecco, Giulia Graziani, Antonietta G Gravina, Sergio Caserta, Stefano Guido, Vincenzo Fogliano, Nicola Caporaso, Marco Romano

Study Type : Animal Study
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17)
Diseases : Colitis : CK(251) : AC(109)
Pharmacological Actions : Cyclooxygenase 2 Inhibitors : CK(448) : AC(267) , Tumor Necrosis Factor (TNF) Alpha Inhibitor : CK(1752) : AC(641)

Vascular Endothelial Growth Factor Inhibitors (AC 1) (CK 5)

VEGF is a key molecular target for specific polyphenols found in tea, apples and cocoa which potently inhibit VEGF signalling and angiogenesis at physiological concentrations.

Pubmed Data : Mol Nutr Food Res. 2015 Mar ;59(3):401-12. Epub 2015 Jan 22. PMID: 25546248

Article Published Date : Feb 28, 2015

Authors : Christina W A Moyle, Ana B Cerezo, Mark S Winterbone, Wendy J Hollands, Yuri Alexeev, Paul W Needs, Paul A Kroon

Study Type : Human In Vitro
Additional Links
Substances : Apple Polyphenols : CK(31) : AC(17) , EGCG (Epigallocatechin gallate) : CK(606) : AC(312), Polyphenols : CK(920) : AC(333)
Diseases : Cancers: All : CK(14297) : AC(4542)
Pharmacological Actions : Angiogenesis Inhibitors : CK(112) : AC(61) , Vascular Endothelial Growth Factor Inhibitors : CK(123) : AC(61)
Additional Keywords : Diet : CK(75) : AC(8)

Vasodilator Agents (AC 1) (CK 2)

Apple leaves contain compounds which may have therapeutic value against advanced glycation end-productions and vasoconstriction.

Pubmed Data : Phytochemistry. 2009 Dec 18. Epub 2009 Dec 18. PMID: 20022617

Article Published Date : Dec 18, 2009

Authors : Thomas Dugé de Bernonville, Sylvain Guyot, Jean-Pierre Paulin, Matthieu Gaucher, Laurent Loufrani, Daniel Henrion, Séverine Derbré, David Guilet, Pascal Richomme, James F Dat, Marie-Noëlle Brisset

Study Type : Animal Study
Additional Links
Substances : Apples : CK(373) : AC(99)
Diseases : Advanced Glycation End products (AGE) : CK(231) : AC(73)
Pharmacological Actions : Anti-Inflammatory Agents : CK(4500) : AC(1574), Vasodilator Agents : CK(342) : AC(73)

Viral Hemagglutinin Inhibitor (AC 1) (CK 1)

Apple pectin, citrus pectin, flaxseed mucilage, blood group A substance, gum acacia (gum arabic), and gum myrrh inhibit viral hemagglutinin in vitro.

Pubmed Data : J Exp Med. 1947 Jun 30;86(1):55-64. PMID: 19871655

Authors : R H Green, D W Woolley

Study Type : In Vitro Study
Additional Links
Substances : Apple Pectin : CK(66) : AC(15), Citrus Pectin : CK(1) : AC(1), Flaxseed : CK(451) : AC(89), Gum arabic : CK(44) : AC(8), Myrrh : CK(47) : AC(18)
Diseases : Influenza A : CK(387) : AC(101)
Pharmacological Actions : Antiviral Agents : CK(932) : AC(428), Viral Hemagglutinin Inhibitor : CK(18) : AC(14)

medical condition. Before beginning any type of natural, integrative or conventional treatment regimen, it is advisable to seek the advice of a licensed healthcare professional.