

The Importance of Integrative Medicine in the Treatment of HIV/AIDS

By Gary Null, PhD

February 10, 2014

On December 2, 2013 president Obama marked the 25th Anniversary of World AIDS Day by pledging \$100 million to research on finding a cure for HIV.¹ Discussing his new push for funding, Obama remarked that “The United States should be at the forefront of new discoveries into how to put HIV into long-term remission without requiring lifelong therapies, or better yet, eliminate it completely.”² However laudable this commitment to ending the war on HIV/AIDS is, we must question how it is that billions of dollars spent for decades on a pharmaceutical-based treatment has not yielded better results.

For our answers let’s go back to December 9, 1993, when more than 100 persons assembled with their physicians and their medical records in New York City at a major press conference. They had been selected over a twelve month period if they could prove with medical verification, including blood work up, viral load, CD4 and CD8 count, that they had made major improvements without relapse with their AIDS diagnosis. These individuals followed more than 20 different alternative treatments programs. An independent panel of medical and scientific experts brought to the press conference more than 25,000 scientific references³⁴⁵⁶ (see examples in footnotes below) from the peer-reviewed literature to verify the medical veracity, efficacy and safety of any given protocol used by the patients. Herbs, botanicals, homeopathic and naturopathic remedies, intravenous vitamin drips, ozone therapy, meditation, detoxification, stress reduction, a plant-based diet, and antioxidants therapy were all examined for their antiviral, antibacterial and anti-yeast and/or immune-modulating impacts. Therefore, if one of the patients were to suggest that they were following the Louise Hay, Gerson, or Ann

¹ Culp-Ressler, Tara. "President Obama Pledges \$100 Million In Funding To Help Beat AIDS." *ThinkProgress RSS*. N.p., 3 Dec. 2013. Web. 16 Dec. 2013. <<http://thinkprogress.org/health/2013/12/03/3010991/obama-100-million-aids/>>.

² Ibid

³ Kiecolt-Glaser, J. K., Glaser, R. (1993).. Mind and immunity. In: D. Goleman & J. Gurin, (Eds.) *Mind/Body Medicine* (pp. 39-59). New York: Consumer Reports.

⁴ Sauter, C., Wolfensberger, C (1989) Anticancer activities as well as antiviral and virus-enhancing properties of aqueous fruit extracts from fifty-six European plant species. *European Journal of Cancer and Clinical Oncology* Jun;25(6):987-990.

⁵ RS, Chang., Yeung, HW. (1988). Inhibition of growth of human immunodeficiency virus in vitro by crude extracts of Chinese medicinal herbs. *Antiviral Research* (pp. 163-175)

⁶ Zheng, MS. (1989). An experimental study of the anti-HSV-II action of 500 herbal drugs. *Journal of Traditional Chinese Medicine*. Jun;9(2):113-116.

Wigmore protocols, it would not have been difficult to have understood how these protocols were helping these individuals' bodies.

All of this was precipitated more than a year and a half earlier by a group of AIDS patients who came each day to a medical facility in the Upper West Side of Manhattan to be attended by a group of physicians, nurse practitioners, and other therapists helping them to restore their immune systems and adopt a more positive, optimistic state of mind. The theoretical framework behind our program was simple: instead of trying to kill the virus with antiretroviral pharmaceuticals designed to stop viral replication before it kills patients, we focused on what benefits could be gained by building up the patients' natural immunity and restoring biochemical integrity so the body could fight for itself.

As they began to make major improvements, one of the patients spoke up one evening. He explained that in addition to his own progress in combating AIDS naturally, he knew of other individuals who were using more natural and holistic modalities all across the country and that the world didn't know of this. The world only knew of the official AIDS treatment: AZT. He and the other people being treated at the facility all feared the mainstream treatment because they had seen how many of their friends and partners as well as other AIDS patients had died or become extremely sick using these aggressive drugs and yet, the natural modalities had been virtually ignored in any public discussion on AIDS. So it was at their urging that the press conference evolved.

That day in December could have been historic if only members of the press, scientific community, government agencies, activist organizations and foundations had chosen to attend and been open to a different medical paradigm. Despite the fact that more than 7,000 individuals from the media and these other groups had been invited on three separate occasions in the months leading up to the press conference, not one showed up. Clearly this was an intentional boycott. As a result, the patients spent the entire afternoon, each giving their own testimonials, showing their records and having their physicians speak about the remarkable improvements they saw; but the findings presented largely remained a secret from the rest of the world.

Tony Brown, of PBS, learned of the press conference and began to look carefully and meticulously at the AIDS patients who had made remarkable recoveries, inviting more than eight to appear on his national television program. I was also invited to appear on Tony Brown's program since these were my protocols and I had been working every day with these specific individuals for more than 16 months. The program profiled one man named Louie, who submitted medical records showing that he experienced a life-affirming reversal of AIDS and all of its conditions. You can go to Tony Brown's Journal archives and review the entire film at your leisure.

Up to that point, I had spent every day for years working with people with AIDS-defining conditions, written twenty-two articles on living with AIDS naturally and a 750 page reference book with nearly 100 pages of it covering how to treat AIDS naturally. Further, I had produced a documentary, *Living with AIDS Naturally: The Real Heroes*, chronicling the story of AIDS patients in the nineties that did not respond well to orthodox therapy but improved after incorporating natural holistic protocols to their treatment programs.

After all this, one would have thought that this information would have permeated into the mainstream AIDS dialogue. In fact, just the opposite occurred. Because I challenged the safety and efficacy of AZT and called into question the science behind conventional AIDS treatment, I was personally attacked as an AIDS denialist, which I categorically deny. There is no debate that HIV exists and that it attacks the immune system. What is still up for debate is whether pharmaceutical drugs are the complete answer. Back then and still today, there is no opportunity for questioning, you are either on board or thrown overboard and then attacked.

Despite the array of devastating side effects that AZT is known to produce, it is still used today in combination with other medications, albeit at much lower doses. Today, if any physician were to prescribe AZT in the same amount that was typical in the 1980s and early 1990s, they would more likely than not be brought up for medical malpractice. While survival rates have increased with the introduction of new anti-retroviral treatments, the mainstream treatments continue to focus on pharmaceutical drugs to the exclusion of holistic lifestyle therapies. This is especially alarming given the extensive body of independent scientific research spanning decades that indicates that we were right all along about the critical importance of treating AIDS patients by incorporating a comprehensive, immunity-enhancing behavior and lifestyle modification approach that incorporates diet and nutritional therapies, detoxification, exercise, meditation and stress reduction.

As public awareness about the therapeutic value of alternative approaches to health and wellness increases, a growing number of individuals and groups within the scientific community are calling attention to the benefits of an integrative approach to AIDS. Given President Obama's recent pledge of \$100 million towards a cure for HIV/AIDS, it is clear that drugs alone are not the answer. By shifting the paradigm to one that embraces and incorporates proven natural methods, we have the potential to revolutionize modern HIV/AIDS treatments and empower individuals to achieve greater health and longevity.

Summary of Appendices

Below in **Appendix A**, I have included a sample AIDS protocol outlining the program I have used for decades to help countless individuals deal with their HIV/AIDS naturally. In **Appendix B** I have included recent direct quotations on healing HIV/AIDS from prominent individuals working in the medical and public health fields. **Appendix C** is a compilation of hundreds of peer-reviewed scientific studies showing the immune-enhancing benefits of a wide range of plant-based foods, herbs, supplements and other natural modalities on patients with HIV/AIDS. This collection of scientific articles contains the scientific justification for a whole-body approach to healing HIV/AIDS. **Appendix D** features an article on natural AIDS treatments written by me and Adam Atkin, PhD and published in 1996 in the prestigious *Townsend Letter for Doctors & Patients*. The article offers research-based evidence showing the effectiveness of natural treatments on AIDS from 17 years ago. Since then, our understanding of how to combat AIDS through non-toxic, immune-boosting therapies has expanded a great deal more. **Appendix E** contains photographs from the AIDS Is Not a Death Sentence Press Conference Photographs- December 9, 1993.

Appendix A:

Sample Protocols

PROTOCOL DISCLAIMER

- The protocol below is not in any way to be construed as a prescription to cure the condition, but as nutritional, lifestyle and behavior modification suggestions only. Always consult with a physician for guidance on specific health issues and before following this or any other protocol.
- Patient's diagnosis, treatment, and medications must be considered in determining if any of the suggested vitamins, minerals, foods, and herbs in contraindicated. Special considerations should be given to pregnant and nursing mothers. Many supplements do not have a suggested dosage. Individual clinicians must make individual recommendations based on the patient.
- The protocol below must be implemented in gradual steps. It is suggested to begin with low doses of one or two items of the protocols suggested items to determine the patient's acceptance and tolerance. Once it is determined that the patient has adapted, the dosage should be increased in gradual steps.

Sample HIV/AIDS Protocol

In addition to the detoxification lifestyle protocol (see below), consider the following:

Diet

The diet is an immunosupportive DNA-reparative, cleansing and Ph rebalancing program. It is recommended to begin the day with a large smoothie containing a tablespoon of one of the following healthy oils: black cumin seed oil, coconut oil, flaxseed oil, as well as a handful of either walnuts, almonds cashews, pistachios, sunflower seeds, pumpkin seeds or chia seeds, concentrates from blueberry, pomegranate, tart cherry, noni, papaya, a teaspoon of probiotic powder containing at least 5-10 billion CFU, as well as 30-40 grams of a high-quality, non-GMO protein, either from rice, pea, hemp, or soy.

Include smaller meals throughout the day with a full spectrum of sea vegetables, fermented foods, starchy vegetables, legumes, whole grains, liberal amounts of garlic and onion and wild fish (preferably sardines and salmon).

Drink either wheatgrass juice, bitter melon juice with raw honey and bee propolis, or combinations of vegetable and fruit juices throughout the day- ideally 16 oz. each.

Supplements

L-Carnosine/Acetyl L-carnitine

Whey protein 30-60g/day

SAMe 400-800mg/day

Magnesium- 400 – 500 elemental mg

Calcium – 400-500 mg

Vit B 6 (pyridoxine)

Vit B 12

Folic acid

SOD

DMG

Pancreatic and proteolytic enzymes
Multimineral supplement
EFA's: borage, omegas 3&6, GLA, EPA
Lecithin
Co Q 10 1,000mg
Curcumin
DHEA
Citrus bioflavanoids
Ginseng
Milk Thistle
Green Tea Extract
Monolaurin
Melatonin
NAC 1000mg-1800mg three times a day
Grape Seed Extract 400mg
Alpha lipoic acid 300mg twice a day
Vit B 2 (Riboflavin)
Beta carotene/vitamin A
Vit B 1 (thiamin)
Vit B 3 (niacinamide)
Vit B 5 (pantothenic acid)
Evening Primrose Oil
Vit C 2,000-10,000mg/day
Quercetin 3,000mg
St. John's wort 300mg
Vit E – mixed tocopherols
Vit K
Zinc
Vanadium
Garlic/ cayenne
Green Tea extract
MSM
Selenium 200 mcg twice a day
Chromium picolinate
Activated lipids (AL 7/21)
Germanium
Astragalus

Silymarin
Eurocel
Lactoferrin
Probiotics

Other medically supervised therapies

Ozonated colonics/coffee enemas
HBOT- hyperbaric oxygen therapy
IV Vitamin C drips and bio-oxidative therapies require MD orders
IV DMSO
Chinese herbs/AMMA/Acupuncture
Bach flower remedies
Hyperthermia
Homeopathic remedies
Positive Visualization
Guided Imagery
Stress Management Therapy
Hydrazine sulfate if wasting syndrome occurs
Check cortisol levels regularly

Topical

Virgin Castor oil
Calendula
Aloe/avocado oil baths
Aerobic exercise
Colloidal copper spray

Sample Detoxification Lifestyle Protocol

Take the following daily as directed:

THE FIRST FOUR WEEKS:

Two (2) - 16 ounce glasses of green juice per day:

Juice 4 oz. dark & light green vegetables. Add 12 oz. Water -OR-

1 tablespoon of powdered dry green concentrate. Add 12 oz water.

In the above juices, add 1 oz. of aloe concentrate and add one teaspoon of red fruit dried concentrate.

AT NIGHT:

Antioxidant complex Follow the instructions on the label

Garlic with cayenne powder Follow the instructions on the label

Psyllium bifidis fiber Follow the instructions on the label

Vitamin C 500-2500 mg

AFTER 4 WEEKS ADD:

Quercetin 550mg 3X/day

Pycnogenol 50mg 3X/day

L-Carnitine 250mg 2X/day

AFTER 4 MORE WEEKS ADD:

Brain complex, 3 capsules per day or

Ginkgo Biloba 100 mg (Consult your doctor if on blood thinners)

L-Phenylalanine 75 mg

L-Glutathione

L-Taurine

Choline Bitartrate Complex

Inositol

L-Glutamine

L-Tyrosine

Phosphatidyl Serine Naturleaf (enzyme enhanced)

Plant-Sprout sterols/sitosterolins 500 mg. 4x/day

MGN 3 500 mg 3x/day

Increase antioxidant complex to 5 times per day

B Complex 50 mg

DIETARY GUIDELINES:

1. No meat: Includes beef, poultry and shellfish. Replace with: cold water fish (wild salmon, sardines,) 4 times/ week; nuts, nut butters, seeds, soybeans and soy products, organic eggs, Quinoa (high protein grain): mix grains with beans.

2. No Dairy: Includes milk, yogurt, cheese, butter, ice cream, cream sauces. Replace with: rice milk, soy milk, almond milk, Amazake, Silken tofu, oat milk. Nothing with "casein" in the ingredients.

3. No caffeine or alcohol: Includes chocolate, coffee, tea, wines, hard liqueur, etc. Replace with: herb teas, grain beverages (postum, cafix, Rajs's cup), lemon water, and green tea.

4. No sugar/artificial sweeteners: Replace with: stevia root, raw manuka honey, molasses, brown rice syrup and pure maple syrup. May use chromium Picolinate (200 mcg.) for sugar cravings.

5. No carbonated drinks: Includes sodas, seltzer. Replace with: spring water, distilled water, filtered water or fresh squeezed organic fruit juice.

6. No bread or wheat: Replace with: spelt bread, sprouted whole grain bread, rice bread, Essene bread. Read the labels.

7. No non-organic produce: Replace with: organic produce, include potatoes (NOT Idaho), squash, sweet potatoes, yams, grains, beans, fruits, vegetables.

8. No fried/processed foods: Replace with: Steamed, sautéed, stir fried, grilled, broiled meals. Oils for cooking: coconut, macadamia, safflower oils. For baking: hazelnut, macadamia nut; For salads: Walnut, flax seed. Extra virgin cold pressed olive oil is OK to add to cooked foods; avoid cooking with the olive oil.

9. No food additives, preservatives, coloring agents, flavorings. MSG, or miso.

Eat primarily during the day; have your large meal between 1 pm - 3 pm: a very light breakfast and a light dinner (grains and any salad with dressing, sea vegetable and/or soup).

ORGANIC MEAL PROGRAM

Quality protein and amino acids 9/10th gr. / kg. of body weight / day

Approximately 40-60 gr./day for women and 50-80 gr./day for males

Suggestion: Begin by getting your protein from grains, legumes and seeds. If needed, protein powder supplements are useful in guaranteeing sufficient amounts. The diet should provide you with 40-50 grams of fiber per day.

Tofu & Tempeh

Grains & Sprouts: Millet, Buckwheat, Brown Rice, Spelt, Rye, Quinoa.

Organic raw vegetables and fruits - all types

Fatty Deep Water Fish: Salmon or Sardines 6-8 oz.

Raw Seeds, Raw Nuts

Tubers: Yams, Potatoes, or Sweet Potatoes

3-4 servings of the Cruciferous vegetables daily:

Broccoli, Cabbage, Cauliflower & Onions. Sea Vegetables.

Drink a minimum of 1 gallon of liquids which include purified water and juice.

1-2 cups green tea daily.

Lemon juices daily - to alkalize the body.

Digestive enzymes for fatigue.

If candida is present - use grapefruit seed extract 5-10 drops in water 3 X / day

Oil of oregano- as directed

Olive leaf extract-as directed

Exercise - Build up gradually to 1 hour/day of aerobic activity. Take your pulse throughout your aerobic work-out to make sure you are neither under nor over exerting yourself. Generally, your target rate is determined by taking 220 and subtracting your age and then multiplying the result by 70 percent. So a 31 year old person would have a rate of 220 minus 31 times 70 percent or 132.

In addition aerobic exercise you must do weight training 3 times per week.

Appendix B:

"There is a growing body of evidence that food and nutritional support are essential for keeping people living with HIV healthy for longer and for improving the effectiveness of treatment"

-Martin Bloem, Head of Nutrition and HIV, The United Nations World Food Programme

"Tens of billions of dollars have been pledged to combat AIDS, yet donor countries have largely overlooked the role of nutrition, somehow ignoring both the scientists and the beneficiaries,"

-Princess Haya Bint Al Hussein, United Nations Messenger of Peace

"Nutritional interventions for those living with HIV are so important to help maintain a strong and healthy body. I would strongly urge anyone who has been diagnosed with HIV to ask their treating doctor or nurse to refer them to a specialist Dietitian."

-Karen Percy, Lead Dietitian in the Multi-disciplinary Team of HIV and Infectious Disease at Chelsea and Westminster Hospital in Australia

Food is medicine in so many ways and with regard to so many medical conditions. For patients living with HIV and AIDS, it quite literally can mean the difference between tolerating medications and maximizing their benefit or suffering debilitating symptoms and a more rapid progression of infection.

-Rebecca Haag, CEO of AIDS Action Committee of Massachusetts and David B Waters, CEO of Community Servings Inc. From the Boston Globe, December, 10, 2012.

<http://www.bostonglobe.com/opinion/2012/12/10/podiumaids/wLybFillREG0yU33BLX33I/story.html>

"Nutritional interventions should be an integral part of all HIV treatment programmes."

-World Health Organization, Geneva. "Nutrient Requirements for People Living with HIV/AIDS Report of a Technical Consultation"

http://www.who.int/nutrition/publications/Content_nutrient_requirements.pdf

"Optimal nutrition is an important adjunct in the clinical care of patients with HIV. Nutritional interventions may improve the quality and span of life and symptom management, support the effectiveness of medications, and improve the patient's resistance to infections and other disease complications by altering immunity."

-Somarriba, G., Neri, D., Schaefer, N., Miller, T.L. "The Effect of Aging, Nutrition, and Exercise during HIV Infection." HIV AIDS (Aukl) 2 (2010): 191-201.

<http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3218696>

“The more diverse and nutrient-rich the diet before starting antiretroviral treatment, the less severe HIV disease progression is, and the less likely death occurs.”

-Rawat R et al. “Poor diet quality is associated with low CD4 count and anemia and predicts mortality among antiretroviral therapy naive HIV-positive adults in Uganda.” Advance online edition J Acquir Immun Defic Syndr. Doi: 10.1097/QAI.0b013e3182797363, 2012.

Also among the individuals calling for nutrition-based protocols is the scientist who actually discovered the AIDS virus, French virologist and Nobel Laureate Dr. Luc Montagnier. In a 1995 interview with Richard A, Passwater, PhD, Dr. Montagnier, stated the following:

I am convinced that oxidative stress is indeed involved in the progression of going from HIV infection to the AIDS stage. I believe, therefore, that antioxidants are necessary in the treatment , but antioxidants are not sufficient by themselves.

I advocate adapting the treatment to the patient. Antioxidants are important, but in order to be effective, they must be rationally used. We must take into account the parameters of each individual. Some may lack selenium, or zinc, or vitamin E, or other nutrients, or any combination. So our treatment must be planned according to these parameters, and thus, our treatment may change from one individual to another. The treatment must be adapted to the individual to restore these parameters that we are measuring back to normal.

We should monitor the markers of oxidative stress such as lipid peroxides which increase when opportunistic infection occurs, as well as the carbonyl content of lymphocyte proteins, cytokines and Tumor Necrosis Factor (TNF). We have laboratory studies showing that the proteins of lymphocytes are very rapidly degraded due to oxidative stress.

These parameters will be evaluated and then patient treatment may include several antioxidants such as NAC, beta carotene, vitamins A, C and E, the enzymes superoxide dismutase (SOD) and catalase, proteins such as metallothionine, plant extracts and other nutrients as indicated.⁷

⁷ Passwater RA. Antioxidant Nutrients and AIDS: Exploring the Possibilities--An interview with Dr. Luc Montagnier, the discoverer of HIV. *Whole Food Magazine*, 1995:50-65

Appendix C:

Topic: Acetyl-L-carnitine

Acetyl L-carnitine has a therapeutic effect in the symptomatic treatment of antiretroviral toxic neuropathy in patients with HIV-1 infection. - GMI Summary

Pubmed Data : HIV Med. 2007 May;8(4):241-50. PMID: 17461852

Article Published Date : May 01, 2007

Authors : M Youle, M Osio,

Study Type : Human Study

Additional Links: Substances : Acetyl-L-carnitine : CK(650) : AC(37)

Diseases : HIV Drug-Induced Toxicity : CK(68) : AC(13), HIV Infections : CK(551) : AC(183), Neuropathic Pain : CK(177) : AC(23)

Pharmacological Actions : Anti-HIV Agents : CK(116) : AC(59)

Acetyl L-carnitine treatment improves symptoms and causes peripheral nerve regeneration in HIV-associated antiretroviral toxic neuropathy. - GMI Summary

Pubmed Data : AIDS. 2004 Jul 23;18(11):1549-60. PMID: 15238773

Article Published Date : Jul 23, 2004

Authors : Andrew M Hart, Andrew D H Wilson, Cristina Montovani, Colette Smith, Margaret Johnson, Giorgio Terenghi, Mike Youle

Study Type : Human Study

Additional Links: Substances : Acetyl-L-carnitine : CK(650) : AC(37)

Diseases : HIV Drug-Induced Toxicity : CK(68) : AC(13), HIV Infections : CK(551) : AC(183), Neuropathic Pain : CK(177) : AC(23)

Pharmacological Actions : Reverse Transcriptase Inhibitors : CK(42) : AC(24)

Acetyl-L-carnitine has a positive long-term effect in the treatment of antiretroviral toxic neuropathy. - GMI Summary

Pubmed Data : HIV Clin Trials. 2005 Nov-Dec;6(6):344-50. PMID: 16566084

Article Published Date : Nov 01, 2005

Authors : Christian Herzmann, Margaret A Johnson, Mike Youle

Study Type : Human Study

Additional Links: Substances : Acetyl-L-carnitine : CK(650) : AC(37)

Diseases : HIV Drug-Induced Toxicity : CK(68) : AC(13), HIV Infections : CK(551) : AC(183), Neuropathic Pain : CK(177) : AC(23)

Pharmacological Actions : Reverse Transcriptase Inhibitors : CK(42) : AC(24)

Acetyl-L-carnitine was effective and well tolerated in symptomatic treatment of painful neuropathy associated with antiretroviral toxicity. - GMI Summary

Pubmed Data : J Peripher Nerv Syst. 2006 Mar;11(1):72-6. PMID: [16519785](#)

Article Published Date : Mar 01, 2006

Authors : Maurizio Osio, Francesco Muscia, Luisa Zampini, Caterina Nascimbene, Enrico Mailland, Antonietta Cargnel, Claudio Mariani

Study Type : Human Study

Additional Links: Substances : [Acetyl-L-carnitine](#) : CK(650) : AC(37)

Diseases : [HIV Drug-Induced Toxicity](#) : CK(68) : AC(13), [HIV Infections](#) : CK(551) : AC(183), [Neuropathic Pain](#) : CK(177) : AC(23)

Topic: Bitter Melon

Bitter melon appears to have therapeutic activity in the treatment of HIV infection.

- GMI Summary

Pubmed Data : AIDS Asia. 1995 Jul-Aug;2(4):6-7. PMID: [12346831](#)

Article Published Date : Jul 01, 1995

Authors : S P Rebutan

Study Type : Human Study

Additional Links: Substances : [Bitter Melon](#) : CK(65) : AC(18)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59)

Bitter melon contains compounds with anti-HIV activity. - GMI Summary

Pubmed Data : Thyroid. 2000 Aug;10(8):659-63. PMID: [7665070](#)

Article Published Date : Aug 01, 2000

Authors : S Lee-Huang, P L Huang, H C Chen, P L Huang, A Bourinbaiar, H I Huang, H F Kung

Study Type : Human Study

Additional Links: Substances : [Bitter Melon](#) : CK(65) : AC(18)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Antiviral Agents](#) : CK(627) : AC(290)

Topic: Curcumin

Curcumin is an effective treatment for HIV-associated diarrhea. - GMI Summary

Pubmed Data : Dig Dis Sci. 2009 Oct;54(10):2188-91. Epub 2008 Dec 3. PMID: [19051018](#)

Article Published Date : Oct 01, 2009

Authors : Chris N Conteas, Abraham M Panossian, Timothy T Tran, Hardeep M Singh

Study Type : Human Study

Additional Links: Substances : [Curcumin](#) : CK(2802) : AC(1470)

Diseases : [Diarrhea](#) : CK(519) : AC(69), [HIV Infections](#) : CK(551) : AC(183)

[Curcumin improves spatial memory impairment induced by human immunodeficiency virus type 1 in rats.](#) - GMI Summary

Pubmed Data : Life Sci. 2009 Jul 3;85(1-2):1-10. Epub 2009 Apr 5. PMID: [19345695](#)

Article Published Date : Jul 03, 2009

Authors : Hongmei Tang, Daxiang Lu, Rui Pan, Xuebin Qin, Huangui Xiong, Jun Dong

Study Type : Animal Study

Additional Links: Substances : [Curcumin](#) : CK(2802) : AC(1470)

Diseases:[HIV-1-associated dementia\(HAD\)](#):CK(2):AC(1),[HIV Infections](#):CK(551):AC(183)

[Curcumin and beta-lapachone inhibit HIV virus replication.](#) - GMI Summary

Pubmed Data : Proc Natl Acad Sci U S A. 1993 Mar 1;90(5):1839-42. PMID: [8446597](#)

Article Published Date : Mar 01, 1993

Authors : C J Li, L J Zhang, B J Dezube, C S Crumpacker, A B Pardee

Study Type : In Vitro Study

Additional Links

Substances : [Curcumin](#) : CK(2802) : AC(1470), [Pau D'Arco](#) : CK(14) : AC(14)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Antiviral Agents](#) : CK(627) : AC(290)

[Curcumin and curcumin-boron complexes exhibit anti-HIV activity.](#) - GMI Summary

Pubmed Data : Bioorg Med Chem. 1993 Dec;1(6):415-22. PMID: [8087563](#)

Article Published Date : Dec 01, 1993

Authors : Z Sui, R Salto, J Li, C Craik, P R Ortiz de Montellano

Study Type : In Vitro Study

Additional Links

Substances : [Boron](#) : CK(3) : AC(3), [Curcumin](#) : CK(2802) : AC(1470)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [HIV Protease Inhibitors](#) : CK(26) : AC(15)

[Curcumin enhances indinavir antiretroviral activity in HIV-1 persistently infected cells.](#) – GMI Summary

Pubmed Data : Arch Virol. 2008;153(3):561-5. Epub 2008 Jan 4. PMID: [18175040](#)

Article Published Date : Jan 01, 2008

Authors : D A Riva, P N Fernández-Larrosa, G L Dolcini, L A Martínez-Peralta, F C Coulombié, S E Mersich

Study Type : In Vitro Study

Additional Links: **Substances** : [Curcumin](#) : CK(2802) : AC(1470)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Antiviral Agents](#) : CK(627) : AC(290), [Enzyme Inhibitors](#) : CK(385) : AC(210)

Additional Keywords : [Drug-Plant-Vitamin Synergies](#) : CK(1011) : AC(275)

[Curcumin exhibits anti-HIV activity.](#) - GMI Summary

Pubmed Data : Res Virol. 1998 Jan-Feb;149(1):43-52. PMID: [9561563](#)

Article Published Date : Jan 01, 1998

Authors : S Barthelemy, L Vergnes, M Moynier, D Guyot, S Labidalle, E Bahraoui

Study Type : In Vitro Study

Additional Links

Substances : [Curcumin](#) : CK(2802) : AC(1470)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Antioxidants](#) : CK(3471) : AC(1278)

[Curcumin inhibits HIV-1 integrase activity.](#) - GMI Summary

Pubmed Data : Biochem Pharmacol. 1995 Apr 18;49(8):1165-70. PMID: [7748198](#)

Article Published Date : Apr 18, 1995

Authors : A Mazumder, K Raghavan, J Weinstein, K W Kohn, Y Pommier

Study Type : In Vitro Study

Additional Links: **Substances** : [Curcumin](#) : CK(2802) : AC(1470)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Antiviral Agents](#) : CK(627) : AC(290)

[Curcumin inhibits ultraviolet light induced HIV gene expression.](#) - GMI Summary

Pubmed Data : Mol Cell Biochem. 2003 Dec;254(1-2):289-97. PMID: [14674708](#)

Article Published Date : Dec 01, 2003

Authors : Mohiuddin M Taher, Guido Lammering, Chad Hershey, Kristoffer Valerie

Study Type : In Vitro Study

Additional Links: **Substances** : [Curcumin](#) : CK(2802) : AC(1470)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Enzyme Inhibitors](#) : CK(385) : AC(210), [NF-kappaB Inhibitor](#) : CK(581) : AC(390)

Curcumin may have inhibitory activity against HIV-1 protease and integrase. –

GMI Summary

Pubmed Data : Am J Clin Nutr. 1995 Mar;61(3):585-9. PMID: [15950462](#)

Article Published Date : Mar 01, 1995

Authors : Opa Vajragupta, Preecha Boonchoong, Garrett M Morris, Arthur J Olson

Study Type : In Vitro Study

Additional Links: Substances : [Curcumin : CK\(2802\) : AC\(1470\)](#)

Diseases : [HIV Infections : CK\(551\) : AC\(183\)](#)

Pharmacological Actions : [Anti-HIV Agents : CK\(116\) : AC\(59\)](#), [Antiviral Agents : CK\(627\) : AC\(290\)](#), [Enzyme Inhibitors : CK\(385\) : AC\(210\)](#), [HIV Protease Inhibitors : CK\(26\) : AC\(15\)](#)

Curcumin may have therapeutic value in HIV infection. - GMI Summary

Pubmed Data : Mol Nutr Food Res. 2010 Feb 19. Epub 2010 Feb 19. PMID: [15383533](#)

Article Published Date : Feb 19, 2010

Authors : Karanam Balasubramanyam, Radhika A Varier, Mohammed Altaf, Venkatesh Swaminathan, Nagadenahalli B Siddappa, Udaykumar Ranga, Tapas K Kundu

Study Type : In Vitro Study

Additional Links: Substances : [Curcumin : CK\(2802\) : AC\(1470\)](#)

Diseases : [HIV Infections : CK\(551\) : AC\(183\)](#)

Pharmacological Actions : [Antiproliferative : CK\(939\) : AC\(711\)](#), [Apoptotic : CK\(1396\) : AC\(1086\)](#), [Enzyme Inhibitors : CK\(385\) : AC\(210\)](#), [Histone deacetylase inhibitor : CK\(25\) : AC\(16\)](#), [Tumor Suppressor Protein p53 Upregulation : CK\(119\) : AC\(96\)](#)

Topic: Fruit: All

A polyphenol and antioxidant rich fruit and vegetable concentrate has therapeutic value in HIV patients due to enhanced proliferation, which could restore disturbances in T-cell

homeostasis. - GMI Summary

Pubmed Data : Eur J Clin Nutr. 2004 Feb;58(2):317-25. PMID: [14749753](#)

Article Published Date : Feb 01, 2004

Authors : P Winkler, S Ellinger, A M Boetzer, B M Arendt, H K Berthold, J K Rockstroh, U Spengler, R Goerlich

Study Type : Human Study

Additional Links

Substances : Fruit: All : CK(1902) : AC(468), Polyphenols : CK(415) : AC(171), Vegetables: All : CK(589) : AC(70)

Diseases : AIDS : CK(610) : AC(9), HIV Infections : CK(551) : AC(183)

Pharmacological Actions : Antioxidants : CK(3471) : AC(1278), Immunomodulatory : CK(514) : AC(144)

Plasma antioxidant capacity can be increased by long-term ingestion of polyphenols from fruit juices or fruit-vegetable-concentrate in HIV-seropositive patients.

- GMI Summary

Pubmed Data : Toxicol In Vitro. 2000 Oct;14(5):405-8. PMID: [11528495](#)

Article Published Date : Oct 01, 2000

Authors : B M Arendt, A M Boetzer, H Lemoch, P Winkler, J K Rockstroh, H K Berthold, U Spengler, R Goerlich

Study Type : Human Study

Additional Links

Substances : Antioxidant formulas : CK(477) : AC(72), Fruit: All : CK(1902) : AC(468), Polyphenols : CK(415) : AC(171), Vegetables: All : CK(589) : AC(70)

Diseases : HIV Infections : CK(551) : AC(183)

Pharmacological Actions : Antioxidants : CK(3471) : AC(1278)

Topic: Neem

Neem has antimalarial and anti-HIV activity. - GMI Summary

Pubmed Data : Toxicol In Vitro. 2009 Mar;23(2):251-8. Epub 2008 Dec 13. PMID: [15138081](#)

Article Published Date : Mar 01, 2009

Authors : I J Udeinya, A U Mbah, C P Chijioke, E N Shu

Study Type : Human Study

Additional Links: Substances : Neem : CK(88) : AC(19)

Diseases : HIV Infections : CK(551) : AC(183), Malaria : CK(56) : AC(25)

Pharmacological Actions:Anti-HIV Agents:CK(116):AC(59),Antimalarials:CK(22):AC(12)

Additional Keywords : Plant Extracts : CK(3263) : AC(1119)

Neem leaf extract safely increases CD4 cell levels in patients with HIV/AIDS.

- GMI Summary

Pubmed Data : Am J Ther. 2007 Jul-Aug;14(4):369-74. PMID: [17667213](#)

Article Published Date : Jul 01, 2007

Authors : A U Mbah, I J Udeinya, E N Shu, C P Chijioke, T Nubila, F Udeinya, Angela Muobuiké, Ancila Mmuobieri, Maria S Obioma

Study Type : Human Study

Additional Links: Substances : [Neem](#) : [CK\(88\)](#) : [AC\(19\)](#)

Diseases : [AIDS](#) : [CK\(610\)](#) : [AC\(9\)](#), [HIV Infections](#) : [CK\(551\)](#) : [AC\(183\)](#)

Topic: Polyphenols

[A polyphenol and antioxidant rich fruit and vegetable concentrate has therapeutic value in HIV patients due to enhanced proliferation, which could restore disturbances in T-cell homeostasis.](#) -

GMI Summary

Pubmed Data : Eur J Clin Nutr. 2004 Feb;58(2):317-25. PMID: [14749753](#)

Article Published Date : Feb 01, 2004

Authors : P Winkler, S Ellinger, A M Boetzer, B M Arendt, H K Berthold, J K Rockstroh, U Spengler, R Goerlich

Study Type : Human Study

Additional Links: Substances : [Fruit: All](#) : [CK\(1902\)](#) : [AC\(468\)](#), [Polyphenols](#) : [CK\(415\)](#) : [AC\(171\)](#), [Vegetables: All](#) : [CK\(589\)](#) : [AC\(70\)](#)

Diseases : [AIDS](#) : [CK\(610\)](#) : [AC\(9\)](#), [HIV Infections](#) : [CK\(551\)](#) : [AC\(183\)](#)

Pharmacological Actions : [Antioxidants](#) : [CK\(3471\)](#) : [AC\(1278\)](#), [Immunomodulatory](#) : [CK\(514\)](#) : [AC\(144\)](#)

[Plasma antioxidant capacity can be increased by long-term ingestion of polyphenols from fruit juices or fruit-vegetable-concentrate in HIV-seropositive patients.](#)

- **GMI Summary**

Pubmed Data : Toxicol In Vitro. 2000 Oct;14(5):405-8. PMID: [11528495](#)

Article Published Date : Oct 01, 2000

Authors : B M Arendt, A M Boetzer, H Lemoch, P Winkler, J K Rockstroh, H K Berthold, U Spengler, R Goerlich

Study Type : Human Study

Additional Links:

Substances : [Antioxidant formulas](#) : [CK\(477\)](#) : [AC\(72\)](#), [Fruit: All](#) : [CK\(1902\)](#) : [AC\(468\)](#), [Polyphenols](#) : [CK\(415\)](#) : [AC\(171\)](#), [Vegetables: All](#) : [CK\(589\)](#) : [AC\(70\)](#)

Diseases : [HIV Infections](#) : [CK\(551\)](#) : [AC\(183\)](#)

Pharmacological Actions : [Antioxidants](#) : [CK\(3471\)](#) : [AC\(1278\)](#)

Topic: Selenium

[HIV-infected patients may have selenium deficiency associated with increased oxidative](#)

stress. - GMI Summary

Pubmed Data : Bull Soc Pathol Exot. 2009 Feb;102(1):11-3. PMID: [19343912](#)

Article Published Date : Feb 01, 2009

Authors : J Djinhi, G Tiahou, G Zirihi, E Lohoues, A Monde, C Camara, E Sess

Study Type : Human Study

Additional Links: Substances : [Selenium](#) : CK(571) : AC(93)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Selenium supplementation suppresses the progression of HIV-1 viral burden and improves CD4 count. - GMI Summary

Pubmed Data : Arch Intern Med. 2007 Jan 22;167(2):148-54. PMID: [17242315](#)

Article Published Date : Jan 22, 2007

Authors : Barry E Hurwitz, Johanna R Klaus, Maria M Llabre, Alex Gonzalez,

Peter J Lawrence, Kevin J Maher, Jeffrey M Greeson, Marianna K Baum, Gail Shor-Posner, Jay S Skyler, Neil Schneiderman

Study Type : Human Study

Additional Links: Substances : [Selenium](#) : CK(571) : AC(93)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Topic: Vegetables: All

A polyphenol and antioxidant rich fruit and vegetable concentrate has therapeutic value in HIV patients due to enhanced proliferation, which could restore disturbances in T-cell

homeostasis. - GMI Summary

Pubmed Data : Eur J Clin Nutr. 2004 Feb;58(2):317-25. PMID: [14749753](#)

Article Published Date : Feb 01, 2004

Authors : P Winkler, S Ellinger, A M Boetzer, B M Arendt, H K Berthold, J K Rockstroh, U Spengler, R Goerlich

Study Type : Human Study

Additional Links: Substances : [Fruit: All](#) : CK(1902) : AC(468), [Polyphenols](#) : CK(415) : AC(171), [Vegetables: All](#) : CK(589) : AC(70)

Diseases : [AIDS](#) : CK(610) : AC(9), [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Antioxidants](#) : CK(3471) : AC(1278), [Immunomodulatory](#) : CK(514) : AC(144)

Plasma antioxidant capacity can be increased by long-term ingestion of polyphenols from fruit juices or fruit-vegetable-concentrate in HIV-seropositive patients. –

GMI Summary

Pubmed Data : Toxicol In Vitro. 2000 Oct;14(5):405-8. PMID: [11528495](#)

Article Published Date : Oct 01, 2000

Authors : B M Arendt, A M Boetzer, H Lemoch, P Winkler, J K Rockstroh, H K Berthold, U Spengler, R Goerlich

Study Type : Human Study

Additional Links

Substances : [Antioxidant formulas](#) : CK(477) : AC(72), [Fruit: All](#) : CK(1902) : AC(468),

[Polyphenols](#) : CK(415) : AC(171), [Vegetables: All](#) : CK(589) : AC(70)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Antioxidants](#) : CK(3471) : AC(1278)

Topic: Cinnamon

[Cinnamomum zeylanicum has therapeutic activity in HIV-associated oral candidiasis.](#) – GMI

Summary

Pubmed Data : Am J Chin Med. 1996;24(2):103-9. PMID: [8874667](#)

Article Published Date : Jan 01, 1996

Authors : J M Quale, D Landman, M M Zaman, S Burney, S S Sathe

Study Type : Human Study

Additional Links: Substances : [Cinnamon](#) : CK(142) : AC(63)

Diseases : [Candida Infection](#) : CK(197) : AC(92), [Candidosis: Oral](#) : CK(20) : AC(2), [Fungal Infection](#) : CK(238) : AC(116), [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Antifungal Agents](#) : CK(170) : AC(108)

Additional Keywords : [Plant Extracts](#) : CK(3263) : AC(1119)

[Cinnamon cassia and Cardiospermum helicacabum have significant anti-HIV activity.](#) – GMI

Summary

Pubmed Data : Indian J Med Res. 2000 Sep;112:73-7. PMID: [11094851](#)

Article Published Date : Sep 01, 2000

Authors : M Premanathan, S Rajendran, T Ramanathan, K Kathiresan, H Nakashima, N Yamamoto

Study Type : In Vitro Study

Additional Links

Substances: [Cardiospermum helicacabum](#): CK(1): AC(1), [Cinnamon](#): CK(142) : AC(63)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59)

Elderberry, green tea and cinnamon extracts rich in certain flavonoid compounds were shown to block HIV-1 entry and infection. - GMI Summary

Pubmed Data : Antivir Chem Chemother. 2009;19(6):243-55. PMID: [19641233](#)

Article Published Date : Jan 01, 2009

Authors : Ryan C Fink, Bill Roschek, Randall S Alberte

Study Type : In Vitro Study

Additional Links: Substances : [Cinnamon](#) : [CK\(142\)](#) : [AC\(63\)](#), [Elderberry](#) : [CK\(84\)](#) : [AC\(10\)](#), [Green Tea](#) : [CK\(931\)](#) : [AC\(279\)](#)

Diseases : [HIV Infections](#) : [CK\(551\)](#) : [AC\(183\)](#)

Pharmacological Actions : [Anti-HIV Agents](#) : [CK\(116\)](#) : [AC\(59\)](#), [HIV Fusion Inhibitors](#) : [CK\(5\)](#) : [AC\(4\)](#)

Topic: Licorice

Licorice contains the compound glycyrrhizin which has significantly inhibits HIV replication in the peripheral blood mononuclear cells from HIV-seropositive patients. - GMI Summary

Pubmed Data : Pathobiology. 2002-2003;70(4):229-36. PMID: [12679601](#)

Article Published Date : Jan 01, 2002

Authors : Hidetaka Sasaki, Miwa Takeji, Makiko Kobayashi, Richard B Pollard, Fujio Suzuki

Study Type : Human Study

Additional Links: Substances : [Licorice](#) : [CK\(254\)](#) : [AC\(79\)](#)

Diseases : [HIV Infections](#) : [CK\(551\)](#) : [AC\(183\)](#)

Additional Keywords : [Plant Extracts](#) : [CK\(3263\)](#) : [AC\(1119\)](#)

Licorice contains the compound glycyrrhizin which inhibits HIV replication. –

GMI Summary

Pubmed Data : Antiviral Res. 1988 Dec 11;10(6):289-98. PMID: [3250333](#)

Article Published Date : Dec 11, 1988

Authors : M Ito, A Sato, K Hirabayashi, F Tanabe, S Shigeta, M Baba, E De Clercq, H Nakashima, N Yamamoto

Study Type : In Vitro Study

Additional Links: Substances : [Licorice](#) : [CK\(254\)](#) : [AC\(79\)](#)

Diseases : [HIV Infections](#) : [CK\(551\)](#) : [AC\(183\)](#)

Pharmacological Actions : [Antiviral Agents](#) : [CK\(627\)](#) : [AC\(290\)](#)

[Licorice contains the compound glycyrrhizin which inhibits infectivity and cytopathic activity of](#)

[HIV. - GMI Summary](#)

Pubmed Data : Antiviral Res. 1987 Mar;7(3):127-37. PMID: [3475037](#)

Article Published Date : Mar 01, 1987

Authors : M Ito, H Nakashima, M Baba, R Pauwels, E De Clercq, S Shigeta,
N Yamamoto

Study Type : In Vitro Study

Additional Links: Substances : [Licorice](#) : [CK\(254\)](#) : [AC\(79\)](#)

Diseases : [HIV Infections](#) : [CK\(551\)](#) : [AC\(183\)](#)

Pharmacological Actions : [Antiviral Agents](#) : [CK\(627\)](#) : [AC\(290\)](#), [HIV Fusion Inhibitors](#) : [CK\(5\)](#) : [AC\(4\)](#)

Topic: Sumac

[Sumac \(Rhus chinensis\) contains compounds with anti-HIV activity - Article 3.](#)

- GMI Summary

Pubmed Data : J Ethnopharmacol. 2006 Apr 21;105(1-2):269-73. Epub 2005 Dec 20. PMID: [16368204](#)

Article Published Date : Apr 21, 2006

Authors : Rui-Rui Wang, Qiong Gu, Liu-Meng Yang, Ji-Jun Chen, Shun-Ying Li,
Yong-Tang Zheng

Study Type : Human Study

Additional Links: Substances : [Sumac](#) : [CK\(37\)](#) : [AC\(16\)](#)

Diseases : [HIV Infections](#) : [CK\(551\)](#) : [AC\(183\)](#)

Pharmacological Actions : [Anti-HIV Agents](#) : [CK\(116\)](#) : [AC\(59\)](#)

Additional Keywords : [Plant Extracts](#) : [CK\(3263\)](#) : [AC\(1119\)](#)

[Sumac \(Rhus chinensis\) contains compounds with anti-HIV activity - Article 2.](#)

- GMI Summary

Pubmed Data : J Ethnopharmacol. 2008 May 8;117(2):249-56. Epub 2008 Feb 9. PMID: [18343612](#)

Article Published Date : May 08, 2008

Authors : Rui-Rui Wang, Qiong Gu, Yun-Hua Wang, Xue-Mei Zhang, Liu-Meng Yang, Jun Zhou,
Ji-Jun Chen, Yong-Tang Zheng

Study Type : In Vitro Study

Additional Links: Substances : [Sumac](#) : [CK\(37\)](#) : [AC\(16\)](#)

Diseases : [HIV Infections](#) : [CK\(551\)](#) : [AC\(183\)](#)

Pharmacological Actions : [Anti-HIV Agents](#) : [CK\(116\)](#) : [AC\(59\)](#)

Additional Keywords : [Plant Extracts](#) : [CK\(3263\)](#) : [AC\(1119\)](#)

[Sumac \(*Rhus chinensis*\) contains compounds with anti-HIV activity.](#) - GMI Summary

Pubmed Data : Planta Med. 2007 Mar;73(3):279-82. Epub 2007 Feb 9. PMID: [17290322](#)

Article Published Date : Mar 01, 2007

Authors : Qiong Gu, Rui-Rui Wang, Xue-Mei Zhang, Yun-Hua Wang, Yong-Tang Zheng, Jun Zhou, Ji-Jun Chen

Study Type : In Vitro Study

Additional Links: Substances : [Sumac](#) : [CK\(37\)](#) : [AC\(16\)](#)

Diseases : [HIV Infections](#) : [CK\(551\)](#) : [AC\(183\)](#)

Pharmacological Actions : [Anti-HIV Agents](#) : [CK\(116\)](#) : [AC\(59\)](#)

Additional Keywords : [Plant Extracts](#) : [CK\(3263\)](#) : [AC\(1119\)](#)

Topic: Humic Acid

[Oxihumante has immunostimulatory properties.](#) - GMI Summary

Pubmed Data : Z Naturforsch C. 2003 Mar-Apr;58(3-4):263-7. PMID: [12710739](#)

Article Published Date : Mar 01, 2003

Authors : Gisela Käthe Jooné, Johan Dekker, Constance Elizabeth Jansen van Rensburg

Study Type : Human Study

Additional Links: Substances : [Humic Acid](#) : [CK\(15\)](#) : [AC\(5\)](#)

Diseases : [HIV Infections](#) : [CK\(551\)](#) : [AC\(183\)](#), [Immune Disorders: Low Immune Function](#) : [CK\(483\)](#) : [AC\(116\)](#)

Pharmacological Actions : [Immunostimulatory](#) : [CK\(141\)](#) : [AC\(32\)](#), [Interleukin-10 downregulation](#) : [CK\(69\)](#) : [AC\(20\)](#), [Interleukin-2 upregulation](#) : [CK\(43\)](#) : [AC\(8\)](#)

[Oxihumate reduces HIV-1 infectivity.](#) - GMI Summary

Pubmed Data : Chemotherapy. 2002 Jul;48(3):138-43. PMID: [12138330](#)

Article Published Date : Jul 01, 2002

Authors : C E J van Rensburg, J Dekker, R Weis, T-L Smith, E Janse van Rensburg, J Schneider

Study Type : In Vitro Study

Additional Links: Substances : [Humic Acid](#) : [CK\(15\)](#) : [AC\(5\)](#)

Diseases : [HIV Infections](#) : [CK\(551\)](#) : [AC\(183\)](#)

Pharmacological Actions : [Anti-HIV Agents](#) : [CK\(116\)](#) : [AC\(59\)](#), [Antiviral Agents](#) : [CK\(627\)](#) : [AC\(290\)](#)

Topic: Lactoferrin

Lactoferrin may inhibit HIV virus infection in children. - GMI Summary

Pubmed Data : Int J Antimicrob Agents. 2007 Mar;29(3):353-5. Epub 2007 Feb 2. PMID: [17276659](#)

Article Published Date : Mar 01, 2007

Authors : Gian Vincenzo Zuccotti, Alessandra Vigano, Manuela Borelli, Marina Saresella, Vania Giacomet, Mario Clerici

Study Type : Human Study

Additional Links: Substances : [Lactoferrin : CK\(118\) : AC\(31\)](#)

Diseases : [HIV Infections : CK\(551\) : AC\(183\)](#)

Lactoferrin from milk contains potent antiviral activity against HIV and cytomegalovirus replication. - GMI Summary

Pubmed Data : J Infect Dis. 1995 Aug;172(2):380-8. PMID: [7622881](#)

Article Published Date : Aug 01, 1995

Authors : M C Harmsen, P J Swart, M P de Béthune, R Pauwels, E De Clercq, T H The, D K Meijer

Study Type : In Vitro Study

Additional Links

Substances : [Breast Milk : CK\(398\) : AC\(45\)](#), [Lactoferrin : CK\(118\) : AC\(31\)](#)

Diseases : [Cytomegalovirus Infections : CK\(85\) : AC\(33\)](#), [HIV Infections : CK\(551\) : AC\(183\)](#)

Pharmacological Actions : [Antiviral Agents : CK\(627\) : AC\(290\)](#)

Topic: Alternanthera pungens

The use of Alternanthera pungens herb tea by HIV-infected patients may lead to significant increase T lymphocytes and decrease in biomarkers of oxidative stress, and might help in the prevention of the opportunist diseases - GMI Summary

Pubmed Data : Ann Biol Clin (Paris). 2009 Sep-Oct;67(5):563-8. PMID: [19789129](#)

Article Published Date : Sep 01, 2009

Authors : Yf Djohan, C Camara, Aa Mondé, G Koffi, G Niamké, L Déré, G Tiahou, P Djessou, D Sess

Study Type : Human Study

Additional Links: Substances : [Alternanthera pungens : CK\(10\) : AC\(1\)](#)

Diseases : [HIV Infections : CK\(551\) : AC\(183\)](#)

Pharmacological Actions : [Antioxidants : CK\(3471\) : AC\(1278\)](#), [Immunomodulatory : CK\(514\) : AC\(144\)](#)

Topic: Antioxidant formulas

[Plasma antioxidant capacity can be increased by long-term ingestion of polyphenols from fruit juices or fruit-vegetable-concentrate in HIV-seropositive patients. –](#)

GMI Summary

Pubmed Data : Toxicol In Vitro. 2000 Oct;14(5):405-8. PMID: [11528495](#)

Article Published Date : Oct 01, 2000

Authors : B M Arendt, A M Boetzer, H Lemoch, P Winkler, J K Rockstroh, H K Berthold, U Spengler, R Goerlich

Study Type : Human Study

Additional Links:

Substances : [Antioxidant formulas](#) : CK(477) : AC(72), [Fruit: All](#) : CK(1902) : AC(468),

[Polyphenols](#) : CK(415) : AC(171), [Vegetables: All](#) : CK(589) : AC(70)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Antioxidants](#) : CK(3471) : AC(1278)

Topic: Ginseng (American)

[American ginseng reduces oxidative stress in patients taking the antiviral medication zidovudine without altering drug pharmacokinetics. - GMI Summary](#)

Pubmed Data : J Clin Pharmacol. 2008 May;48(5):599-609. Epub 2008 Mar 4. PMID: [18319359](#)

Article Published Date : May 01, 2008

Authors : Lawrence S Lee, Stephen D Wise, Clark Chan, Teresa L Parsons, Charles Flexner, Paul S Lietman

Study Type : Human Study

Additional Links

Substances : [Ginseng \(American\)](#) : CK(160) : AC(40), [Ginsenosides](#) : CK(47) : AC(18)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59), [Antioxidants](#) : CK(3471) : AC(1278), [HIV Protease Inhibitors](#) : CK(26) : AC(15)

Additional Keywords : [Drug: Zidovudine](#) : CK(11) : AC(2), [Plant Extracts](#) : CK(3263) : AC(1119)

Topic: Ginseng (Korean)

[Korean ginseng improves treatment outcomes in HIV-infected patients on antiretroviral therapy. - GMI Summary](#)

Pubmed Data : Clin Vaccine Immunol. 2009 Aug;16(8):1127-31. Epub 2009 Jun 17. PMID: [19535541](#)

Article Published Date : Aug 01, 2009

Authors : Heungsup Sung, You-Sun Jung, Young-Keol Cho

Study Type : Human Study

Additional Links: Substances : Ginseng (Korean) : CK(44) : AC(13)

Diseases : HIV Infections : CK(551) : AC(183)

Additional Keywords : Drug-Plant-Vitamin Synergies : CK(1011) : AC(275)

Topic: Ginsenosides

American ginseng reduces oxidative stress in patients taking the antiviral medication zidovudine without altering drug pharmacokinetics. - GMI Summary

Pubmed Data : J Clin Pharmacol. 2008 May;48(5):599-609. Epub 2008 Mar 4. PMID: [18319359](#)

Article Published Date : May 01, 2008

Authors : Lawrence S Lee, Stephen D Wise, Clark Chan, Teresa L Parsons, Charles Flexner, Paul S Lietman

Study Type : Human Study

Additional Links

Substances : Ginseng (American) : CK(160) : AC(40), Ginsenosides : CK(47) : AC(18)

Diseases : HIV Infections : CK(551) : AC(183)

Pharmacological Actions : Anti-HIV Agents : CK(116) : AC(59), Antioxidants : CK(3471) : AC(1278), HIV Protease Inhibitors : CK(26) : AC(15)

Additional Keywords : Drug: Zidovudine : CK(11) : AC(2), Plant Extracts : CK(3263) : AC(1119)

Topic: Glycyrrhiza uralensis

Glycyrrhiza uralensis improves immune function in HIV-infected patients. - GMI Summary

Pubmed Data : Zhongguo Zhong Xi Yi Jie He Za Zhi. 1993 Jun;13(6):340-2, 324. PMID: [8257836](#)

Article Published Date : Jun 01, 1993

Authors : W B Lu

Study Type : Human Study

Additional Links: Substances : Glycyrrhiza uralensis : CK(10) : AC(1)

Diseases : HIV Infections : CK(551) : AC(183)

Pharmacological Actions : Immunomodulatory : CK(514) : AC(144)

Topic: Guduchi

Guduchi (Tinospora cordifolia) has therapeutic activity as an adjunct to HIV/AIDS management. - GMI Summary

Pubmed Data : Indian J Pharmacol. 2008 Jun;40(3):107-10. PMID: [20040936](#)

Article Published Date : Jun 01, 2008

Authors : M V Kalikar, V R Thawani, U K Varadpande, S D Sontakke, R P Singh,
R K Khiyani

Study Type : Human Study

Additional Links: **Substances** : [Guduchi](#) : CK(32) : AC(4)

Diseases : [AIDS](#) : CK(610) : AC(9), [HIV Infections](#) : CK(551) : AC(183)

Additional Keywords : [Drug-Plant-Vitamin Synergies](#) : CK(1011) : AC(275)

Topic: Lemon Juice

[Lemon juice and lemon grass have therapeutic value in the treatment of oral thrush in HIV/AIDS patients.](#) - GMI Summary

Pubmed Data : Phytomedicine. 2009 Mar;16(2-3):118-24. Epub 2008 Dec 23. PMID: [19109001](#)

Article Published Date : Mar 01, 2009

Authors : S C Wright, J E Maree, M Sibanyoni

Study Type : Human Study

Additional Links

Substances : [Lemon Juice](#) : CK(46) : AC(8), [Lemongrass](#) : CK(14) : AC(6)

Diseases : [Candidiosis: Oral](#) : CK(20) : AC(2), [HIV Infections](#) : CK(551) : AC(183), [Thrush](#) : CK(59) : AC(2)

Topic: Lemongrass

[Lemon juice and lemon grass have therapeutic value in the treatment of oral thrush in HIV/AIDS patients.](#) - GMI Summary

Pubmed Data : Phytomedicine. 2009 Mar;16(2-3):118-24. Epub 2008 Dec 23. PMID: [19109001](#)

Article Published Date : Mar 01, 2009

Authors : S C Wright, J E Maree, M Sibanyoni

Study Type : Human Study

Additional Links

Substances : [Lemon Juice](#) : CK(46) : AC(8), [Lemongrass](#) : CK(14) : AC(6)

Diseases : [Candidiosis: Oral](#) : CK(20) : AC(2), [HIV Infections](#) : CK(551) : AC(183), [Thrush](#) : CK(59) : AC(2)

Topic: Omega-3 Fatty Acids

[Omega-3 fatty acids have a therapeutic role to play in HIV-associated hypertriglyceridemia.](#) - GMI Summary

Pubmed Data : Int J STD AIDS. 2009 Aug;20(8):580-1. PMID: [19625595](#)

Article Published Date : Aug 01, 2009

Authors : K Falasca, C Ucciferri, P Mancino, E Pizzigallo, L Calza, J Vecchiet

Study Type : Human Study

Additional Links: Substances : [Omega-3 Fatty Acids](#) : CK(3345) : AC(322)

Diseases: [HIV Infections](#): CK(551) : AC(183), [Triglycerides: Elevated](#): CK(364): AC(67)

Topic: Tea Tree

[Tea tree is an effective therapy for fluconazole-refractory oropharyngeal candidiasis.](#) – GMI

Summary

Pubmed Data : HIV Clin Trials. 2002 Sep-Oct;3(5):379-85. PMID: [12407487](#)

Article Published Date : Sep 01, 2002

Authors : Jose A Vazquez, Ahmad A Zawawi

Study Type : Human Study

Additional Links: Substances : [Tea Tree](#) : CK(108) : AC(24)

Diseases : [AIDS](#) : CK(610) : AC(9), [Candidiasis](#) : CK(197) : AC(92), [Fungal Infection](#) : CK(238) : AC(116), [HIV: Opportunist Infection.](#) : CK(12) : AC(3), [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Antifungal Agents](#) : CK(170) : AC(108)

Additional Keyword : [Superiority of Natural Substances versus Drugs](#):CK(895):AC(172)

Topic: St. Johns Wort

[St. John's wort \(H. perforatum\) inhibits HIV-1 viral infection.](#) - GMI Summary

Pubmed Data : Virol J. 2009;6:101. Epub 2009 Jul 13. PMID: [19594941](#)

Article Published Date : Jan 01, 2009

Authors : Wendy Maury, Jason P Price, Melinda A Brindley, ChoonSeok Oh, Jeffrey D Neighbors, David F Wiemer, Nickolas Wills, Susan Carpenter, Cathy Hauck, Patricia Murphy, Mark P Widrlechner, Kathleen Delate, Ganesh Kumar, George A Kraus, Ludmila Rizshsky, Basil Nikolau

Study Type : In Vitro Study

Additional Links: Substances : [St. Johns Wort](#) : CK(186) : AC(48)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Antiviral Agents](#) : CK(627) : AC(290)

Additional Keywords : [Plant Extracts](#) : CK(3263) : AC(1119)

[St. John's Wort contains a novel protein p27SJ which suppresses the HIV-1 virus.](#)

- GMI Summary

Pubmed Data : Clin Infect Dis. 2008 Sep 15;47(6):804-11. PMID: [18378326](#)

Article Published Date : Sep 15, 2008

Authors : Nune Darbinian, Yuri Popov, Kamel Khalili, Shohreh Amini

Study Type : In Vitro Study

Additional Links: Substances : [St. Johns Wort](#) : CK(186) : AC(48)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

[St. John's Wort suppresses HIV-1 virus. - GMI Summary](#)

Pubmed Data : Gene Ther. 2006 Feb;13(4):288-95. PMID: [16251997](#)

Article Published Date : Feb 01, 2006

Authors : N Darbinian-Sarkissian, A Darbinyan, J Otte, S Radhakrishnan, B E Sawaya, A Arzumanyan, G Chipitsyna, Y Popov, J Rappaport, S Amini, K Khalili

Study Type : In Vitro Study

Additional Links: Substances : [St. Johns Wort](#) : CK(186) : AC(48)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

[St. John's Wort suppresses Sindbis and HIV-1 virus. - GMI Summary](#)

Pubmed Data : Antiviral Res. 1991 Feb;15(2):101-12. PMID: [1650164](#)

Article Published Date : Feb 01, 1991

Authors : J B Hudson, I Lopez-Bazzocchi, G H Towers

Study Type : In Vitro Study

Additional Links: Substances : [St. Johns Wort](#) : CK(186) : AC(48)

Diseases : [HIV Infections](#) : CK(551) : AC(183), [Sindbis virus infections](#) : CK(1) : AC(1)

[St. John's wort inhibits ultraviolet light-induced activation of HIV gene expression in HeLa cells. -](#)

GMI Summary

Pubmed Data : IUBMB Life. 2002 Dec;54(6):357-64. PMID: [12665247](#)

Article Published Date : Dec 01, 2002

Authors : Mohiuddin M Taher, Guido M Lammering, Chad M Hershey, Kristoffer C Valerie

Study Type : In Vitro Study

Additional Links: Substances : [St. Johns Wort](#) : CK(186) : AC(48)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59), [NF-kappaB Inhibitor](#) : CK(581) : AC(390)

[The anti-HIV-1 activity of hypericin \(St. John's wort\) is dependent on activation through visible light. - GMI Summary](#)

Pubmed Data : Antiviral Res. 1993 Feb;20(2):173-8. PMID: [8460933](#)

Article Published Date : Feb 01, 1993

Authors : J B Hudson, L Harris, G H Towers

Study Type : Commentary

Additional Links: Substances : [St. Johns Wort](#) : CK(186) : AC(48)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Therapeutic Actions : [Light Therapy](#) : CK(67) : AC(17)

Pharmacological Actions : [Antiviral Agents](#) : CK(627) : AC(290)

Topic: [Phyllanthus niruri \(Stonebreaker\)](#)

[Phyllanthus niruri \(syn. P. amarus\) inhibits HIV replication in vitro and in vivo.](#) –

GMI Summary

Pubmed Data : Antiviral Res. 2004 Nov;64(2):93-102. PMID: [15498604](#)

Article Published Date : Nov 01, 2004

Authors : Frank Notka, Georg Meier, Ralf Wagner

Study Type : Animal Study

Additional Links: Substances : [Phyllanthus niruri \(Stonebreaker\)](#) : CK(21) : AC(9)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59), [HIV Protease Inhibitors](#) : CK(26) : AC(15)

Additional Keywords : [Plant Extracts](#) : CK(3263) : AC(1119)

[Phyllanthus niruri \(syn. P. amarus\) inhibit wild-type HIV virus and reverse reverse transcriptase inhibitor-resistant variants.](#) - GMI Summary

Pubmed Data : Biol Pharm Bull. 2004 Sep;27(9):1471-5. PMID: [15340243](#)

Article Published Date : Sep 01, 2004

Authors : Maira Huerta-Reyes, Maria Del Carmen Basualdo, Fumiko Abe, Manuel Jimenez-Estrada, Carmen Soler, Ricardo Reyes-Chilpa

Study Type : In Vitro Study

Additional Links: Substances : [Phyllanthus niruri \(Stonebreaker\)](#): CK(21): AC(9)

Diseases: [HIV Infections](#):CK(551):AC(183),[Virus Infections:Drug Resistant](#):CK(1):AC(1)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59), [Reverse Transcriptase Inhibitors](#) : CK(42) : AC(24)

Additional Keywords : [Plant Extracts](#) : CK(3263) : AC(1119)

[Phyllanthus niruri contains the compound niruriside which has anti-HIV activity.](#)

- GMI Summary

Pubmed Data : J Nat Prod. 1996 Feb;59(2):196-9. PMID: [8991954](#)

Article Published Date : Feb 01, 1996

Authors : J Qian-Cutrone, S Huang, J Trimble, H Li, P F Lin, M Alam, S E Klohr,
K F Kadow

Study Type : In Vitro Study

Additional Links: Substances : [Phyllanthus niruri \(Stonebreaker\)](#) : CK(21) : AC(9)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Antiviral Agents](#) : CK(627) : AC(290), [Reverse Transcriptase Inhibitors](#) : CK(42) : AC(24)

Additional Keywords : [Plant Extracts](#) : CK(3263) : AC(1119)

[Phyllanthus niruri inhibits HIV replication.](#) - GMI Summary

Pubmed Data : Indian J Med Sci. 2003 Sep;57(9):387-93. PMID: [14515028](#)

Article Published Date : Sep 01, 2003

Authors : A D Naik, A R Juvekar

Study Type : In Vitro Study

Additional Links: Substances : [Phyllanthus niruri \(Stonebreaker\)](#): CK(21): AC(9)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59)

Additional Keywords : [Plant Extracts](#) : CK(3263) : AC(1119)

[Topic: Schisandra](#)

[Lignans found within Schisandra demonstrate anti-HIV virus activity.](#) - GMI Summary

Pubmed Data : J Nat Prod. 2009 Jun;72(6):1133-41. PMID: [19413342](#)

Article Published Date : Jun 01, 2009

Authors : Xiao-Nian Li, Jian-Xin Pu, Xue Du, Liu-Meng Yang, Hui-Mei An, Chun Lei, Fei He,
Xiao Luo, Yong-Tang Zheng, Yang Lu, Wei-Lie Xiao, Han-Dong Sun

Study Type : In Vitro Study

Additional Links: Substances : [Schisandra](#) : CK(129) : AC(44)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Antiviral Agents](#) : CK(627) : AC(290)

[Schisandra lancifolia contains compounds with anti-HIV-1 activity.](#) - GMI Summary

Pubmed Data : J Nat Prod. 2006 Feb;69(2):277-9. PMID: [16499331](#)

Article Published Date : Feb 01, 2006

Authors : Wei-Lie Xiao, Ren-Rong Tian, Jian-Xin Pu, Xian Li, Li Wu, Yang Lu, Sheng-Hong Li,
Rong-Tao Li, Yong-Tang Zheng, Qi-Tai Zheng, Han-Dong Sun

Study Type : In Vitro Study

Additional Links: **Substances** : [Schisandra](#) : CK(129) : AC(44)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59)

[Schisandra rubiflora contains compounds with anti-HIV-1 activity.](#) - GMI Summary

Pubmed Data : J Nat Prod. 2010 Feb 10. Epub 2010 Feb 10. PMID: [20146529](#)

Article Published Date : Feb 10, 2010

Authors : Wei-Lie Xiao, Shi-Ying Yang, Liu-Meng Yang, Guang-Yu Yang, Rui-Rui Wang, Hai-Bo Zhang, Wei Zhao, Jian-Xin Pu, Yang Lu, Yong-Tang Zheng, Han-Dong Sun

Study Type : In Vitro Study

Additional Links: **Substances** : [Schisandra](#) : CK(129) : AC(44)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Antiviral Agents](#) : CK(627) : AC(290)

[Schisandra sphaerandra contains a compound which inhibits HIV-1 reverse transcriptase.](#) -

GMI Summary

Pubmed Data : J Nat Prod. 1996 May;59(5):525-7. PMID: [8778243](#)

Article Published Date : May 01, 1996

Authors : H D Sun, S X Qiu, L Z Lin, Z Y Wang, Z W Lin, T Pengsuparp, J M Pezzuto, H H Fong, G A Cordell, N R Farnsworth

Study Type : In Vitro Study

Additional Links: **Substances** : [Schisandra](#) : CK(129) : AC(44)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Reverse Transcriptase Inhibitors](#) : CK(42) : AC(24)

Topic: [Calophyllum brasiliense](#)

[Calophyllum brasiliense and Clusia quadrangula exhibit HIV-1 inhibitory activity, in vitro.](#) – GMI Summary

Pubmed Data : Curr Eye Res. 2010 Apr;35(4):335-51. PMID: [15187447](#)

Article Published Date : Apr 01, 2010

Authors : Maira Huerta-Reyes, Maria del Carmen Basualdo, Lucio Lozada, Manuel Jimenez-Estrada, Carmen Soler, Ricardo Reyes-Chilpa

Study Type : In Vitro Study

Additional Links

Substances: [Calophyllum brasiliense: CK\(4\): AC\(4\)](#), [Clusia quadrangula: CK\(1\) : AC\(1\)](#)

Diseases : [HIV Infections : CK\(551\) : AC\(183\)](#)

Pharmacological Actions : [Anti-HIV Agents : CK\(116\) : AC\(59\)](#)

Additional Keywords : [Plant Extracts : CK\(3263\) : AC\(1119\)](#)

[Calophyllum brasiliense leaves contain HIV-1 inhibitory compounds - Article 2. –](#)

GMI Summary

Pubmed Data : [Planta Med. 2002 Jan;68\(1\):86-7. PMID: 11842340](#)

Article Published Date : [Jan 01, 2002](#)

Authors : [H R W Dharmaratne, G T Tan, G P K Marasinghe, J M Pezzuto](#)

Study Type : [In Vitro Study](#)

Additional Links: Substances : [Calophyllum brasiliense : CK\(4\) : AC\(4\)](#)

Diseases : [HIV Infections : CK\(551\) : AC\(183\)](#)

Pharmacological Actions : [Anti-HIV Agents : CK\(116\) : AC\(59\)](#),

[Reverse Transcriptase Inhibitors : CK\(42\) : AC\(24\)](#)

Additional Keywords: [Plant Extracts: CK\(3263\) : AC\(1119\)](#), [Xanthones: CK\(50\) : AC\(29\)](#)

[Calophyllum brasiliense leaves contain HIV-1 inhibitory compounds. - GMI Summary](#)

Pubmed Data : [Biol Pharm Bull. 2004 Sep;27\(9\):1471-5. PMID: 15340243](#)

Article Published Date : [Sep 01, 2004](#)

Authors : [Maira Huerta-Reyes, Maria Del Carmen Basualdo, Fumiko Abe, Manuel Jimenez-Estrada, Carmen Soler, Ricardo Reyes-Chilpa](#)

Study Type : [In Vitro Study](#)

Additional Links: Substances : [Calophyllum brasiliense : CK\(4\) : AC\(4\)](#)

Diseases : [HIV Infections : CK\(551\) : AC\(183\)](#)

Pharmacological Actions : [Anti-HIV Agents : CK\(116\) : AC\(59\)](#), [Reverse Transcriptase Inhibitors : CK\(42\) : AC\(24\)](#)

Additional Keywords : [Plant Extracts : CK\(3263\) : AC\(1119\)](#)

[Calophyllum seed oil contain coumarins with anti-HIV activity. - GMI Summary](#)

Pubmed Data : [Bioorg Med Chem Lett. 1998 Dec 15;8\(24\):3475-8. PMID: 9934455](#)

Article Published Date : [Dec 15, 1998](#)

Authors : [C Spino, M Dodier, S Sotheeswaran](#)

Study Type : [In Vitro Study](#)

Additional Links: Substances : [Calophyllum brasiliense : CK\(4\) : AC\(4\)](#)

Diseases : [HIV Infections : CK\(551\) : AC\(183\)](#)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59), [Reverse Transcriptase Inhibitors](#) : CK(42) : AC(24)

Topic: Flavonoids

[Chrysanthemum morifolium contains a flavonoid with anti-HIV activity.](#) - GMI Summary

Pubmed Data : Planta Med. 2003 Sep;69(9):859-61. PMID: [14598216](#)

Article Published Date : Sep 01, 2003

Authors : Ji Sun Lee, Hyoung Ja Kim, Yong Sup Lee

Study Type : In Vitro Study

Additional Links

Substances: [Chrysanthemum Morifolium](#): CK(4) : AC(3), [Flavonoids](#): CK(885): AC(288)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59)

Additional Keywords : [Plant Extracts](#) : CK(3263) : AC(1119)

[Chrysanthemum morifolium contains anti-HIV activity.](#) - GMI Summary

Pubmed Data : J Nat Prod. 1994 Jan;57(1):42-51. PMID: [8158164](#)

Article Published Date : Jan 01, 1994

Authors : C Q Hu, K Chen, Q Shi, R E Kilkuskie, Y C Cheng, K H Lee

Study Type : In Vitro Study

Additional Links

Substances: [Chrysanthemum Morifolium](#): CK(4) : AC(3), [Flavonoids](#): CK(885): AC(288)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Antiviral Agents](#) : CK(627) : AC(290)

[Ochna integerrima contains a flavonoid with anti-HIV activity.](#) - GMI Summary

Pubmed Data : Planta Med. 2007 Jun;73(7):683-8. Epub 2007 Jun 11. PMID: [17562490](#)

Article Published Date : Jun 01, 2007

Authors : Vichai Reutrakul, Niwat Ningnuek, Manat Pohmakotr, Chalobon Yoosook, Chanita Napaswad, Jitra Kasisit, Thawatchai Santisuk, Patoomratana Tuchinda

Study Type : In Vitro Study

Additional Links

Substances : [Flavonoids](#) : CK(885) : AC(288), [Ochna integerrima](#) : CK(1) : AC(1)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59)

Additional Keywords : [Plant Extracts](#) : CK(3263) : AC(1119)

[Pycnogenol, a procyanidin-rich extract from French maritime pine, inhibits intracellular replication of HIV-1 as well as its binding to host cells. - GMI Summary](#)

Pubmed Data : Jpn J Infect Dis. 2008 Jul;61(4):279-85. PMID: [18653969](#)

Article Published Date : Jul 01, 2008

Authors : Wu Yu Feng, Ritsuko Tanaka, Yoshio Inagaki, Yasunori Saitoh, Myint Oo Chang, Tohti Amet, Norio Yamamoto, Shoji Yamaoka, Yoshiyuki Yoshinaka

Study Type : In Vitro Study

Additional Links: Substances : [Catechin : CK\(408\) : AC\(130\)](#), [Flavonoids : CK\(885\) : AC\(288\)](#), [Pycnogenol : CK\(500\) : AC\(65\)](#)

Diseases : [HIV Infections : CK\(551\) : AC\(183\)](#)

Pharmacological Actions : [Anti-HIV Agents : CK\(116\) : AC\(59\)](#)

Additional Keywords : [Plant Extracts : CK\(3263\) : AC\(1119\)](#), [Proanthocyanidins : CK\(167\) : AC\(45\)](#)

Topic: [Seaweed](#)

[Seaweed \(S. fusiforme\) inhibits HIV-1 fusion and reverse transcriptase. - GMI Summary](#)

Pubmed Data : Virol J. 2008;5:8. Epub 2008 Jan 15. PMID: [18197976](#)

Article Published Date : Jan 01, 2008

Authors : Elena E Paskaleva, Xudong Lin, Karen Duus, James J McSharry, Jean-Claude L Veille, Carol Thornber, Yanze Liu, David Yu-Wei Lee, Mario Canki

Study Type : In Vitro Study

Additional Links: Substances : [Seaweed : CK\(83\) : AC\(16\)](#)

Diseases : [HIV Infections : CK\(551\) : AC\(183\)](#)

Pharmacological Actions : [Enzyme Inhibitors : CK\(385\) : AC\(210\)](#)

[Seaweed \(S. fusiforme\) inhibits HIV-1 infection in T cells, primary human macrophages, microglia, and astrocytes. - GMI Summary](#)

Pubmed Data : AIDS Res Ther. 2006;3:15. Epub 2006 May 25. PMID: [16725040](#)

Article Published Date : Jan 01, 2006

Authors : Elena E Paskaleva, Xudong Lin, Wen Li, Robin Cotter, Michael T Klein, Emily Roberge, Er K Yu, Bruce Clark, Jean-Claude Veille, Yanze Liu, David Y-W Lee, Mario Canki

Study Type : In Vitro Study

Additional Links: Substances : [Seaweed : CK\(83\) : AC\(16\)](#)

Diseases : [HIV Infections : CK\(551\) : AC\(183\)](#)

Pharmacological Actions : [Antiviral Agents : CK\(627\) : AC\(290\)](#)

The seaweed *Dyegenea simplex* C. Agardh exhibits anti-HIV activity. - GMI Summary

Pubmed Data : Chem Pharm Bull (Tokyo). 1995 Sep;43(9):1580-4. PMID: [7586085](#)

Article Published Date : Sep 01, 1995

Authors : H Sekine, N Ohonuki, K Sadamasu, K Monma, Y Kudoh, H Nakamura,
Y Okada, T Okuyama

Study Type : In Vitro Study

Additional Links: **Substances** : [Seaweed](#) : CK(83) : AC(16)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Antiviral Agents](#) : CK(627) : AC(290)

Additional Keywords : [Plant Extracts](#) : CK(3263) : AC(1119)

The seaweed *Monostroma latissimum* contains a polysaccharide which exhibits inhibitory effects against herpes simplex virus type 1 (HSV-1), human cytomegalovirus (HCMV), and human immunodeficiency virus type 1 (HIV-1) in vitro. - GMI Summary

Pubmed Data : Planta Med. 1999 Jun;65(5):439-41. PMID: [10418331](#)

Article Published Date : Jun 01, 1999

Authors : J B Lee, K Hayashi, T Hayashi, U Sankawa, M Maeda

Study Type : In Vitro Study

Additional Links: **Substances** : [Seaweed](#) : CK(83) : AC(16)

Diseases : [Cytomegalovirus Infections](#) : CK(85) : AC(33), [HIV Infections](#) : CK(551) : AC(183),
[HSV-1](#) : CK(59) : AC(48)

Pharmacological Actions : [Antiviral Agents](#) : CK(627) : AC(290)

Additional Keywords : [Drug-Plant-Vitamin Synergies](#) : CK(1011) : AC(275)

Topic: *Cynomorium songaricum*

***Croton tiglium*, *Cynomorium songaricum*, *Xanthoceras sorbifolia*, and oleanolic acid derivatives exhibit anti-HIV activity. - GMI Summary**

Pubmed Data : Yakugaku Zasshi. 2004 Aug;124(8):519-29. PMID: [15297721](#)

Article Published Date : Aug 01, 2004

Authors : Norio Nakamura **Study Type** : Animal Study

Additional Links

Substances : [Croton Tiglium](#) : CK(2) : AC(1), [Cynomorium songaricum](#) : CK(5) : AC(3),
[Oleanolic acid](#) : CK(7) : AC(4), [Xanthoceras sorbifolia](#) : CK(3) : AC(2)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59), [HIV Protease Inhibitors](#) : CK(26)
: AC(15)

Additional Keywords : [Plant Extracts](#) : CK(3263) : AC(1119)

Cynomorium songaricum and related derivatives exhibit inhibitory effects on HIV-1 protease. -

GMI Summary

Pubmed Data : Chem Pharm Bull (Tokyo). 1999 Feb;47(2):141-5. PMID: [10071849](#)

Article Published Date : Feb 01, 1999

Authors : C Ma, N Nakamura, H Miyashiro, M Hattori, K Shimotohno

Study Type : In Vitro Study

Additional Links: n Substances : [Cynomorium songaricum](#) : CK(5) : AC(3)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59), [HIV Protease Inhibitors](#) : CK(26) : AC(15)

Additional Keywords : [Plant Extracts](#) : CK(3263) : AC(1119)

Topic: Green Tea

Black and green tea contain compounds which inhibit HIV-1 entry. - GMI Summary

Pubmed Data : Biochim Biophys Acta. 2005 May 25;1723(1-3):270-81. Epub 2005 Mar 24.

PMID: [15823507](#)

Article Published Date : May 25, 2005

Authors : Shuwen Liu, Hong Lu, Qian Zhao, Yuxian He, Jinkui Niu, Asim K Debnath, Shuguang Wu, Shibo Jiang

Study Type : In Vitro Study

Additional Links: Substances: [Black Tea](#):CK(166):AC(39),[Catechin](#):CK(408):AC(130),

[Green Tea](#) : CK(931) : AC(279)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59)

Elderberry, green tea and cinnamon extracts rich in certain flavonoid compounds were shown to block HIV-1 entry and infection. - GMI Summary

Pubmed Data : Antivir Chem Chemother. 2009;19(6):243-55. PMID: [19641233](#)

Article Published Date : Jan 01, 2009

Authors : Ryan C Fink, Bill Roschek, Randall S Alberte

Study Type : In Vitro Study

Additional Links

Substances : [Cinnamon](#) : CK(142) : AC(63), [Elderberry](#) : CK(84) : AC(10),

[Green Tea](#) : CK(931) : AC(279)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions: [Anti-HIV Agents](#): CK(116) : AC(59),

HIV Fusion Inhibitors : CK(5) : AC(4)

The green tea catechin, EGCG, significantly inhibit HIV-1 infectivity on human T-cells and macrophages in a dose-dependant manner. - GMI Summary

Pubmed Data : J Allergy Clin Immunol. 2009 Feb;123(2):459-65. PMID: [19203663](#)

Article Published Date : Feb 01, 2009

Authors : Christina L Nance, Edward B Siwak, William T Shearer

Study Type : In Vitro Study

Additional Links:

Substances : [EGCG \(Epigallocatechin gallate\)](#) : CK(176) : AC(115),

[Green Tea](#) : CK(931) : AC(279)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Antiviral Agents](#) : CK(627) : AC(290)

Topic: [Oleanolic acid](#)

[Croton tiglium](#), [Cynomorium songaricum](#), [Xanthoceras sorbifolia](#), and oleanolic acid derivatives exhibit anti-HIV activity. - GMI Summary

Pubmed Data : Yakugaku Zasshi. 2004 Aug;124(8):519-29. PMID: [15297721](#)

Article Published Date : Aug 01, 2004

Authors : Norio Nakamura

Study Type : Animal Study

Additional Links

Substances : [Croton Tiglium](#) : CK(2) : AC(1), [Cynomorium songaricum](#) : CK(5) : AC(3),

[Oleanolic acid](#) : CK(7) : AC(4), [Xanthoceras sorbifolia](#) : CK(3) : AC(2)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59), [HIV Protease Inhibitors](#) : CK(26) : AC(15)

Additional Keywords : [Plant Extracts](#) : CK(3263) : AC(1119)

[Oleanolic acid](#) has anti-HIV activity on infected human mononuclear cells, in vitor. –

GMI Summary

Pubmed Data : Planta Med. 2002 Feb;68(2):111-4. PMID: [11859458](#)

Article Published Date : Feb 01, 2002

Authors : Fabio Mengoni, Miriam Lichtner, Lucia Battinelli, Monica Marzi, Claudio Maria Mastroianni, Vincenzo Vullo, Gabriela Mazzanti

Study Type : In Vitro Study

Additional Links: Substances : [Oleanolic acid](#) : CK(7) : AC(4)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59), [Reverse Transcriptase Inhibitors](#) : CK(42) : AC(24)

Topic: Olive leaf extract

Elderberry, Chondroitin, Glucosamine Sulfate and Olive Leaf have been found to block HIV replication. - GMI Summary

Pubmed Data : Posit Health News. 1998 Fall;(No 17):12-4. PMID: [11366542](#)

Article Published Date : Sep 01, 1998

Authors : M Konlee

Study Type : In Vitro Study

Additional Links

Substances : [Chondroitin Sulfate](#) : CK(36) : AC(8), [Elderberry](#) : CK(84) : AC(10), [Glucosamine](#) : CK(116) : AC(21), [Olive leaf extract](#) : CK(116) : AC(23)

Diseases : [Acquired Immunodeficiency Syndrome](#) : CK(26) : AC(14), [HIV Infections](#) : CK(551) : AC(183)

Olive Leaf contains compounds with anti-HIV activity - GMI Summary

Pubmed Data : Biochem Biophys Res Commun. 2007 Mar 23;354(4):872-8. Epub 2007 Jan 24. PMID: [17275783](#)

Article Published Date : Mar 23, 2007

Authors : Sylvia Lee-Huang, Philip Lin Huang, Dawei Zhang, Jae Wook Lee, Ju Bao, Yongtao Sun, Young-Tae Chang, John Zhang, Paul Lee Huang

Study Type : In Vitro Study

Additional Links: Substances : [Hydroxytyrosol](#) : CK(13) : AC(11), [Oleuropein](#) : CK(41) : AC(29), [Olive leaf extract](#) : CK(116) : AC(23)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [HIV Fusion Inhibitors](#) : CK(5) : AC(4)

Olive Leaf extract exhibits anti-HIV activity. - GMI Summary

Pubmed Data : Biochem Biophys Res Commun. 2003 Aug 8;307(4):1029-37. PMID: [12878215](#)

Article Published Date : Aug 08, 2003

Authors : Sylvia Lee-Huang, Li Zhang, Philip Lin Huang, Young-Tae Chang, Paul L Huang

Study Type : In Vitro Study

Additional Links: Substances : [Olive leaf extract](#) : CK(116) : AC(23)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Topic: *Prunella vulgaris*.

[Melissa, Sweet Basil, Perilla, Prunella vulgaris and Savory has anti-HIV-1 activity.](#) –

GMI Summary

Pubmed Data : Zh Mikrobiol Epidemiol Immunobiol. 1986 Jan;(1):62-5. PMID: [9743251](#)

Article Published Date : Jan 01, 1986

Authors : K Yamasaki, M Nakano, T Kawahata, H Mori, T Otake, N Ueba, I Oishi,
R Inami, M Yamane, M Nakamura, H Murata, T Nakanishi

Study Type : In Vitro Study

Additional Links

Substances : [Basil: Sweet](#) : CK(2) : AC(2), [Melissa \(Lemonbalm\)](#) : CK(78) : AC(14), [Perilla](#) :
CK(16) : AC(10), [Prunella vulgaris.](#) : CK(6) : AC(5), [Savory](#) : CK(5) : AC(9)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Reverse Transcriptase Inhibitors](#) : CK(42) : AC(24)

Additional Keywords : [Plant Extracts](#) : CK(3263) : AC(1119)

[Prunella vulgaris inhibits HIV-1 infection.](#) - GMI Summary

Pubmed Data : Virology. 1992 Mar;187(1):56-62. PMID: [1371029](#)

Article Published Date : Mar 01, 1992

Authors : X J Yao, M A Wainberg, M A Parniak

Study Type : In Vitro Study

Additional Links: Substances : [Prunella vulgaris.](#) : CK(6) : AC(5)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

[Tannin from the herbs Prunella vulgaris and Rhizoma cibotte may responsible for anti-HIV activity.](#) - GMI Summary

Pubmed Data : Life Sci. 2002 Aug 30;71(15):1779-91. PMID: [12151056](#)

Article Published Date : Aug 30, 2002

Authors : Shuwen Liu, Shibo Jiang, Zhihua Wu, Lin Lv, Jiajie Zhang, Zhengguang Zhu,
Shuguang Wu

Study Type : In Vitro Study

Additional Links

Substances : [Prunella vulgaris.](#) : CK(6) : AC(5), [Rhizoma cibotte](#) : CK(1) : AC(1)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Antiviral Agents](#) : CK(627) : AC(290)

Additional Keywords : [Plant Extracts](#) : [CK\(3263\)](#) : [AC\(1119\)](#)

Topic: Shiitake Mushroom

[A shiitake/rice bran combination known as MGN-3 has potent anti-HIV activity.](#) –

GMI Summary

Pubmed Data : [Biochem Biophys Res Commun.](#) 1998 Feb 4;243(1):25-9. PMID: [9473473](#)

Article Published Date : Feb 04, 1998

Authors : M Ghoneum

Study Type : In Vitro Study

Additional Links

Substances : [Modified Arabinoxylan Rice Bran \(MGN-3\)](#) : [CK\(2\)](#) : [AC\(2\)](#), [Rice Bran](#) : [CK\(29\)](#) : [AC\(14\)](#), [Shiitake Mushroom](#) : [CK\(72\)](#) : [AC\(17\)](#)

Diseases : [HIV Infections](#) : [CK\(551\)](#) : [AC\(183\)](#)

Pharmacological Actions : [Anti-HIV Agents](#) : [CK\(116\)](#) : [AC\(59\)](#)

[Lentin, a beta-glucan rich protein from shitake mushroom, demonstrates inhibitory effects on activity of HIV-1 reverse transcriptase and proliferation of leukemia cells.](#) - **GMI Summary**

Pubmed Data : [J Med Chem.](#) 2009 Dec 10;52(23):7887-91. PMID: [19526990](#)

Article Published Date : Dec 10, 2009

Authors : Zhao Dang, Weihong Lai, Keduo Qian, Phong Ho, Kuo-Hsiung Lee, Chin-Ho Chen, Li Huang

Study Type : In Vitro Study

Additional Links

Substances : [Beta-glucan](#) : [CK\(223\)](#) : [AC\(41\)](#), [Shiitake Mushroom](#) : [CK\(72\)](#) : [AC\(17\)](#)

Diseases : [HIV Infections](#) : [CK\(551\)](#) : [AC\(183\)](#), [Leukemia](#) : [CK\(691\)](#) : [AC\(270\)](#)

Pharmacological Actions : [Anti-HIV Agents](#) : [CK\(116\)](#) : [AC\(59\)](#), [Antifungal Agents](#) : [CK\(170\)](#) : [AC\(108\)](#)

[Lentin, a novel and potent antifungal protein from shitake mushroom exhibits inhibitory effects on activity of human immunodeficiency virus-1 reverse transcriptase and proliferation of leukemia cells.](#) - **GMI Summary**

Pubmed Data : [Life Sci.](#) 2003 Nov 14;73(26):3363-74. PMID: [14572878](#)

Article Published Date : Nov 14, 2003

Authors : Patrick H K Ngai, T B Ng

Study Type : In Vitro Study

Additional Links: Substances : [Shiitake Mushroom](#) : [CK\(72\)](#) : [AC\(17\)](#)

Diseases : Fungal Infection : CK(238) : AC(116), HIV Infections : CK(551) : AC(183), Leukemia : CK(691) : AC(270)

Pharmacological Actions : Antifungal Agents : CK(170) : AC(108)

Additional Keywords : Plant Extracts : CK(3263) : AC(1119)

Topic: *Xanthoceras sorbifolia*

Croton tiglium, Cynomorium songaricum, Xanthoceras sorbifolia, and oleanolic acid derivatives exhibit anti-HIV activity. - GMI Summary

Pubmed Data : Yakugaku Zasshi. 2004 Aug;124(8):519-29. PMID: 15297721

Article Published Date : Aug 01, 2004

Authors : Norio Nakamura

Study Type : Animal Study

Additional Links:

Substances : Croton Tiglium : CK(2) : AC(1), Cynomorium songaricum : CK(5) : AC(3),

Oleanolic acid : CK(7) : AC(4), Xanthoceras sorbifolia : CK(3) : AC(2)

Diseases : HIV Infections : CK(551) : AC(183)

Pharmacological Actions : Anti-HIV Agents : CK(116) : AC(59), HIV Protease Inhibitors : CK(26) : AC(15)

Additional Keywords : Plant Extracts : CK(3263) : AC(1119)

Xanthoceras sorbifolia contains compounds with inhibitory effects on HIV-1 protease. – GMI Summary

Pubmed Data : J Nat Prod. 2000 Feb;63(2):238-42. PMID: 10691716

Article Published Date : Feb 01, 2000

Authors : C Ma, N Nakamura, M Hattori, H Kakuda, J Qiao, H Yu

Study Type : In Vitro Study

Additional Links: **Substances** : Xanthoceras sorbifolia : CK(3) : AC(2)

Diseases : HIV Infections : CK(551) : AC(183)

Pharmacological Actions : HIV Protease Inhibitors : CK(26) : AC(15)

Topic: *Ailanthus altissima*

Ailanthus inhibits HIV-1 fusion. - GMI Summary

Pubmed Data : Phytother Res. 2003 Apr;17(4):426-9. PMID: 12722157

Article Published Date : Apr 01, 2003 **Authors** : Young-Su Chang, Eun-Rhan Woo

Study Type : Animal Study

Additional Links: **Substances** : Ailanthus altissima : CK(2) : AC(1)

Diseases : HIV Infections : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents : CK\(116\) : AC\(59\)](#), [HIV Fusion Inhibitors : CK\(5\) : AC\(4\)](#)

Additional Keywords : [Plant Extracts : CK\(3263\) : AC\(1119\)](#)

Topic: Banana

Banana contains a lectin with immunomodulatory activity capable of inhibiting HIV virus and acting as an antitumor agent. - GMI Summary

Pubmed Data : [Phytomedicine. 2009 Jun;16\(6-7\):594-600. Epub 2009 Feb 4. PMID: 19195858](#)

Article Published Date : Jun 01, 2009

Authors : Allen H K Cheung, Jack H Wong, T B Ng

Study Type : In Vitro Study

Additional Links: Substances : [Banana : CK\(111\) : AC\(29\)](#)

Diseases : [HIV Infections : CK\(551\) : AC\(183\)](#), [Tumors : CK\(179\) : AC\(107\)](#)

Banana lectin is a potent inhibitor of HIV replication. - GMI Summary

Pubmed Data : [J Biol Chem. 2010 Mar 19;285\(12\):8646-55. Epub 2010 Jan 15. PMID: 20080975](#) **Article Published Date :** Mar 19, 2010

Authors : Michael D Swanson, Harry C Winter, Irwin J Goldstein, David M Markovitz

Study Type : In Vitro Study

Additional Links: Substances : [Banana : CK\(111\) : AC\(29\)](#)

Diseases : [HIV Infections : CK\(551\) : AC\(183\)](#)

Pharmacological Actions : [Anti-HIV Agents : CK\(116\) : AC\(59\)](#), [Antiviral Agents : CK\(627\) : AC\(290\)](#)

Additional Keywords : [Lectins : CK\(61\) : AC\(37\)](#), [Plant Extracts : CK\(3263\) : AC\(1119\)](#)

Topic: Beta-glucan

Beta-glucan derived from oatbran has potent activity against HIV-1 cells. –

GMI Summary

Pubmed Data : [Planta Med. 2002 May;68\(5\):397-401. PMID: 18376844](#)

Article Published Date : May 01, 2002

Authors : Shun Chun Wang, S W Annie Bligh, Chang Lian Zhu, Song Shan Shi, Zheng Tao Wang, Zhi Bi Hu, John Crowder, Christopher Branford-White, Cheryl Vella

Study Type : In Vitro Study

Additional Links

Substances : [Beta-glucan : CK\(223\) : AC\(41\)](#), [Oat Bran : CK\(55\) : AC\(8\)](#)

Diseases: [HIV Infections: CK\(551\): AC\(183\)](#), [HIV Infections: Transmission: CK\(3\):AC\(3\)](#)

Pharmacological Actions : [Antiviral Agents : CK\(627\) : AC\(290\)](#)

[Lentin, a beta-glucan rich protein from shitake mushroom, demonstrates inhibitory effects on activity of HIV-1 reverse transcriptase and proliferation of leukemia cells. - GMI Summary](#)

Pubmed Data : J Med Chem. 2009 Dec 10;52(23):7887-91. PMID: [19526990](#)

Article Published Date : Dec 10, 2009

Authors : Zhao Dang, Weihong Lai, Keduo Qian, Phong Ho, Kuo-Hsiung Lee, Chin-Ho Chen, Li Huang

Study Type : In Vitro Study

Additional Links

Substances : [Beta-glucan](#) : CK(223) : AC(41), [Shiitake Mushroom](#) : CK(72) : AC(17)

Diseases : [HIV Infections](#) : CK(551) : AC(183), [Leukemia](#) : CK(691) : AC(270)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59), [Antifungal Agents](#) : CK(170) : AC(108)

Topic: [Betulinic acid](#)

[Betulinic acid appears to be the predominant anti-HIV-1 constituent of Peltophorum africanum. - GMI Summary](#)

Pubmed Data : Tohoku J Exp Med. 2009 Feb;217(2):93-9. PMID: [19212101](#)

Article Published Date : Feb 01, 2009

Authors : Andros Theo, Tracy Masebe, Yasuhiro Suzuki, Haruhisa Kikuchi, Shoko Wada, Chikwelu Larry Obi, Pascal Obong Bessong, Motoki Usuzawa, Yoshiteru Oshima, Toshio Hattori

Study Type : In Vitro Study

Additional Links

Substances : [Betulinic acid](#) : CK(6) : AC(6), [Peltophorum africanum](#) : CK(1) : AC(1)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59)

Additional Keywords : [Plant Extracts](#) : CK(3263) : AC(1119)

[Betulinic acid has therapeutic potential in the prevention and treatment of cancer and HIV infection. - GMI Summary](#)

Pubmed Data : Med Res Rev. 2004 Jan;24(1):90-114. PMID: [14595673](#)

Article Published Date : Jan 01, 2004

Authors : Robert H Cichewicz, Samir A Kouzi

Study Type : Commentary

Additional Links: Substances : [Betulinic acid](#) : CK(6) : AC(6)

Diseases : [Cancers: All](#) : CK(7702) : AC(2551), [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59), [Apoptotic](#) : CK(1396) : AC(1086)
Additional Keywords : [Selective Cytotoxicity](#) : CK(41) : AC(36)

Topic: Catechin

Black and green tea contain compounds which inhibit HIV-1 entry. - GMI Summary

Pubmed Data : Biochim Biophys Acta. 2005 May 25;1723(1-3):270-81. Epub 2005 Mar 24.

PMID: [15823507](#)

Article Published Date : May 25, 2005

Authors : Shuwen Liu, Hong Lu, Qian Zhao, Yuxian He, Jinkui Niu, Asim K Debnath, Shuguang Wu, Shibo Jiang

Study Type : In Vitro Study

Additional Links: Substances : [Black Tea](#) : CK(166) : AC(39), [Catechin](#) : CK(408) : AC(130),
[Green Tea](#) : CK(931) : AC(279)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59)

Pycnogenol, a procyanidin-rich extract from French maritime pine, inhibits intracellular replication of HIV-1 as well as its binding to host cells. - GMI Summary

Pubmed Data : Jpn J Infect Dis. 2008 Jul;61(4):279-85. PMID: [18653969](#)

Article Published Date : Jul 01, 2008

Authors : Wu Yu Feng, Ritsuko Tanaka, Yoshio Inagaki, Yasunori Saitoh, Myint Oo Chang, Tohti Amet, Norio Yamamoto, Shoji Yamaoka, Yoshiyuki Yoshinaka

Study Type : In Vitro Study

Additional Links

Substances : [Catechin](#) : CK(408) : AC(130), [Flavonoids](#) : CK(885) : AC(288), [Pycnogenol](#) : CK(500) : AC(65)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59)

Additional Keywords : [Plant Extracts](#) : CK(3263) : AC(1119), [Proanthocyanidins](#) : CK(167) : AC(45)

Topic: Chondroitin Sulfate

Chondroitin sulfate and glucosamine sulfate are potent inhibitors of HIV. – GMI Summary

Pubmed Data : Posit Health News. 1998 Fall;(No 17):4-7. PMID: [11366556](#)

Article Published Date : Sep 01, 1998

Authors : M Konlee

Study Type : Commentary

Additional Links

Substances : [Chondroitin Sulfate](#) : CK(36) : AC(8), [Glucosamine](#) : CK(116) : AC(21)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Elderberry, Chondroitin, Glucosamine Sulfate and Olive Leaf have been found to block HIV replication. - GMI Summary

Pubmed Data : Posit Health News. 1998 Fall;(No 17):12-4. PMID: 11366542

Article Published Date : Sep 01, 1998

Authors : M Konlee

Study Type : In Vitro Study

Additional Links

Substances : [Chondroitin Sulfate](#) : CK(36) : AC(8), [Elderberry](#) : CK(84) : AC(10), [Glucosamine](#) : CK(116) : AC(21), [Olive leaf extract](#) : CK(116) : AC(23)

Diseases : [Acquired Immunodeficiency Syndrome](#) : CK(26) : AC(14), [HIV Infections](#) : CK(551) : AC(183)

Topic: Chrysanthemum Morifolium

Chrysanthemum morifolium contains a flavonoid with anti-HIV activity. - GMI Summary

Pubmed Data : Planta Med. 2003 Sep;69(9):859-61. PMID: 14598216

Article Published Date : Sep 01, 2003

Authors : Ji Sun Lee, Hyoung Ja Kim, Yong Sup Lee

Study Type : In Vitro Study

Additional Links

Substances: [Chrysanthemum Morifolium](#): CK(4): AC(3), [Flavonoids](#): CK(885): AC(288)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59)

Additional Keywords : [Plant Extracts](#) : CK(3263) : AC(1119)

Chrysanthemum morifolium contains anti-HIV activity. - GMI Summary

Pubmed Data : J Nat Prod. 1994 Jan;57(1):42-51. PMID: 8158164

Article Published Date : Jan 01, 1994

Authors : C Q Hu, K Chen, Q Shi, R E Kilkuskie, Y C Cheng, K H Lee

Study Type : In Vitro Study

Additional Links

Substances: [Chrysanthemum Morifolium](#): CK(4): AC(3), [Flavonoids](#): CK(885): AC(288)

Diseases: [HIV Infections](#): CK(551) : AC(183)

Pharmacological Actions : [Antiviral Agents](#) : CK(627) : AC(290)

Topic: Croton Tiglium

[Croton tiglium, Cynomorium songaricum, Xanthoceras sorbifolia, and oleanolic acid derivatives exhibit anti-HIV activity.](#) - GMI Summary

Pubmed Data : Yakugaku Zasshi. 2004 Aug;124(8):519-29. PMID: [15297721](#)

Article Published Date : Aug 01, 2004

Authors : Norio Nakamura

Study Type : Animal Study

Additional Links

Substances : [Croton Tiglium](#) : CK(2) : AC(1), [Cynomorium songaricum](#) : CK(5) : AC(3), [Oleanolic acid](#) : CK(7) : AC(4), [Xanthoceras sorbifolia](#) : CK(3) : AC(2)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59), [HIV Protease Inhibitors](#) : CK(26) : AC(15)

Additional Keywords : [Plant Extracts](#) : CK(3263) : AC(1119)

Topic: Elderberry

[Elderberry, Chondroitin, Glucosamine Sulfate and Olive Leaf have been found to block HIV replication.](#) - GMI Summary

Pubmed Data : Posit Health News. 1998 Fall;(No 17):12-4. PMID: [11366542](#)

Article Published Date : Sep 01, 1998

Authors : M Konlee

Study Type : In Vitro Study

Additional Links

Substances : [Chondroitin Sulfate](#) : CK(36) : AC(8), [Elderberry](#) : CK(84) : AC(10), [Glucosamine](#) : CK(116) : AC(21), [Olive leaf extract](#) : CK(116) : AC(23)

Diseases : [Acquired Immunodeficiency Syndrome](#) : CK(26) : AC(14), [HIV Infections](#) : CK(551) : AC(183)

[Elderberry, green tea and cinnamon extracts rich in certain flavonoid compounds were shown to block HIV-1 entry and infection.](#) - GMI Summary

Pubmed Data : Antivir Chem Chemother. 2009;19(6):243-55. PMID: [19641233](#)

Article Published Date : Jan 01, 2009

Authors : Ryan C Fink, Bill Roschek, Randall S Alberte

Study Type : In Vitro Study

Additional Links

Substances : [Cinnamon](#) : CK(142) : AC(63), [Elderberry](#) : CK(84) : AC(10), [Green Tea](#) : CK(931) : AC(279)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59), [HIV Fusion Inhibitors](#) : CK(5) : AC(4)

Topic: [Fulvic Acid](#)

[Fulvic acid \(Secomet-V\) has antiviral activity against HIV, pox virus, and SARS.](#) –

GMI Summary

Pubmed Data : [Ann N Y Acad Sci.](#) 2005 Nov;1056:293-302. PMID: [16387696](#)

Article Published Date : Nov 01, 2005

Authors : [Girish J Kotwal](#), [Jennifer N Kaczmarek](#), [Steven Leivers](#), [Yohannes T Ghebremariam](#), [Amod P Kulkarni](#), [Gabriele Bauer](#), [Corena De Beer](#), [Wolfgang Preiser](#), [Abdu Rahman Mohamed](#)

Study Type : In Vitro Study

Additional Links

Substances : [Fulvic Acid](#) : CK(2) : AC(2)

Diseases : [HIV Infections](#) : CK(551) : AC(183), [Pox Virus](#) : CK(1) : AC(1), [SARS](#) : CK(13) : AC(11)

Pharmacological Actions : [Antiviral Agents](#) : CK(627) : AC(290)

[Pomegranate and fulvic acid may have therapeutic value in a wide range of viruses.](#) – GMI Summary

Pubmed Data : [Vaccine.](#) 2008 Jun 6;26(24):3055-8. Epub 2007 Dec 26. PMID: [18241960](#)

Article Published Date : Jun 06, 2008

Authors : [Girish J Kotwal](#)

Study Type : Commentary

Additional Links

Substances : [Fulvic Acid](#) : CK(2) : AC(2), [Pomegranate](#) : CK(120) : AC(56)

Diseases : [Avian Influenza](#) : CK(23) : AC(11), [Enveloped Viruses](#) : CK(2) : AC(2), [Hepatitis B](#) : CK(214) : AC(37), [HIV Infections](#) : CK(551) : AC(183), [SARS](#) : CK(13) : AC(11), [Vaccinia virus](#) : CK(22) : AC(4)

Pharmacological Actions : [Antiviral Agents](#) : CK(627) : AC(290)

Topic: [Garcinia hanburyi](#)

[Garcinia hanburyi contains compounds which exhibit anti-HIV-1 and anti-inflammatory activity.](#) -

GMI Summary

Pubmed Data : [Planta Med.](#) 2009 Oct 14. Epub 2009 Oct 14. PMID: [19830655](#)

Article Published Date : Oct 14, 2009

Authors : Vichai Reutrakul, Natthinee Anantachoke, Manat Pohmakotr,
Thaworn Jaipetch, Chalobon Yoosook, Jittra Kasisit, Chanita Napaswa, Ampai Panthong,
Thawatchai Santisuk, Samran Prabpai, Palangpon Kongsaree,
Patoomratana Tuchinda

Study Type : In Vitro Study

Additional Links

Substances : [Garcinia hanburyi](#) : CK(2) : AC(2)

Diseases : [HIV Infections](#) : CK(551) : AC(183), [Inflammation](#) : CK(975) : AC(341)

Pharmacological Actions : [Anti-Inflammatory Agents](#) : CK(1117) : AC(412),

[Antiviral Agents](#) : CK(627) : AC(290)

The resin and fruit of *Garcinia hanburyi* contain compounds with anti-HIV activity.

- GMI Summary

Pubmed Data : Planta Med. 2007 Jan;73(1):33-40. Epub 2006 Nov 21. PMID: [17117343](#)

Article Published Date : Jan 01, 2007

Authors : Vichai Reutrakul, Natthinee Anantachoke, Manat Pohmakotr,
Thaworn Jaipetch, Samaisukh Sophasan, Chalobon Yoosook, Jittra Kasisit,
Chanita Napaswat, Thawatchai Santisuk, Patoomratana Tuchinda

Study Type : In Vitro Study

Additional Links

Substances : [Garcinia hanburyi](#) : CK(2) : AC(2)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59)

Additional Keywords: [Plant Extracts](#): CK(3263): AC(1119), [Xanthones](#): CK(50) : AC(29)

Topic: Garlic

Ajoene, a component of garlic, suppresses HIV-1 replication through blockade of integrin-dependent processes. - GMI Summary

Pubmed Data : Vestn Ross Akad Med Nauk. 1992(11-12):6-10. PMID: [1284227](#)

Article Published Date : Jan 01, 1992

Authors : A V Tatarintsev, P V Vrzhets, D E Ershov, A A Shchegolev, A S Turgiev,
E V Karamov, G V Kornilaeva, T V Makarova, N A Fedorov, S D Varfolomeev

Study Type : In Vitro Study

Additional Links

Substances : [Garlic](#) : CK(487) : AC(156)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Antiviral Agents](#) : CK(627) : AC(290),

[HIV-1 Integrase Inhibitor](#) : CK(3) : AC(3)

Additional Keywords : [Plant Extracts](#) : CK(3263) : AC(1119)

[Ajoene, a component of garlic, suppresses HIV-1 replication.](#) - GMI Summary

Pubmed Data : Biomed Pharmacother. 1997;51(9):397-403. PMID: [9452790](#)

Article Published Date : Jan 01, 1997

Authors : R Walder, Z Kalvatchev, D Garzaro, M Barrios, R Apitz-Castro

Study Type : In Vitro Study

Additional Links

Substances : [Garlic](#) : CK(487) : AC(156)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Antiviral Agents](#) : CK(627) : AC(290)

Additional Keywords : [Plant Extracts](#) : CK(3263) : AC(1119)

Topic: [Geum japonicum](#)

[Geum japonicum contains a compound with anti-HIV activity.](#) - GMI Summary

Pubmed Data : Chem Pharm Bull (Tokyo). 2000 Sep;48(9):1367-9. PMID: [10993241](#)

Article Published Date : Sep 01, 2000

Authors : H X Xu, D S Ming, H Dong, P P But

Study Type : In Vitro Study

Additional Links

Substances : [Geum japonicum](#) : CK(11) : AC(8)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59), [HIV Protease Inhibitors](#) : CK(26) : AC(15)

[Geum japonicum contains compounds which exhibit potent anti-HIV protease activity.](#)

- GMI Summary

Pubmed Data : J Nat Prod. 1996 Jul;59(7):643-5. PMID: [8759159](#)

Article Published Date : Jul 01, 1996

Authors : H X Xu, F Q Zeng, M Wan, K Y Sim

Study Type : In Vitro Study

Additional Links

Substances : [Geum japonicum](#) : CK(11) : AC(8)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Antiviral Agents](#) : CK(627) : AC(290)

Topic: Ginger

[Various extracts of ginger inhibit Cytomegalovirus, HSV-1, and HIV virus. –](#)

GMI Summary

Pubmed Data : Pharmazie. 2006 Aug;61(8):717-21. PMID: [16964717](#)

Article Published Date : Aug 01, 2006

Authors : K Sookkongwaree, M Geitmann, S Roengsumran, A Petsom, U H Danielson

Study Type : Animal Study

Additional Links

Substances : [Ginger](#) : CK(259) : AC(78)

Diseases : [Cytomegalovirus Infections](#) : CK(85) : AC(33), [HIV Infections](#) : CK(551) : AC(183),
[HSV-1](#) : CK(59) : AC(48)

Pharmacological Actions : [Antiviral Agents](#) : CK(627) : AC(290)

Additional Keywords : [Plant Extracts](#) : CK(3263) : AC(1119)

Topic: Glucosamine

[Chondroitin sulfate and glucosamine sulfate are potent inhibitors of HIV. –](#)

GMI Summary

Pubmed Data : Posit Health News. 1998 Fall;(No 17):4-7. PMID: [11366556](#)

Article Published Date : Sep 01, 1998

Authors : M Konlee

Study Type : Commentary

Additional Links

Substances : [Chondroitin Sulfate](#) : CK(36) : AC(8), [Glucosamine](#) : CK(116) : AC(21)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

[Elderberry, Chondroitin, Glucosamine Sulfate and Olive Leaf have been found to block HIV replication. - GMI Summary](#)

Pubmed Data : Posit Health News. 1998 Fall;(No 17):12-4. PMID: [11366542](#)

Article Published Date : Sep 01, 1998

Authors : M Konlee

Study Type : In Vitro Study

Additional Links

Substances : [Chondroitin Sulfate](#) : CK(36) : AC(8), [Elderberry](#) : CK(84) : AC(10), [Glucosamine](#) :
[CK\(116\)](#) : AC(21), [Olive leaf extract](#) : CK(116) : AC(23)

Diseases : [Acquired Immunodeficiency Syndrome](#) : CK(26) : AC(14), [HIV Infections](#) : CK(551) : AC(183)

Topic: [Hydroxytyrosol](#)

[Oleuropein and hydroxytyrosol inhibit HIV-1 integrase activities.](#) - GMI Summary

Pubmed Data : [Biochem Biophys Res Commun.](#) 2007 Mar 23;354(4):879-84. Epub 2007 Jan 22. PMID: [17261269](#)

Article Published Date : Mar 23, 2007

Authors : Sylvia Lee-Huang, Philip Lin Huang, Dawei Zhang, Jae Wook Lee, Ju Bao, Yongtao Sun, Young-Tae Chang, John Zhang, Paul Lee Huang

Study Type : In Vitro Study

Additional Links

Substances : [Hydroxytyrosol](#) : CK(13) : AC(11), [Oleuropein](#) : CK(41) : AC(29)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Antiviral Agents](#) : CK(627) : AC(290), [HIV-1 Integrase Inhibitor](#) : CK(3) : AC(3)

[Olive Leaf contains compounds with anti-HIV activity](#) - GMI Summary

Pubmed Data : [Biochem Biophys Res Commun.](#) 2007 Mar 23;354(4):872-8. Epub 2007 Jan 24. PMID: [17275783](#)

Article Published Date : Mar 23, 2007

Authors : Sylvia Lee-Huang, Philip Lin Huang, Dawei Zhang, Jae Wook Lee, Ju Bao, Yongtao Sun, Young-Tae Chang, John Zhang, Paul Lee Huang

Study Type : In Vitro Study

Additional Links

Substances : [Hydroxytyrosol](#) : CK(13) : AC(11), [Oleuropein](#) : CK(41) : AC(29),

[Olive leaf extract](#) : CK(116) : AC(23)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [HIV Fusion Inhibitors](#) : CK(5) : AC(4)

Topic: [Hyssop](#)

[Hyssop and Dittrichia viscosa have anti-HIV-1 activity.](#) - GMI Summary

Pubmed Data : [Phytother Res.](#) 2002 Sep;16(6):550-4. PMID: [12237813](#)

Article Published Date : Sep 01, 2002

Authors : L M Bedoya, S Sanchez Palomino, M J Abad, P Bermejo, J Alcami

Study Type : In Vitro Study

Additional Links

Substances : [Dittrichia viscosa](#) : CK(1) : AC(1), [Hyssop](#) : CK(2) : AC(2)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59)

Additional Keywords : [Plant Extracts](#) : CK(3263) : AC(1119)

[Hyssop officinalis contains a polysaccharide with strong activity against HIV-1.](#) –

GMI Summary

Pubmed Data : Biochem Biophys Res Commun. 1995 May 5;210(1):145-51. PMID: [7741735](#)

Article Published Date : May 05, 1995

Authors : S Gollapudi, H A Sharma, S Aggarwal, L D Byers, H E Ensley, S Gupta

Study Type : In Vitro Study

Additional Links

Substances : [Hyssop](#) : CK(2) : AC(2)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Antiviral Agents](#) : CK(627) : AC(290)

Topic: [Oleuropein](#)

[Oleuropein and hydroxytyrosol inhibit HIV-1 integrase activities.](#) - GMI Summary

Pubmed Data : Biochem Biophys Res Commun. 2007 Mar 23;354(4):879-84.

Epub 2007 Jan 22. PMID: [17261269](#)

Article Published Date : Mar 23, 2007

Authors : Sylvia Lee-Huang, Philip Lin Huang, Dawei Zhang, Jae Wook Lee, Ju Bao, Yongtao Sun, Young-Tae Chang, John Zhang, Paul Lee Huang

Study Type : In Vitro Study

Additional Links

Substances : [Hydroxytyrosol](#) : CK(13) : AC(11), [Oleuropein](#) : CK(41) : AC(29)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Antiviral Agents](#) : CK(627) : AC(290),

[HIV-1 Integrase Inhibitor](#) : CK(3) : AC(3)

[Olive Leaf contains compounds with anti-HIV activity](#) - GMI Summary

Pubmed Data : Biochem Biophys Res Commun. 2007 Mar 23;354(4):872-8. Epub 2007 Jan 24.

PMID: [17275783](#)

Article Published Date : Mar 23, 2007

Authors : Sylvia Lee-Huang, Philip Lin Huang, Dawei Zhang, Jae Wook Lee, Ju Bao, Yongtao Sun, Young-Tae Chang, John Zhang, Paul Lee Huang

Study Type : In Vitro Study

Additional Links

Substances : [Hydroxytyrosol : CK\(13\) : AC\(11\)](#), [Oleuropein : CK\(41\) : AC\(29\)](#), [Olive leaf extract : CK\(116\) : AC\(23\)](#)

Diseases : [HIV Infections : CK\(551\) : AC\(183\)](#)

Pharmacological Actions : [HIV Fusion Inhibitors : CK\(5\) : AC\(4\)](#)

Topic: Pomegranate

[Pomegranate and fulvic acid may have therapeutic value in a wide range of viruses.](#) – GMI

Summary

Pubmed Data : Vaccine. 2008 Jun 6;26(24):3055-8. Epub 2007 Dec 26. PMID: [18241960](#)

Article Published Date : Jun 06, 2008

Authors : Girish J Kotwal

Study Type : Commentary

Additional Links

Substances : [Fulvic Acid : CK\(2\) : AC\(2\)](#), [Pomegranate : CK\(120\) : AC\(56\)](#)

Diseases : [Avian Influenza : CK\(23\) : AC\(11\)](#), [Enveloped Viruses : CK\(2\) : AC\(2\)](#), [Hepatitis B : CK\(214\) : AC\(37\)](#), [HIV Infections : CK\(551\) : AC\(183\)](#), [SARS : CK\(13\) : AC\(11\)](#), [Vaccinia virus : CK\(22\) : AC\(4\)](#)

Pharmacological Actions : [Antiviral Agents : CK\(627\) : AC\(290\)](#)

[Pomegranate exhibits antiviral activity.](#) - GMI Summary

Pubmed Data : Foodborne Pathog Dis. 2011 Jul 21. Epub 2011 Jul 21. PMID: [21777065](#)

Article Published Date : Jul 21, 2011

Authors : Xiaowei Su, Mark Y Sangster, Doris H D'Souza

Study Type : In Vitro Study

Additional Links

Substances : [Pomegranate : CK\(120\) : AC\(56\)](#)

Diseases : [Herpes family viruses : CK\(1069\) : AC\(200\)](#), [HIV Infections : CK\(551\) : AC\(183\)](#), [Poxviruses : CK\(155\) : AC\(19\)](#), [Viral Infections : CK\(9\) : AC\(9\)](#)

Pharmacological Actions : [Antiviral Agents : CK\(627\) : AC\(290\)](#)

Topic: Resveratrol

[Resveratrol protect against HIV drug \(protease inhibitor\) induced toxicity.](#) –

GMI Summary

Pubmed Data : AIDS. 2010 Jun 19;24(10):1437-47. PMID: [20539089](#)

Article Published Date : Jun 19, 2010

Authors : Olivia Touzet, Alexandre Philips

Study Type : In Vitro Study

Additional Links

Substances : [Resveratrol](#) : CK(960) : AC(597)

Diseases : [Drug-Induced Toxicity](#) : CK(528) : AC(76), [HIV Infections](#) : CK(551) : AC(183),
[Oxidative Stress](#) : CK(1833) : AC(699)

Pharmacological Actions : [Antioxidants](#) : CK(3471) : AC(1278), [HIV Protease Inhibitors](#) : CK(26)
: AC(15)

Additional Keywords : [Stilbenes](#) : CK(414) : AC(245)

[Resveratrol represents a potential candidate for novel anti-HIV therapeutics.](#) –

GMI Summary

Pubmed Data : Free Radic Biol Med. 2008 Oct 1;45(7):1019-26. Epub 2008 Jul 16. PMID:
[19664641](#)

Article Published Date : Oct 01, 2008

Authors : Hong-Sheng Zhang, Yue Zhou, Meng-Ran Wu, Hong-Sen Zhou, Fei Xu

Study Type : In Vitro Study

Additional Links

Substances : [Resveratrol](#) : CK(960) : AC(597)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59)

Additional Keywords : [Stilbenes](#) : CK(414) : AC(245)

Topic: Rooibos

[A polysaccharide from Rooibos leaves has a strong anti-HIV activity.](#) - **GMI Summary**

Pubmed Data : Biosci Biotechnol Biochem. 1997 Feb;61(2):267-71. PMID: [9058964](#)

Article Published Date : Feb 01, 1997

Authors : M Nakano, Y Itoh, T Mizuno, H Nakashima

Study Type : In Vitro Study

Additional Links

Substances : [Rooibos](#) : CK(20) : AC(13)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

[Oligosaccharides extracted from Rooibos tea have anti-HIV activity in vitro.](#) –

GMI Summary

Pubmed Data : Leukemia. 1997 Apr;11 Suppl 3:128-30. PMID: [9209319](#)

Article Published Date : Apr 01, 1997

Authors : M Nakano, H Nakashima, Y Itoh

Study Type : In Vitro Study

Additional Links

Substances : [Rooibos](#) : [CK\(20\)](#) : [AC\(13\)](#)

Diseases : [HIV Infections](#) : [CK\(551\)](#) : [AC\(183\)](#)

Topic: Rose

[Rosa damascena contains compounds with anti-HIV activity.](#) - GMI Summary

Pubmed Data: Biochem Biophys Res Commun. 1996 Dec 4;229(1):73-9. PMID: [8954085](#)

Article Published Date : Dec 04, 1996

Authors : N Mahmood, S Piacente, C Pizza, A Burke, A I Khan, A J Hay

Study Type : In Vitro Study

Additional Links

Substances : [Rose](#) : [CK\(106\)](#) : [AC\(25\)](#)

Diseases : [HIV Infections](#) : [CK\(551\)](#) : [AC\(183\)](#)

Pharmacological Actions : [Anti-HIV Agents](#) : [CK\(116\)](#) : [AC\(59\)](#), [HIV Protease Inhibitors](#) : [CK\(26\)](#) : [AC\(15\)](#)

Additional Keywords : [Plant Extracts](#) : [CK\(3263\)](#) : [AC\(1119\)](#)

[Rose flowers contain compounds with with human immunodeficiency virus \(HIV\) type 1 reverse transcriptase inhibitory activity.](#) - GMI Summary

Pubmed Data : J Pharm Pharmacol. 2006 Sep;58(9):1275-80. PMID: [16945187](#)

Article Published Date : Sep 01, 2006

Authors : M Fu, T B Ng, Y Jiang, Z F Pi, Z K Liu, L Li, F Liu

Study Type : In Vitro Study

Additional Links

Substances : [Flowers](#) : [CK\(27\)](#) : [AC\(14\)](#), [Rose](#) : [CK\(106\)](#) : [AC\(25\)](#)

Diseases : [HIV Infections](#) : [CK\(551\)](#) : [AC\(183\)](#)

Pharmacological Actions : [Reverse Transcriptase Inhibitors](#) : [CK\(42\)](#) : [AC\(24\)](#)

Additional Keywords : [Plant Extracts](#) : [CK\(3263\)](#) : [AC\(1119\)](#)

Topic: Rosemary

[Carnosic acid, a component found within Rosemary, inhibits HIV-1 protease.](#) – GMI Summary

Pubmed Data : J Nat Prod. 1993 Aug;56(8):1426-30. PMID: [8229021](#)

Article Published Date : Aug 01, 1993

Authors : A Paris, B Strukelj, M Renko, V Turk, M Pukl, A Umek, B D Korant

Study Type : In Vitro Study

Additional Links

Substances : [Carnosic Acid](#) : CK(157) : AC(3), [Rosemary](#) : CK(154) : AC(60)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [HIV Protease Inhibitors](#) : CK(26) : AC(15)

[Rosemary contains the compound carnosol with exhibits anti-HIV activity at a concentration that is not cytotoxic.](#) - GMI Summary

Pubmed Data : Food Chem Toxicol. 1996 May;34(5):449-56. PMID: [8655093](#)

Article Published Date : May 01, 1996

Authors : O I Aruoma, J P Spencer, R Rossi, R Aeschbach, A Khan, N Mahmood, A Munoz, A Murcia, J Butler, B Halliwell

Study Type : In Vitro Study

Additional Links: **Substances** : [Rosemary](#) : CK(154) : AC(60)

Diseases : [DNA damage](#) : CK(684) : AC(287), [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Antioxidants](#) : CK(3471) : AC(1278), [Antiviral Agents](#) : CK(627) : AC(290)

Additional Keywords : [Plant Extracts](#) : CK(3263) : AC(1119)

Topic: [Spirulina](#)

[Calcium spirulan, an inhibitor of enveloped virus replication, from a blue-green alga Spirulina, exhibits activity against a variety of viruses.](#) - GMI Summary

Pubmed Data : J Nat Prod. 1996 Jan;59(1):83-7. PMID: [8984158](#)

Article Published Date : Jan 01, 1996

Authors : T Hayashi, K Hayashi, M Maeda, I Kojima

Study Type : In Vitro Study

Additional Links: **Substances** : [Spirulina](#) : CK(55) : AC(20)

Diseases : [Cytomegalovirus Infections](#) : CK(85) : AC(33), [HIV Infections](#) : CK(551) : AC(183), [HSV-1](#) : CK(59) : AC(48), [Influenza A](#) : CK(303) : AC(77), [Measles](#) : CK(53) : AC(8), [Mumps](#) : CK(1) : AC(1)

Pharmacological Actions : [Antiviral Agents](#) : CK(627) : AC(290)

[Spirulina inhibits HIV-1 replication.](#) - GMI Summary

Pubmed Data : J Acquir Immune Defic Syndr Hum Retrovirol. 1998 May 1;18(1):7-12. PMID: [9593452](#)

Article Published Date : May 01, 1998

Authors : S Ayehunie, A Belay, T W Baba, R M Ruprecht

Study Type : In Vitro Study

Additional Links: **Substances** : [Spirulina](#) : CK(55) : AC(20)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Antiviral Agents](#) : CK(627) : AC(290)

Topic: Tannic Acid

[Tannin inhibits HIV-1 entry into target cells.](#) - GMI Summary

Pubmed Data : Acta Pharmacol Sin. 2004 Feb;25(2):213-8. PMID: [14769212](#)

Article Published Date : Feb 01, 2004

Authors : Lin Lü, Shu-wen Liu, Shi-bo Jiang, Shu-guang Wu

Study Type : In Vitro Study

Additional Links: **Substances** : [Tannic Acid](#) : CK(20) : AC(16)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Antiviral Agents](#) : CK(627) : AC(290)

[Tuberaria lignosa contains ellagitannins which inhibit HIV entry.](#) - GMI Summary

Pubmed Data : Phytomedicine. 2010 Jan;17(1):69-74. Epub 2009 Sep 11. PMID: [19748255](#)

Article Published Date : Jan 01, 2010

Authors : L M Bedoya, M J Abad, S Sánchez-Palomino, J Alcamí, P Bermejo

Study Type : In Vitro Study

Additional Links

Substances : [Tannic Acid](#) : CK(20) : AC(16), [Tuberaria](#) : CK(1) : AC(1)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Antiviral Agents](#) : CK(627) : AC(290)

Topic: Aduki bean

[Aduki contains angularin, a novel peptide, which has anti-fungal and anti-HIV activity.](#)

- GMI Summary

Pubmed Data : J Pept Sci. 2002 Mar;8(3):101-6. PMID: [11931582](#)

Article Published Date : Mar 01, 2002

Authors : X Y Ye, T B Ng

Study Type : In Vitro Study

Additional Links

Substances : [Aduki bean](#) : CK(15) : AC(5)

Diseases : [Fungal Infection](#) : CK(238) : AC(116), [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-Bacterial Agents](#) : CK(866) : AC(275), [Antifungal Agents](#) : CK(170) : AC(108), [Reverse Transcriptase Inhibitors](#) : CK(42) : AC(24)

Topic: [Alchornea cordifolia](#)

[Ocimum gratissimum](#), [Ficus polita](#), [Clausena anisata](#), [Alchornea cordifolia](#), and [Elaeophorbia drupifera](#) are superior to the drug AZT for inhibiting HIV-1 and HIV-2 infections. - GMI Summary

Pubmed Data : [Antiviral Res.](#) 2003 Mar;58(1):25-33. PMID: [12719004](#)

Article Published Date : Mar 01, 2003

Authors : Nana K Ayisi, Caesar Nyadedzor

Study Type : In Vitro Study

Additional Links:

Substances : [Alchornea cordifolia](#) : CK(1) : AC(1), [Clausena anisata](#) : CK(1) : AC(1), [Elaeophorbia drupifera](#) : CK(1) : AC(1), [Ficus](#) : CK(1) : AC(1), [Ocimum gratissimum](#) : CK(1) : AC(1)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59), [Reverse Transcriptase Inhibitors](#) : CK(42) : AC(24)

Additional Keywords : [Plant Extracts](#) : CK(3263) : AC(1119), [Superiority of Natural Substances versus Drugs](#) : CK(895) : AC(172)

Topic: [Alpinia galangal](#)

[Alpinia glanga](#) inhibits an HIV-1 viral regulatory protein, in vitro. - GMI Summary

Pubmed Data : [Bioorg Med Chem Lett.](#) 2009 May 1;19(9):2555-7. Epub 2009 Mar 17. PMID: [19342232](#)

Article Published Date : May 01, 2009

Authors : Satoru Tamura, Atsushi Shiomi, Masafumi Kaneko, Ying Ye, Minoru Yoshida, Masayuki Yoshikawa, Tominori Kimura, Motomasa Kobayashi, Nobutoshi Murakami

Study Type : In Vitro Study

Additional Links: **Substances** : [Alpinia galanga](#) : CK(5) : AC(4)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59)

Additional Keywords : [Plant Extracts](#) : CK(3263) : AC(1119)

Topic: [Astragalus](#)

A compound found within astragalus called cycloastragenol may enhance immune function by retarding telomere loss in white blood cells associated with chronic viral infection. – GMI

Summary

Pubmed Data : J Immunol. 2008 Nov 15;181(10):7400-6. PMID: [18981163](#)

Article Published Date : Nov 15, 2008

Authors : Steven Russell Fauce, Beth D Jamieson, Allison C Chin, Ronald T Mitsuyasu, Stan T Parish, Hwee L Ng, Christina M Ramirez Kitchen, Otto O Yang, Calvin B Harley, Rita B Effros

Study Type : In Vitro Study

Additional Links

Substances : [Astragalus](#) : CK(284) : AC(57), [Cycloastragenol](#) : CK(285) : AC(1)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Enzyme Inhibitors](#) : CK(385) : AC(210), [Immunomodulatory](#) : CK(514) : AC(144), [Telomerase Upregulation](#) : CK(75) : AC(24)

Additional Keywords : [Upregulation of Telemere Length](#) : CK(4) : AC(3)

Topic: Basil: Sweet

Melissa, Sweet Basil, Perilla, Prunella vulgaris and Savory has anti-HIV-1 activity.

- GMI Summary

Pubmed Data : Zh Mikrobiol Epidemiol Immunobiol. 1986 Jan;(1):62-5. PMID: [9743251](#)

Article Published Date : Jan 01, 1986

Authors : K Yamasaki, M Nakano, T Kawahata, H Mori, T Otake, N Ueba, I Oishi, R Inami, M Yamane, M Nakamura, H Murata, T Nakanishi

Study Type : In Vitro Study

Additional Links

Substances : [Basil: Sweet](#) : CK(2) : AC(2), [Melissa \(Lemonbalm\)](#) : CK(78) : AC(14), [Perilla](#) : CK(16) : AC(10), [Prunella vulgaris](#) : CK(6) : AC(5), [Savory](#) : CK(5) : AC(9)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Reverse Transcriptase Inhibitors](#) : CK(42) : AC(24)

Additional Keywords : [Plant Extracts](#) : CK(3263) : AC(1119)

Topic: Berberine

Berberine prevents HIV protease inhibitor-induced inflammation. - GMI Summary

Pubmed Data : PLoS One. 2010;5(2):e9069. Epub 2010 Feb 9. PMID: [20161729](#)

Article Published Date : Jan 01, 2010

Authors : Weibin Zha, Guang Liang, Jian Xiao, Elaine J Studer, Phillip B Hylemon, William M Pandak, Guangji Wang, Xiaokun Li, Huiping Zhou

Study Type : In Vitro Study

Additional Links: Substances : [Berberine](#) : CK(142) : AC(67)

Diseases : [HIV Drug-Induced Toxicity](#) : CK(68) : AC(13), [HIV Infections](#) : CK(551) : AC(183),
[Inflammation](#) : CK(975) : AC(341)

Pharmacological Actions : [HIV Protease Inhibitors](#) : CK(26) : AC(15), [Interleukin-6 Downregulation](#) : CK(486) : AC(133),

[Tumor Necrosis Factor \(TNF\) Alpha Inhibitor](#) : CK(989) : AC(340)

Topic: Black Cohosh

Black cohosh contains a compound Actein which exhibits anti-HIV activity.

- GMI Summary

Pubmed Data : Bioorg Med Chem Lett. 2004 Mar 8;14(5):1329-32. PMID: [14980692](#)

Article Published Date : Mar 08, 2004

Authors : Nobuko Sakurai, Jiu-Hong Wu, Yutaka Sashida, Yoshihiro Mimaki, Tamotsu Nikaido, Kazuo Koike, Hideji Itokawa, Kuo-Hsiung Lee

Study Type : In Vitro Study

Additional Links: Substances : [Black Cohosh](#) : CK(47) : AC(16)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59)

Additional Keywords : [Plant Extracts](#) : CK(3263) : AC(1119)

Topic: Black Tea

Black and green tea contain compounds which inhibit HIV-1 entry. - GMI Summary

Pubmed Data : Biochim Biophys Acta. 2005 May 25;1723(1-3):270-81. Epub 2005 Mar 24.
PMID: [15823507](#)

Article Published Date : May 25, 2005

Authors : Shuwen Liu, Hong Lu, Qian Zhao, Yuxian He, Jinkui Niu, Asim K Debnath, Shuguang Wu, Shibo Jiang

Study Type : In Vitro Study

Additional Links

Substances : [Black Tea](#) : CK(166) : AC(39), [Catechin](#) : CK(408) : AC(130), [Green Tea](#) : CK(931) : AC(279)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59)

Topic: Blue-Green Algae

Blue-green algae extracts inhibit reverse transcriptases of HIV-1 virus. - GMI Summary

Pubmed Data : Planta Med. 1993 Apr;59(2):148-51. PMID: [7683817](#)

Article Published Date : Apr 01, 1993

Authors : A F Lau, J Siedlecki, J Anleitner, G M Patterson, F R Caplan, R E Moore

Study Type : In Vitro Study

Additional Links: Substances : [Blue-Green Algae](#) : CK(21) : AC(5)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Antiviral Agents](#) : CK(627) : AC(290)

Topic: Boron

Curcumin and curcumin-boron complexes exhibit anti-HIV activity. - GMI Summary

Pubmed Data : Bioorg Med Chem. 1993 Dec;1(6):415-22. PMID: [8087563](#)

Article Published Date : Dec 01, 1993

Authors : Z Sui, R Salto, J Li, C Craik, P R Ortiz de Montellano

Study Type : In Vitro Study

Additional Links: Substances : [Boron](#) : CK(3) : AC(3), [Curcumin](#) : CK(2802) : AC(1470)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [HIV Protease Inhibitors](#) : CK(26) : AC(15)

Topic: Breast Milk

Lactoferrin from milk contains potent antiviral activity against HIV and cytomegalovirus replication. - GMI Summary

Pubmed Data : J Infect Dis. 1995 Aug;172(2):380-8. PMID: [7622881](#)

Article Published Date : Aug 01, 1995

Authors : M C Harmsen, P J Swart, M P de Béthune, R Pauwels, E De Clercq, T H The, D K Meijer

Study Type : In Vitro Study

Additional Links

Substances : [Breast Milk](#) : CK(398) : AC(45), [Lactoferrin](#) : CK(118) : AC(31)

Diseases: [Cytomegalovirus Infections](#): CK(85): AC(33), [HIV Infections](#): CK(551): AC(183)

Pharmacological Actions : [Antiviral Agents](#) : CK(627) : AC(290)

Topic: Capparis spinosa (caper)

Caper seeds contain antiproliferative, antifungal and HIV-1 reverse transcriptase inhibitory activities. - GMI Summary

Pubmed Data : Zhong Yao Cai. 2004 Nov;27(11):848-50. PMID: [19019643](#)

Article Published Date : Nov 01, 2004

Authors : Sze-Kwan Lam, Tzi-Bun Ng

Study Type : In Vitro Study

Additional Links: **Substances** : [Capparis spinosa \(caper\)](#) : CK(4) : AC(3)

Diseases : [Breast Cancer](#) : CK(1934) : AC(551), [Colon Cancer](#) : CK(375) : AC(230), [HIV Infections](#) : CK(551) : AC(183), [Liver Cancer](#) : CK(1532) : AC(264)

Pharmacological Actions : [Antifungal Agents](#) : CK(170) : AC(108), [Antiproliferative](#) : CK(939) : AC(711), [Reverse Transcriptase Inhibitors](#) : CK(42) : AC(24)

Topic: [Cardiospermum helicacabum](#)

[Cinnamon cassia and Cardiospermum helicacabum have significant anti-HIV activity.](#)

- GMI Summary

Pubmed Data : Indian J Med Res. 2000 Sep;112:73-7. PMID: [11094851](#)

Article Published Date : Sep 01, 2000

Authors : M Premanathan, S Rajendran, T Ramanathan, K Kathiresan, H Nakashima, N Yamamoto

Study Type : In Vitro Study

Additional Links

Substances: [Cardiospermum helicacabum](#): CK(1): AC(1), [Cinnamon](#): CK(142): AC(63)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59)

Topic: [Carnosic Acid](#)

[Carnosic acid, a component found within Rosemary, inhibits HIV-1 protease.](#) –

GMI Summary

Pubmed Data : J Nat Prod. 1993 Aug;56(8):1426-30. PMID: [8229021](#)

Article Published Date : Aug 01, 1993

Authors : A Paris, B Strukelj, M Renko, V Turk, M Pukl, A Umek, B D Korant

Study Type : In Vitro Study

Additional Links

Substances : [Carnosic Acid](#) : CK(157) : AC(3), [Rosemary](#) : CK(154) : AC(60)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [HIV Protease Inhibitors](#) : CK(26) : AC(15)

Topic: [Chinese Skullcap](#)

[Baicalin, a flavonoid from within Chinese skullcap, inhibits HIV-1 infection and replication.](#) – GMI

Summary

Pubmed Data : Cell Mol Biol Res. 1993;39(2):119-24. PMID: [7693133](#)

Article Published Date : Jan 01, 1993

Authors : B Q Li, T Fu, Y D Yan, N W Baylor, F W Ruscetti, H F Kung

Study Type : In Vitro Study

Additional Links: Substances : [Chinese Skullcap](#) : CK(103) : AC(62)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Antiviral Agents](#) : CK(627) : AC(290), [Reverse Transcriptase Inhibitors](#) : CK(42) : AC(24)

Topic: [Clausena anisata](#)

[Ocimum gratissimum, Ficus polita, Clausena anisata, Alchornea cordifolia, and Elaeophorbia drupifera are superior to the drug AZT for inhibiting HIV-1 and HIV-2 infections.](#) - GMI Summary

Pubmed Data : [Antiviral Res.](#) 2003 Mar;58(1):25-33. PMID: [12719004](#)

Article Published Date : Mar 01, 2003

Authors : Nana K Ayisi, Caesar Nyadedzor

Study Type : In Vitro Study

Additional Links: Substances : [Alchornea cordifolia](#) : CK(1) : AC(1), [Clausena anisata](#) : CK(1) : AC(1), [Elaeophorbia drupifera](#): CK(1): AC(1), [Ficus](#) : CK(1) : AC(1), [Ocimum gratissimum](#) : CK(1) : AC(1)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59), [Reverse Transcriptase Inhibitors](#) : CK(42) : AC(24)

Additional Keywords : [Plant Extracts](#) : CK(3263) : AC(1119), [Superiority of Natural Substances versus Drugs](#) : CK(895) : AC(172)

Topic: [Clausena excavata](#)

[Clausena excavata exhibits anti-HIV-1 activity.](#) - GMI Summary

Pubmed Data : [Phytother Res.](#) 2005 Aug;19(8):728-31. PMID: [16177980](#)

Article Published Date : Aug 01, 2005

Authors : Boonsong Kongkathip, Ngampong Kongkathip, Arunrat Sunthitikawinsakul, Chanita Napaswat, Chalobon Yoosook

Study Type : In Vitro Study

Additional Links: Substances : [Clausena excavata](#) : CK(3) : AC(3)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59)

Additional Keywords : [Plant Extracts](#) : CK(3263) : AC(1119)

Topic: [Clusia quadrangular](#)

[Calophyllum brasiliense and Clusia quadrangula exhibit HIV-1 inhibitory activity, in vitro.](#) – GMI Summary

Pubmed Data : Curr Eye Res. 2010 Apr;35(4):335-51. PMID: [15187447](#)

Article Published Date : Apr 01, 2010

Authors : Maira Huerta-Reyes, Maria del Carmen Basualdo, Lucio Lozada, Manuel Jimenez-Estrada, Carmen Soler, Ricardo Reyes-Chilpa

Study Type : In Vitro Study

Additional Links

Substances: [Calophyllum brasiliense](#): CK(4): AC(4), [Clusia quadrangula](#) : CK(1): AC(1)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59)

Additional Keywords : [Plant Extracts](#) : CK(3263) : AC(1119)

Topic: Coconut

[A coconut peptide exhibits antifungal and anti-HIV activity.](#) - GMI Summary

Pubmed Data : Peptides. 2005 Dec;26(12):2392-6. PMID: [16308082](#)

Article Published Date : Dec 01, 2005

Authors : H X Wang, T B Ng

Study Type : In Vitro Study

Additional Links: Substances : [Coconut](#) : CK(135) : AC(35)

Diseases : [Fungal Infection](#) : CK(238) : AC(116), [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Antifungal Agents](#) : CK(170) : AC(108),

[Reverse Transcriptase Inhibitors](#) : CK(42) : AC(24)

Topic: Coleus Forskohlii

[Coleus forskohlii contains compounds which have anti-HIV activity.](#) - GMI Summary

Pubmed Data : Nat Prod Commun. 2009 Sep;4(9):1173-5. PMID: [19831022](#)

Article Published Date : Sep 01, 2009

Authors : Hardik S Bodiwala, Sudeep Sabde, Debashis Mitra, Kamlesh Kumar Bhutani, Inder Pal Singh

Study Type : In Vitro Study

Additional Links: Substances : [Coleus Forskohlii](#) : CK(22) : AC(9)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Antiviral Agents](#) : CK(627) : AC(290)

Topic: Coleus parvifolius

[Coleus parvifolius has compounds with HIV-1 integrase inhibitory activity.](#) – GMI Summary

Pubmed Data : Phytother Res. 2003 Mar;17(3):232-9. PMID: [12672152](#)

Article Published Date : Mar 01, 2003

Authors : Supinya Tewtrakul, Hirotsugu Miyashiro, Norio Nakamura, Masao Hattori, Takuya Kawahata, Toru Otake, Tomokazu Yoshinaga, Tamio Fujiwara, Tanomjit Supavita, Supreeya Yuenyongsawad, Pranee Rattanasuwon, Sukanya Dej-Adisai

Study Type : In Vitro Study

Additional Links: Substances : [Coleus parvifolius](#) : CK(1) : AC(1)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59),

[HIV-1 Integrase Inhibitor](#) : CK(3) : AC(3)

Additional Keywords : [Plant Extracts](#) : CK(3263) : AC(1119)

Topic: Cycloastragenol

[A compound found within astragalus called cycloastragenol may enhance immune function by retarding telomere loss in white blood cells associated with chronic viral infection.](#) – GMI

Summary

Pubmed Data : J Immunol. 2008 Nov 15;181(10):7400-6. PMID: [18981163](#)

Article Published Date : Nov 15, 2008

Authors : Steven Russell Fauce, Beth D Jamieson, Allison C Chin, Ronald T Mitsuyasu, Stan T Parish, Hwee L Ng, Christina M Ramirez Kitchen, Otto O Yang, Calvin B Harley, Rita B Effros

Study Type : In Vitro Study

Additional Links

Substances : [Astragalus](#) : CK(284) : AC(57), [Cycloastragenol](#) : CK(285) : AC(1)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Enzyme Inhibitors](#) : CK(385) : AC(210), [Immunomodulatory](#) : CK(514) : AC(144), [Telomerase Upregulation](#) : CK(75) : AC(24)

Additional Keywords : [Upregulation of Telemere Length](#) : CK(4) : AC(3)

Topic: Dittrichia viscosa

[Hyssop and Dittrichia viscosa have anti-HIV-1 activity.](#) - GMI Summary

Pubmed Data : Phytother Res. 2002 Sep;16(6):550-4. PMID: [12237813](#)

Article Published Date : Sep 01, 2002

Authors : L M Bedoya, S Sanchez Palomino, M J Abad, P Bermejo, J Alcamí

Study Type : In Vitro Study

Additional Links

Substances : [Dittrichia viscosa](#) : CK(1) : AC(1), [Hyssop](#) : CK(2) : AC(2)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59)

Additional Keywords : [Plant Extracts](#) : CK(3263) : AC(1119)

Topic: EGCG (Epigallocatechin gallate)

[The green tea catechin, EGCG, significantly inhibit HIV-1 infectivity on human T-cells and macrophages in a dose-dependant manner.](#) - GMI Summary

Pubmed Data : [J Allergy Clin Immunol.](#) 2009 Feb;123(2):459-65. PMID: [19203663](#)

Article Published Date : Feb 01, 2009

Authors : Christina L Nance, Edward B Siwak, William T Shearer

Study Type : In Vitro Study

Additional Links

Substances : [EGCG \(Epigallocatechin gallate\)](#) : CK(176) : AC(115), [Green Tea](#) : CK(931) : AC(279)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Antiviral Agents](#) : CK(627) : AC(290)

Topic: Elaeophorbia drupifera

[Ocimum gratissimum, Ficus polita, Clausena anisata, Alchornea cordifolia, and Elaeophorbia drupifera are superior to the drug AZT for inhibiting HIV-1 and HIV-2 infections.](#) - GMI Summary

Pubmed Data : [Antiviral Res.](#) 2003 Mar;58(1):25-33. PMID: [12719004](#)

Article Published Date : Mar 01, 2003

Authors : Nana K Ayisi, Caesar Nyadedzor

Study Type : In Vitro Study

Additional Links

Substances : [Alchornea cordifolia](#) : CK(1) : AC(1), [Clausena anisata](#) : CK(1) : AC(1), [Elaeophorbia drupifera](#) : CK(1) : AC(1), [Ficus](#) : CK(1) : AC(1), [Ocimum gratissimum](#) : CK(1) : AC(1)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59),

[Reverse Transcriptase Inhibitors](#) : CK(42) : AC(24)

Additional Keywords : [Plant Extracts](#) : CK(3263) : AC(1119), [Superiority of Natural Substances versus Drugs](#) : CK(895) : AC(172)

Topic: Euchresta formosana

[Euchresta formosana compounds exhibit antiplatelet and anti-HIV activity.](#) –

GMI Summary

Pubmed Data : J Med Food. 2009 Jun;12(3):690-3. PMID: [12713120](#)

Article Published Date : Jun 01, 2009

Authors : Wen-Li Lo, Chin-Chung Wu, Fang-Rong Chang, Wei-Ya Wang, Ashraf Taha Khalil, Kuo-Hsiung Lee, Yang-Chang Wu

Study Type : In Vitro Study

Additional Links

Substances : [Euchresta formosana](#) : CK(1) : AC(1)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59),

[Platelet Aggregation Inhibitors](#) : CK(160) : AC(35)

Additional Keywords : [Plant Extracts](#) : CK(3263) : AC(1119)

Topic: Ficus

[Ocimum gratissimum, Ficus polita, Clausena anisata, Alchornea cordifolia, and Elaeophorbia drupifera are superior to the drug AZT for inhibiting HIV-1 and HIV-2 infections.](#) - GMI Summary

Pubmed Data : Antiviral Res. 2003 Mar;58(1):25-33. PMID: [12719004](#)

Article Published Date : Mar 01, 2003

Authors : Nana K Ayisi, Caesar Nyadedzor

Study Type : In Vitro Study

Additional Links

Substances : [Alchornea cordifolia](#) : CK(1) : AC(1), [Clausena anisata](#) : CK(1) : AC(1),

[Elaeophorbia drupifera](#) : CK(1) : AC(1), [Ficus](#) : CK(1) : AC(1), [Ocimum gratissimum](#) : CK(1) : AC(1)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59), [Reverse Transcriptase Inhibitors](#) : CK(42) : AC(24)

Additional Keywords : [Plant Extracts](#) : CK(3263) : AC(1119), [Superiority of Natural Substances versus Drugs](#) : CK(895) : AC(172)

Topic: Flowers

[Rose flowers contain compounds with with human immunodeficiency virus \(HIV\) type 1 reverse transcriptase inhibitory activity.](#) - GMI Summary

Pubmed Data : J Pharm Pharmacol. 2006 Sep;58(9):1275-80. PMID: [16945187](#)

Article Published Date : Sep 01, 2006

Authors : M Fu, T B Ng, Y Jiang, Z F Pi, Z K Liu, L Li, F Liu

Study Type : In Vitro Study

Additional Links

Substances : [Flowers](#) : CK(27) : AC(14), [Rose](#) : CK(106) : AC(25)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Reverse Transcriptase Inhibitors](#) : CK(42) : AC(24)

Additional Keywords : [Plant Extracts](#) : CK(3263) : AC(1119)

Topic: Fucoidan

Brown seaweed contain fucoidans with antiretroviral activity against HIV-1, including drugresistant strains. - GMI Summary

Pubmed Data : Mol Pharmacol. 2004 Dec;66(6):1643-51. Epub 2004 Sep 10. PMID: [19107862](#)

Article Published Date : Dec 01, 2004

Authors : Juan Trincherro, Nora M A Ponce, Osvaldo L Córdoba, María L Flores, Sandra Pampuro, Carlos A Stortz, Horacio Salomón, Gabriela Turk

Study Type : In Vitro Study

Additional Links

Substances : [Fucoidan](#) : CK(22) : AC(15), [Seaweed: Brown](#) : CK(46) : AC(6)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59)

Additional Keywords : [Plant Extracts](#) : CK(3263) : AC(1119)

Topic: Garcinia speciosa

Garcinia speciosa trunk bark and stems contains compounds with anti-HIV activity.

- GMI Summary

Pubmed Data : Planta Med. 2003 Dec;69(12):1141-6. PMID: [14750032](#)

Article Published Date : Dec 01, 2003

Authors : Vatcharin Rukachaisirikul, Phanruethai Pailee, Assdhawut Hiranrat, Patoomratana Tuchinda, Chalobon Yoosook, Jitra Kasisit, Walter C Taylor, Vichai Reutrakul

Study Type : In Vitro Study

Additional Links

Substances : [Garcinia speciosa](#) : CK(1) : AC(1)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59),

[Reverse Transcriptase Inhibitors](#) : CK(42) : AC(24)

Additional Keywords : [Plant Extracts](#) : CK(3263) : AC(1119)

Topic: Gardenia

[Gardenia thailandica contains compounds with anti-HIV activity.](#) - GMI Summary

Pubmed Data : Planta Med. 2004 Apr;70(4):366-70. PMID: [15095155](#)

Article Published Date : Apr 01, 2004

Authors : Patoomratana Tuchinda, Aroonchai Saiai, Manat Pohmakotr, Chalobon Yoosook, Jittra Kasisit, Chanita Napaswat, Thawatchai Santisuk, Vichai Reutrakul

Study Type : In Vitro Study

Additional Links

Substances : [Gardenia](#) : CK(7) : AC(4)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59)

Additional Keywords : [Plant Extracts](#) : CK(3263) : AC(1119)

Topic: Genistein

[Genistein has broad antiviral activity.](#) - GMI Summary

Pubmed Data : J Nutr Biochem. 2009 Aug;20(8):563-9. PMID: [19596314](#)

Article Published Date : Aug 01, 2009

Authors : Aline Andres, Sharon M Donovan, Mark S Kuhlenschmidt

Study Type : In Vitro Study

Additional Links

Substances : [Genistein](#) : CK(451) : AC(172)

Diseases : [Adenoviridae Infections](#) : CK(4) : AC(4), [HIV Infections](#) : CK(551) : AC(183), [HSV-1](#): CK(59): AC(48), [HSV-2](#): CK(54): AC(29), [Rotavirus Infections](#): CK(73): AC(16)

Pharmacological Actions : [Antiviral Agents](#) : CK(627) : AC(290)

Topic: Ginkgo biloba

[Ginkgo biloba contains compounds with HIV protease inhibitory activity.](#) –

GMI Summary

Pubmed Data : Planta Med. 2008 Apr;74(5):532-4. PMID: [18543149](#)

Article Published Date : Apr 01, 2008

Authors : Ji Suk Lee, Masao Hattori, Jinwoong Kim

Study Type : In Vitro Study

Additional Links

Substances : [Ginkgo biloba](#) : CK(505) : AC(101)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [HIV Protease Inhibitors](#) : CK(26) : AC(15),

[Reverse Transcriptase Inhibitors](#) : CK(42) : AC(24)

Topic: Grape Seed Extract

[Grape seed extract downregulates HIV-1 entry in normal peripheral blood mononuclear cells.](#) -

GMI Summary

Pubmed Data : Biol Res. 2002;35(3-4):421-31. PMID: [12462994](#)

Article Published Date : Jan 01, 2002

Authors : Madhavan P Nair, Chithan Kandaswami, Supriya Mahajan,

Harikrishna N Nair, Ram Chawda, Thomas Shanahan, Stanley A Schwartz

Study Type : In Vitro Study

Additional Links

Substances : [Grape Seed Extract](#) : CK(172) : AC(58)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59)

Additional Keywords : [Plant Extracts](#) : CK(3263) : AC(1119), [Proanthocyanidins](#) : CK(167) : AC(45)

Topic: Hu Zhang (*Polygonum cuspidatum*)

[Polygonum cuspidatum and Polygonum multiflorum contain anti-HIV activity.](#) –

GMI Summary

Pubmed Data : Planta Med. 2010 Jan 28. Epub 2010 Jan 28. PMID: [20112182](#)

Article Published Date : Jan 28, 2010

Authors : Hong-Wei Lin, Ming-Xue Sun, Yun-Hua Wang, Liu-Meng Yang, Ying-Ruo Yang, Ning

Huang, Li-Jiang Xuan, Ya-Ming Xu, Dong-Lu Bai, Yong-Tang Zheng,

Kai Xiao

Study Type : In Vitro Study

Additional Links

Substances : [Hu Zhang \(*Polygonum cuspidatum*\)](#) : CK(964) : AC(9),

[Polygonum multiflorum](#) : CK(1) : AC(1)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Antiviral Agents](#) : CK(627) : AC(290)

Topic: Kiwifruit

[Kiwifruit contains compounds which exhibit anti-oral cancer, anti-HIV, antioxidant and antibacterial activity.](#) - **GMI Summary**

Pubmed Data : J Ethnopharmacol. 2002 Aug;81(3):357-64. PMID: [12127237](#)

Article Published Date : Aug 01, 2002

Authors : Noboru Motohashi, Yoshiaki Shirataki, Masami Kawase, Satoru Tani, Hiroshi Sakagami, Kazue Satoh, Teruo

Kurihara, Hideki Nakashima, Ilona Mucsi, Andreas Varga, Joseph Molnár

Study Type : In Vitro Study

Additional Links

Substances : [Kiwifruit](#) : CK(26) : AC(7)

Diseases : [HIV Infections](#) : CK(551) : AC(183), [Oral Cancer](#) : CK(66) : AC(44),

[Oxidative Stress](#) : CK(1833) : AC(699), [Pseudomonas aeruginosa](#) : CK(60) : AC(32)

Pharmacological Actions : [Anti-Bacterial Agents](#) : CK(866) : AC(275), [Antioxidants](#) : CK(3471) : AC(1278)

Additional Keywords : [Plant Extracts](#) : CK(3263) : AC(1119)

Topic: Lecithin

[Lecithinized superoxide dismutase inhibits HIV-1 virus replication and appears to work synergistically with antiretroviral medications.](#) - GMI Summary

Pubmed Data : AIDS Res Hum Retroviruses. 1997 Mar 1;13(4):283-90. PMID: [9071427](#)

Article Published Date : Mar 01, 1997

Authors : M Premanathan, H Nakashima, R Igarashi, Y Mizushima, K Yamada

Study Type : In Vitro Study

Additional Links

Substances : [Lecithin](#) : CK(28) : AC(10), [Phosphatidylcholine](#) : CK(99) : AC(21), [Superoxide dismutase](#) : CK(16) : AC(5)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59)

Additional Keywords : [Drug-Plant-Vitamin Synergies](#) : CK(1011) : AC(275)

Topic: Lemon Balm

[Aqueous extracts from peppermint, sage and lemon balm leaves exhibit anti-HIV-1 activity.](#) - GMI Summary

Pubmed Data : Retrovirology. 2008 Mar 20;5:27. PMID: [18355409](#)

Article Published Date : Mar 20, 2008

Authors : Silvia Geuenich, Christine Goffinet, Stephanie Venzke, Silke Nolkemper, Ingo Baumann, Peter Plinkert, Jürgen

Reichling, Oliver T Keppler

Study Type : In Vitro Study

Additional Links

Substances : [Lemon Balm](#) : CK(2) : AC(3), [Peppermint](#) : CK(242) : AC(38), [Sage](#) : CK(80) : AC(16)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Antiviral Agents](#) : CK(627) : AC(290)

Topic: [Limonoids](#)

[The limonoids limonin and nomilin inhibit HIV-1 replication in infected human mononuclear cells.](#)

- GMI Summary

Pubmed Data : [Planta Med.](#) 2003 Oct;69(10):910-3. PMID: [14648393](#)

Article Published Date : Oct 01, 2003

Authors : Lucia Battinelli, Fabio Mengoni, Miriam Lichtner, Gabriela Mazzanti, Antonina Saija, Claudio Maria Mastroianni, Vincenzo Vullo

Study Type : In Vitro Study

Additional Links: Substances : [Limonoids](#) : CK(1) : AC(1)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59), [Antiproliferative](#) : CK(939) : AC(711)

Topic: [Lotus](#)

[Lotus contains anti-HIV compounds.](#) - GMI Summary

Pubmed Data : [Bioorg Med Chem.](#) 2005 Jan 17;13(2):443-8. PMID: [15598565](#)

Article Published Date : Jan 17, 2005

Authors : Yoshiki Kashiwada, Akihiro Aoshima, Yasumasa Ikeshiro, Yuh-Pan Chen, Hiroshi Furukawa, Masataka Itoigawa, Toshihiro Fujioka, Kunihide Mihashi, L Mark Cosentino, Susan L Morris-Natschke, Kuo-Hsiung Lee

Study Type : In Vitro Study

Additional Links: Substances : [Lotus](#) : CK(45) : AC(26)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59)

Topic: [Lysine](#)

[A novel form of citric acid and L-lysine demonstrates anti-HIV activity.](#) - GMI Summary

Pubmed Data : [Biomacromolecules.](#) 2009 Apr 13;10(4):865-76. PMID: [19296658](#)

Article Published Date : Apr 13, 2009

Authors : Anne-Claude Couffin-Hoarau, Anne-Marie Aubertin, Mahfoud Boustta, Sylvie Schmidt, Jean-Alain Fehrentz, Jean Martinez, Michel Vert

Study Type : In Vitro Study

Additional Links: Substances : [Lysine](#) : CK(99) : AC(23)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Antiviral Agents](#) : CK(627) : AC(290)

Topic: Mangiferin

Mangiferin has potent antitumor, immunomodulatory and anti-HIV activity. –

GMI Summary

Pubmed Data : J Obstet Gynaecol. 2009 Nov;29(8):681-5. PMID: [8957579](#)

Article Published Date : Nov 01, 2009

Authors : S Guha, S Ghosal, U Chattopadhyay

Study Type : Review

Additional Links: Substances : [Mangiferin](#) : CK(42) : AC(27)

Diseases : [Fibrosarcoma](#) : CK(10) : AC(7), [HIV Infections](#) : CK(551) : AC(183), [Tumors](#) : CK(179) : AC(107)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59), [Antineoplastic Agents](#) : CK(747) : AC(434)

Additional Keywords : [Xanthones](#) : CK(50) : AC(29)

Topic: Mangosteen

Mangosteen contains constituents active against HIV-1 protease. - GMI Summary

Pubmed Data : Planta Med. 1996 Aug;62(4):381-2. PMID: [8792678](#)

Article Published Date : Aug 01, 1996

Authors : S X Chen, M Wan, B N Loh

Study Type : In Vitro Study

Additional Links: Substances : [Mangosteen](#) : CK(43) : AC(21)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [HIV Protease Inhibitors](#) : CK(26) : AC(15)

Additional Keywords: [Plant Extracts](#): CK(3263): AC(1119), [Xanthones](#): CK(50): AC(29)

Topic: Melissa (Lemonbalm)

Melissa, Sweet Basil, Perilla, Prunella vulgaris and Savory has anti-HIV-1 activity. –

GMI Summary

Pubmed Data : Zh Mikrobiol Epidemiol Immunobiol. 1986 Jan;(1):62-5. PMID: [9743251](#)

Article Published Date : Jan 01, 1986

Authors : K Yamasaki, M Nakano, T Kawahata, H Mori, T Otake, N Ueba, I Oishi, R Inami, M Yamane, M Nakamura, H Murata, T Nakanishi

Study Type : In Vitro Study

Additional Links

Substances : Basil: Sweet : CK(2) : AC(2), Melissa (Lemonbalm) : CK(78) : AC(14), Perilla : CK(16) : AC(10), Prunella vulgaris. : CK(6) : AC(5), Savory : CK(5) : AC(9)

Diseases : HIV Infections : CK(551) : AC(183)

Pharmacological Actions : Reverse Transcriptase Inhibitors : CK(42) : AC(24)

Additional Keywords : Plant Extracts : CK(3263) : AC(1119)

Topic: Mint: Horse

Horse mint (M. longifolia) exhibits anti-HIV reverse transcriptase activity. –

GMI Summary

Pubmed Data : Therapie. 2003 Nov-Dec;58(6):531-4. PMID: [15058498](#)

Article Published Date : Nov 01, 2003

Authors : Saaïd Amzazi, Saaïd Ghouлами, Youssef Bakri, Abdelkader II Idrissi, Souad Fkih-Tétouani, Abdelaziz Benjouad

Study Type : In Vitro Study

Additional Links: **Substances** : Mint: Horse : CK(1) : AC(1)

Diseases : HIV Infections : CK(551) : AC(183)

Pharmacological Actions : Reverse Transcriptase Inhibitors : CK(42) : AC(24)

Additional Keywords : Plant Extracts : CK(3263) : AC(1119)

Topic: Modified Arabinoxylan Rice Bran (MGN-3)

A shiitake/rice bran combination known as MGN-3 has potent anti-HIV activity. –

GMI Summary

Pubmed Data : Biochem Biophys Res Commun. 1998 Feb 4;243(1):25-9. PMID: [9473473](#)

Article Published Date : Feb 04, 1998

Authors : M Ghoneum

Study Type : In Vitro Study

Additional Links

Substances : Modified Arabinoxylan Rice Bran (MGN-3) : CK(2) : AC(2), Rice Bran : CK(29) : AC(14), Shiitake Mushroom : CK(72) : AC(17)

Diseases : HIV Infections : CK(551) : AC(183)

Pharmacological Actions : Anti-HIV Agents : CK(116) : AC(59)

Topic: Mulberry

Mulberry juice has anti-HIV activity. - GMI Summary

Pubmed Data : In Vivo. 2007 May-Jun;21(3):499-505. PMID: [17591360](#)

Article Published Date : May 01, 2007

Authors : Hiroshi Sakagami, Kazuhito Asano, Kazue Satoh, Keiso Takahashi, Masaki Kobayashi, Noriko Koga, Hitomi Takahashi, Rieko Tachikawa, Tadamasa Tashiro, Akihiko Hasegawa, Kaeko Kurihara, Takeshi Ikarashi, Taisei Kanamoto, Shigemi Terakubo, Hideki Nakashima, Satoru Watanabe, Wataru Nakamura

Study Type : In Vitro Study

Additional Links: Substances : [Mulberry](#) : CK(4) : AC(4)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59)

Additional Keywords : [Drug-Plant-Vitamin Synergies](#) : CK(1011) : AC(275), [Plant Extracts](#) : CK(3263) : AC(1119)

Topic: Narcissus

[Narcissus species have anti-HIV activity.](#) - GMI Summary

Pubmed Data : Planta Med. 2003 Feb;69(2):109-12. PMID: [12624813](#)

Article Published Date : Feb 01, 2003

Authors : Susana López, Mercedes Armand-Ugon, Jaume Bastida, Francesc Viladomat, José A Esté, Derek Stewart, Carles Codina

Study Type : In Vitro Study

Additional Links: Substances : [Narcissus](#) : CK(1) : AC(1)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59)

Additional Keywords : [Plant Extracts](#) : CK(3263) : AC(1119)

Topic: Nettle

[Nettles \(urtica dioica\) may play a role in combatting HIV.](#) - GMI Summary

Pubmed Data : J Biol Chem. 2005 Dec 9;280(49):41005-14. Epub 2005 Sep 23. PMID: [16183648](#)

Article Published Date : Dec 09, 2005

Authors : Jan Balzarini, Kristel Van Laethem, Sigrid Hatse, Matheus Froeyen, Willy Peumans, Els Van Damme, Dominique Schols

Study Type : In Vitro Study

Additional Links: Substances : [Nettle](#) : CK(44) : AC(13)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Topic: Oak

The fruits of *Phyllanthus emblica* L., *Quercus pedunculata* (Oak) , *Rumex cyprius*, *Terminalia bellerica*, *Terminalia chebula* , and *Terminalia horrida* showed significant inhibitory activity against HIV virus. - GMI Summary

Pubmed Data : Chem Pharm Bull (Tokyo). 1995 Apr;43(4):641-8. PMID: [7541317](#)

Article Published Date : Apr 01, 1995

Authors : S el-Mekkawy, M R Meselhy, I T Kusumoto, S Kadota, M Hattori, T Namba

Study Type : In Vitro Study

Additional Links

Substances : [Oak](#) : CK(5) : AC(4), [Phyllanthus emblica](#) : CK(7) : AC(4), [Rumex](#) : CK(3) : AC(2), [Terminalia](#) : CK(20) : AC(18)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Reverse Transcriptase Inhibitors](#) : CK(42) : AC(24)

Additional Keywords : [Plant Extracts](#) : CK(3263) : AC(1119)

Topic: Oat Bran

Beta-glucan derived from oatbran has potent activity against HIV-1 cells. –

GMI Summary

Pubmed Data : Planta Med. 2002 May;68(5):397-401. PMID: [18376844](#)

Article Published Date : May 01, 2002

Authors : Shun Chun Wang, S W Annie Bligh, Chang Lian Zhu, Song Shan Shi, Zheng Tao Wang, Zhi Bi Hu, John Crowder, Christopher Branford-White, Chereilyn Vella

Study Type : In Vitro Study

Additional Links

Substances : [Beta-glucan](#) : CK(223) : AC(41), [Oat Bran](#) : CK(55) : AC(8)

Diseases : [HIV Infections](#) : CK(551) : AC(183), [HIV Infections: Transmission](#) : CK(3) : AC(3)

Pharmacological Actions : [Antiviral Agents](#) : CK(627) : AC(290)

Topic: Oats

A compound found within oatbran has potent activity against HIV-1 cells. –

GMI Summary

Pubmed Data : J Agric Food Chem. 2008 Apr 23;56(8):2624-9. Epub 2008 Apr 1. PMID: [18376844](#)

Article Published Date : Apr 23, 2008

Authors : Shun Chun Wang, S W Annie Bligh, Chang Lian Zhu, Song Shan Shi,

Zheng Tao Wang, Zhi Bi Hu, John Crowder, Christopher Branford-White, Cherelyn Vella

Study Type : In Vitro Study

Additional Links: **Substances** : [Oats](#) : [CK\(277\)](#) : [AC\(45\)](#)

Diseases : [HIV Infections](#) : [CK\(551\)](#) : [AC\(183\)](#)

Topic: [Ochna integerrima](#)

[Ochna integerrima contains a flavonoid with anti-HIV activity.](#) - GMI Summary

Pubmed Data : Planta Med. 2007 Jun;73(7):683-8. Epub 2007 Jun 11. PMID: [17562490](#)

Article Published Date : Jun 01, 2007

Authors : Vichai Reutrakul, Niwat Ningnuek, Manat Pohmakotr, Chalobon Yoosook, Chanita Napaswad, Jitra Kasisit, Thawatchai Santisuk, Patoomratana Tuchinda

Study Type : In Vitro Study

Additional Links

Substances : [Flavonoids](#) : [CK\(885\)](#) : [AC\(288\)](#), [Ochna integerrima](#) : [CK\(1\)](#) : [AC\(1\)](#)

Diseases : [HIV Infections](#) : [CK\(551\)](#) : [AC\(183\)](#)

Pharmacological Actions : [Anti-HIV Agents](#) : [CK\(116\)](#) : [AC\(59\)](#)

Additional Keywords : [Plant Extracts](#) : [CK\(3263\)](#) : [AC\(1119\)](#)

Topic: [Ocimum gratissimum](#)

[Ocimum gratissimum, Ficus polita, Clausena anisata, Alchornea cordifolia, and Elaeophorbia drupifera are superior to the drug AZT for inhibiting HIV-1 and HIV-2 infections.](#) - GMI Summary

Pubmed Data : Antiviral Res. 2003 Mar;58(1):25-33. PMID: [12719004](#)

Article Published Date : Mar 01, 2003

Authors : Nana K Ayisi, Caesar Nyadedzor

Study Type : In Vitro Study

Additional Links

Substances : [Alchornea cordifolia](#) : [CK\(1\)](#) : [AC\(1\)](#), [Clausena anisata](#) : [CK\(1\)](#) : [AC\(1\)](#), [Elaeophorbia drupifera](#) : [CK\(1\)](#) : [AC\(1\)](#), [Ficus](#) : [CK\(1\)](#) : [AC\(1\)](#), [Ocimum gratissimum](#) : [CK\(1\)](#) : [AC\(1\)](#)

Diseases : [HIV Infections](#) : [CK\(551\)](#) : [AC\(183\)](#)

Pharmacological Actions : [Anti-HIV Agents](#) : [CK\(116\)](#) : [AC\(59\)](#), [Reverse Transcriptase Inhibitors](#) : [CK\(42\)](#) : [AC\(24\)](#)

Additional Keywords : [Plant Extracts](#) : [CK\(3263\)](#) : [AC\(1119\)](#), [Superiority of Natural Substances versus Drugs](#) : [CK\(895\)](#) : [AC\(172\)](#)

Topic: [Oyster Mushroom: Golden](#)

Golden Oyster Mushroom (*Pleurotus cintrinpileatus*) exhibits potent antitumor, mitogenic and HIV reverse transcriptase inhibitory activity. - GMI Summary

Pubmed Data : Biochim Biophys Acta. 2008 Jan;1780(1):51-7. Epub 2007 Sep 20. PMID: [17961926](#)

Article Published Date : Jan 01, 2008

Authors : Y R Li, Q H Liu, H X Wang, T B Ng

Study Type : In Vitro Study

Additional Links

Substances : [Oyster Mushroom: Golden](#) : CK(6) : AC(4)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Antineoplastic Agents](#) : CK(747) : AC(434), [Antiproliferative](#) : CK(939) : AC(711), [Reverse Transcriptase Inhibitors](#) : CK(42) : AC(24)

Additional Keywords : [Lectins](#) : CK(61) : AC(37)

Topic: Palmitic acid

Palmitic acid blocks HIV entry and infection. - GMI Summary

Pubmed Data : AIDS Res Hum Retroviruses. 2009 Dec;25(12):1231-41. PMID: [20001317](#)

Article Published Date : Dec 01, 2009

Authors : David Y-W Lee, Xudong Lin, Elena E Paskaleva, Yanze Liu, Shadakshara S Puttamadappa, Carol Thornber, James R Drake, Maja Habulin, Alexander Shekhtman, Mario Canki

Study Type : In Vitro Study

Additional Links: Substances : [Palmitic acid](#) : CK(11) : AC(2)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Topic: Pau D'Arco

Curcumin and beta-lapachone inhibit HIV virus replication. - GMI Summary

Pubmed Data : Proc Natl Acad Sci U S A. 1993 Mar 1;90(5):1839-42. PMID: [8446597](#)

Article Published Date : Mar 01, 1993

Authors : C J Li, L J Zhang, B J Dezube, C S Crumpacker, A B Pardee

Study Type : In Vitro Study

Additional Links

Substances : [Curcumin](#) : CK(2802) : AC(1470), [Pau D'Arco](#) : CK(14) : AC(14)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Antiviral Agents](#) : CK(627) : AC(290)

Topic: Peltophorum africanum

Betulinic acid appears to be the predominant anti-HIV-1 constituent of *Peltophorum africanum*.

- GMI Summary

Pubmed Data : Tohoku J Exp Med. 2009 Feb;217(2):93-9. PMID: [19212101](#)

Article Published Date : Feb 01, 2009

Authors : Andros Theo, Tracy Masebe, Yasuhiro Suzuki, Haruhisa Kikuchi, Shoko Wada, Chikwelu Larry Obi, Pascal Obong Bessong, Motoki Usuzawa, Yoshiteru Oshima, Toshio Hattori

Study Type : In Vitro Study

Additional Links

Substances : [Betulinic acid](#) : CK(6) : AC(6), [Peltophorum africanum](#) : CK(1) : AC(1)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59)

Additional Keywords : [Plant Extracts](#) : CK(3263) : AC(1119)

Topic: Peppermint

Aqueous extracts from peppermint, sage and lemon balm leaves exhibit anti-HIV-1 activity. -

GMI Summary

Pubmed Data : Retrovirology. 2008 Mar 20;5:27. PMID: [18355409](#)

Article Published Date : Mar 20, 2008

Authors : Silvia Geuenich, Christine Goffinet, Stephanie Venzke, Silke Nolkemper, Ingo Baumann, Peter Plinkert, Jürgen Reichling, Oliver T Keppler

Study Type : In Vitro Study

Additional Links

Substances : [Lemon Balm](#) : CK(2) : AC(3), [Peppermint](#) : CK(242) : AC(38), [Sage](#) : CK(80) : AC(16)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Antiviral Agents](#) : CK(627) : AC(290)

Topic: Perilla

Melissa, Sweet Basil, Perilla, Prunella vulgaris and Savory has anti-HIV-1 activity. -

GMI Summary

Pubmed Data : Zh Mikrobiol Epidemiol Immunobiol. 1986 Jan;(1):62-5. PMID: [9743251](#)

Article Published Date : Jan 01, 1986

Authors : K Yamasaki, M Nakano, T Kawahata, H Mori, T Otake, N Ueba, I Oishi, R Inami, M Yamane, M Nakamura, H Murata, T Nakanishi

Study Type : In Vitro Study

Additional Links

Substances : [Basil: Sweet](#) : CK(2) : AC(2), [Melissa \(Lemonbalm\)](#) : CK(78) : AC(14), [Perilla](#) : CK(16) : AC(10), [Prunella vulgaris.](#) : CK(6) : AC(5), [Savory](#) : CK(5) : AC(9)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Reverse Transcriptase Inhibitors](#) : CK(42) : AC(24)

Additional Keywords : [Plant Extracts](#) : CK(3263) : AC(1119)

Topic: Phaseolus vulgaris

[French bean hemagglutinin exhibits antitumor, antifungal, and anti-HIV-1 reverse transcriptase activities.](#) - GMI Summary

Pubmed Data : Phytomedicine. 2009 Sep 7. Epub 2009 Sep 7. PMID: [19740639](#)

Article Published Date : Sep 07, 2009

Authors : S K Lam, T B Ng

Study Type : In Vitro Study

Additional Links: Substances : [Phaseolus vulgaris](#) : CK(1) : AC(1)

Diseases : [Breast Cancer](#) : CK(1934) : AC(551), [Hepatoma](#) : CK(23) : AC(22), [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-Tumor](#) : CK(74) : AC(45), [Antifungal Agents](#) : CK(170) : AC(108), [Reverse Transcriptase Inhibitors](#) : CK(42) : AC(24)

Additional Keywords : [Lectins](#) : CK(61) : AC(37)

Topic: Phosphatidylcholine

[Lecithinized superoxide dismutase inhibits HIV-1 virus replication and appears to work synergistically with antiretroviral medications.](#) - GMI Summary

Pubmed Data : AIDS Res Hum Retroviruses. 1997 Mar 1;13(4):283-90. PMID: [9071427](#)

Article Published Date : Mar 01, 1997

Authors : M Premanathan, H Nakashima, R Igarashi, Y Mizushima, K Yamada

Study Type : In Vitro Study

Additional Links

Substances : [Lecithin](#) : CK(28) : AC(10), [Phosphatidylcholine](#) : CK(99) : AC(21), [Superoxide dismutase](#) : CK(16) : AC(5)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59)

Additional Keywords : [Drug-Plant-Vitamin Synergies](#) : CK(1011) : AC(275)

Topic: *Phyllanthus emblica*

The fruits of *Phyllanthus emblica* L., *Quercus pedunculata* (Oak) , *Rumex cypricus*, *Terminalia bellerica*, *Terminalia chebula* , and *Terminalia horrida* showed significant inhibitory activity against HIV virus. - GMI Summary

Pubmed Data : Chem Pharm Bull (Tokyo). 1995 Apr;43(4):641-8. PMID: [7541317](#)

Article Published Date : Apr 01, 1995

Authors : S el-Mekkawy, M R Meselhy, I T Kusumoto, S Kadota, M Hattori, T Namba

Study Type : In Vitro Study

Additional Links

Substances : [Oak : CK\(5\) : AC\(4\)](#), [Phyllanthus emblica : CK\(7\) : AC\(4\)](#), [Rumex : CK\(3\) : AC\(2\)](#), [Terminalia : CK\(20\) : AC\(18\)](#)

Diseases : [HIV Infections : CK\(551\) : AC\(183\)](#)

Pharmacological Actions : [Reverse Transcriptase Inhibitors : CK\(42\) : AC\(24\)](#)

Additional Keywords : [Plant Extracts : CK\(3263\) : AC\(1119\)](#)

Topic: *Pleurotus nebrodensis*

Nebrodeolysin, a novel hemolytic protein from mushroom *Pleurotus nebrodensis* exhibits anticancer and anti-HIV effects. - GMI Summary

Pubmed Data : J Nutr. 2010 Dec;140(12):2180-6. Epub 2010 Oct 27. PMID: [18722099](#)

Article Published Date : Dec 01, 2010

Authors : Hui Lv, Yang Kong, Qing Yao, Bo Zhang, Fang-Wei Leng, He-Jiao Bian, Jan Balzarini, Els Van Damme, Jin-Ku Bao

Study Type : In Vitro Study

Additional Links

Substances : [Pleurotus nebrodensis : CK\(3\) : AC\(2\)](#)

Diseases : [HIV Infections : CK\(551\) : AC\(183\)](#)

Pharmacological Actions: [Anti-HIV Agents: CK\(116\): AC\(59\)](#), [Antineoplastic Agents: CK\(747\): AC\(434\)](#), [Antiproliferative: CK\(939\): AC\(711\)](#), [Apoptotic: CK\(1396\): AC\(1086\)](#)

Additional Keywords : [Fungal Proteins : CK\(14\) : AC\(5\)](#)

Topic: *Polygonum multiflorum*

***Polygonum cuspidatum* and *Polygonum multiflorum* contain anti-HIV activity. – GMI Summary**

Pubmed Data : Planta Med. 2010 Jan 28. Epub 2010 Jan 28. PMID: [20112182](#)

Article Published Date : Jan 28, 2010

Authors : Hong-Wei Lin, Ming-Xue Sun, Yun-Hua Wang, Liu-Meng Yang,

Ying-Ruo Yang, Ning Huang, Li-Jiang Xuan, Ya-Ming Xu, Dong-Lu Bai,

Yong-Tang Zheng, Kai Xiao

Study Type : In Vitro Study

Additional Links

Substances : [Hu Zhang \(Polygonum cuspidatum\)](#) : CK(964) : AC(9), [Polygonum multiflorum](#) : CK(1) : AC(1)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Antiviral Agents](#) : CK(627) : AC(290)

Topic: Pycnogenol

[Pycnogenol, a procyanidin-rich extract from French maritime pine, inhibits intracellular replication of HIV-1 as well as its binding to host cells. - GMI Summary](#)

Pubmed Data : Jpn J Infect Dis. 2008 Jul;61(4):279-85. PMID: [18653969](#)

Article Published Date : Jul 01, 2008

Authors : Wu Yu Feng, Ritsuko Tanaka, Yoshio Inagaki, Yasunori Saitoh,

Myint Oo Chang, Tohti Amet, Norio Yamamoto, Shoji Yamaoka, Yoshiyuki Yoshinaka

Study Type : In Vitro Study

Additional Links

Substances : [Catechin](#) : CK(408) : AC(130), [Flavonoids](#) : CK(885) : AC(288), [Pycnogenol](#) : CK(500) : AC(65)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59)

Additional Keywords : [Plant Extracts](#) : CK(3263) : AC(1119), [Proanthocyanidins](#) : CK(167) : AC(45)

Topic: Reishi Mushroom

[Reishi \(Ganoderma lucidum\) contains compounds with inhibitory activity against HIV-1 protease. - GMI Summary](#)

Pubmed Data : Chem Pharm Bull (Tokyo). 1998 Oct;46(10):1607-12. PMID: [9810695](#)

Article Published Date : Oct 01, 1998

Authors : B S Min, N Nakamura, H Miyashiro, K W Bae, M Hattori

Study Type : In Vitro Study

Additional Links

Substances : [Reishi Mushroom](#) : CK(106) : AC(42)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [HIV Protease Inhibitors](#) : CK(26) : AC(15)

Topic: Rhizoma cibotte

Tannin from the herbs *Prunella vulgaris* and *Rhizoma cibotte* may responsible for anti-HIV activity. - GMI Summary

Pubmed Data : Life Sci. 2002 Aug 30;71(15):1779-91. PMID: [12151056](#)

Article Published Date : Aug 30, 2002

Authors : Shuwen Liu, Shibo Jiang, Zhihua Wu, Lin Lv, Jiajie Zhang, Zhengguang Zhu, Shuguang Wu

Study Type : In Vitro Study

Additional Links

Substances : [Prunella vulgaris. : CK\(6\) : AC\(5\)](#), [Rhizoma cibotte : CK\(1\) : AC\(1\)](#)

Diseases : [HIV Infections : CK\(551\) : AC\(183\)](#)

Pharmacological Actions : [Antiviral Agents : CK\(627\) : AC\(290\)](#)

Additional Keywords : [Plant Extracts : CK\(3263\) : AC\(1119\)](#)

Topic: Rice Bran

A shiitake/rice bran combination known as MGN-3 has potent anti-HIV activity. – GMI Summary

Pubmed Data : Biochem Biophys Res Commun. 1998 Feb 4;243(1):25-9. PMID: [9473473](#)

Article Published Date : Feb 04, 1998

Authors : M Ghoneum

Study Type : In Vitro Study

Additional Links

Substances : [Modified Arabinoxylan Rice Bran \(MGN-3\) : CK\(2\) : AC\(2\)](#), [Rice Bran : CK\(29\) : AC\(14\)](#), [Shiitake Mushroom : CK\(72\) : AC\(17\)](#)

Diseases : [HIV Infections : CK\(551\) : AC\(183\)](#)

Pharmacological Actions : [Anti-HIV Agents : CK\(116\) : AC\(59\)](#)

Topic: Rumex

The fruits of *Phyllanthus emblica* L., *Quercus pedunculata* (Oak) , *Rumex cypricus*, *Terminalia bellerica*, *Terminalia chebula* , and *Terminalia horrida* showed significant inhibitory activity against HIV virus. - GMI Summary

Pubmed Data : Chem Pharm Bull (Tokyo). 1995 Apr;43(4):641-8. PMID: [7541317](#)

Article Published Date : Apr 01, 1995

Authors : S el-Mekkawy, M R Meselhy, I T Kusumoto, S Kadota, M Hattori, T Namba

Study Type : In Vitro Study

Additional Links

Substances : [Oak](#) : CK(5) : AC(4), [Phyllanthus emblica](#) : CK(7) : AC(4), [Rumex](#) : CK(3) : AC(2), [Terminalia](#) : CK(20) : AC(18)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Reverse Transcriptase Inhibitors](#) : CK(42) : AC(24)

Additional Keywords : [Plant Extracts](#) : CK(3263) : AC(1119)

Topic: Sage

[Aqueous extracts from peppermint, sage and lemon balm leaves exhibit anti-HIV-1 activity.](#) -

GMI Summary

Pubmed Data : [Retrovirology](#). 2008 Mar 20;5:27. PMID: [18355409](#)

Article Published Date : Mar 20, 2008

Authors : Silvia Geuenich, Christine Goffinet, Stephanie Venzke, Silke Nolkemper, Ingo Baumann, Peter Plinkert, Jürgen Reichling, Oliver T Keppler

Study Type : In Vitro Study

Additional Links

Substances : [Lemon Balm](#) : CK(2) : AC(3), [Peppermint](#) : CK(242) : AC(38), [Sage](#) : CK(80) : AC(16)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Antiviral Agents](#) : CK(627) : AC(290)

Topic: Savory

[Melissa, Sweet Basil, Perilla, Prunella vulgaris and Savory has anti-HIV-1 activity.](#) -

GMI Summary

Pubmed Data : [Zh Mikrobiol Epidemiol Immunobiol](#). 1986 Jan;(1):62-5. PMID: [9743251](#)

Article Published Date : Jan 01, 1986

Authors : K Yamasaki, M Nakano, T Kawahata, H Mori, T Otake, N Ueba, I Oishi, R Inami, M Yamane, M Nakamura, H Murata, T Nakanishi

Study Type : In Vitro Study

Additional Links

Substances : [Basil: Sweet](#) : CK(2) : AC(2), [Melissa \(Lemonbalm\)](#) : CK(78) : AC(14), [Perilla: CK\(16\) : AC\(10\)](#), [Prunella vulgaris](#) : CK(6) : AC(5), [Savory](#) : CK(5) : AC(9)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Reverse Transcriptase Inhibitors](#) : CK(42) : AC(24)

Additional Keywords : [Plant Extracts](#) : CK(3263) : AC(1119)

Topic: Seaweed: Brown

Brown seaweed contain fucoidans with antiretroviral activity against HIV-1, including drugresistant strains. - GMI Summary

Pubmed Data : Mol Pharmacol. 2004 Dec;66(6):1643-51. Epub 2004 Sep 10. PMID: [19107862](#)

Article Published Date : Dec 01, 2004

Authors : Juan Trincherro, Nora M A Ponce, Osvaldo L Córdoba, María L Flores, Sandra Pampuro, Carlos A Stortz, Horacio Salomón, Gabriela Turk

Study Type : In Vitro Study

Additional Links

Substances : [Fucoidan](#) : CK(22) : AC(15), [Seaweed: Brown](#) : CK(46) : AC(6)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59)

Additional Keywords : [Plant Extracts](#) : CK(3263) : AC(1119)

Topic: Soy

Soy products may have anti-HIV activity. - GMI Summary

Pubmed Data : Lik Sprava. 2008 Oct-Dec(7-8):63-9. PMID: [19663020](#)

Article Published Date : Oct 01, 2008

Authors : S L Rybalko, Iu N Anisimova, E V Maksimenok

Study Type : In Vitro Study

Additional Links: Substances : [Soy](#) : CK(1662) : AC(336)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Antiviral Agents](#) : CK(627) : AC(290)

Topic: Soybean: Black

A lectin purified from black soybeans inhibit HIV-1 reverse transcriptase. –

GMI Summary

Pubmed Data : Protein Pept Lett. 2010 Jan 10. Epub 2010 Jan 10. PMID: [19715533](#)

Article Published Date : Jan 10, 2010

Authors : E F Fang, J H Wong, P Lin, T B Ng

Study Type : In Vitro Study

Additional Links: Substances : [Soybean: Black](#) : CK(2) : AC(2)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Reverse Transcriptase Inhibitors](#) : CK(42) : AC(24)

Additional Keywords : [Lectins](#) : CK(61) : AC(37)

Topic: Superoxide dismutase

Lecithinized superoxide dismutase inhibits HIV-1 virus replication and appears to work synergistically with antiretroviral medications. - GMI Summary

Pubmed Data : AIDS Res Hum Retroviruses. 1997 Mar 1;13(4):283-90. PMID: [9071427](#)

Article Published Date : Mar 01, 1997

Authors : M Premanathan, H Nakashima, R Igarashi, Y Mizushima, K Yamada

Study Type : In Vitro Study

Additional Links

Substances : [Lecithin](#) : CK(28) : AC(10), [Phosphatidylcholine](#) : CK(99) : AC(21), [Superoxide dismutase](#) : CK(16) : AC(5)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59)

Additional Keywords : [Drug-Plant-Vitamin Synergies](#) : CK(1011) : AC(275)

Topic: Tamanu

Tamanu contains compounds with anti-HIV activity. - GMI Summary

Pubmed Data : Anal Chim Acta. 2008 Aug 22;624(1):147-53. Epub 2008 Jul 9. PMID: [18706320](#)

Article Published Date : Aug 22, 2008

Authors : Frédéric Laure, Phila Raharivelomanana, Jean-François Butaud, Jean-Pierre Bianchini, Emile M Gaydou

Study Type : In Vitro Study

Additional Links: Substances : [Tamanu](#) : CK(2) : AC(3)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59), [Antiviral Agents](#) : CK(627) : AC(290)

Additional Keywords : [Plant Extracts](#) : CK(3263) : AC(1119)

Topic: Terminalia

The fruits of Phyllanthus emblica L., Quercus pedunculata (Oak) , Rumex cyprius, Terminalia bellerica, Terminalia chebula , and Terminalia horrida showed significant inhibitory activity against HIV virus. - GMI Summary

Pubmed Data : Chem Pharm Bull (Tokyo). 1995 Apr;43(4):641-8. PMID: [7541317](#)

Article Published Date : Apr 01, 1995

Authors : S el-Mekkawy, M R Meselhy, I T Kusumoto, S Kadota, M Hattori, T Namba

Study Type : In Vitro Study

Additional Links

Substances : [Oak](#) : CK(5) : AC(4), [Phyllanthus emblica](#) : CK(7) : AC(4), [Rumex](#) : CK(3) : AC(2),
[Terminalia](#) : CK(20) : AC(18)
Diseases : [HIV Infections](#) : CK(551) : AC(183)
Pharmacological Actions : [Reverse Transcriptase Inhibitors](#) : CK(42) : AC(24)
Additional Keywords : [Plant Extracts](#) : CK(3263) : AC(1119)

Topic: [Trigonostema xyphophylloides](#)

[Trigonostema xyphophylloides and Vatica astrotricha inhibit HIV-1 replication by blocking HIV- 1 interaction with target cells.](#) - GMI Summary

Pubmed Data : BMC Complement Altern Med. 2009;9:29. Epub 2009 Aug 5. PMID: [19656383](#)

Article Published Date : Jan 01, 2009

Authors : In-Woo Park, Changri Han, Xiaoping Song, Linden A Green, Ting Wang, Ying Liu, Changchun Cen, Xinming Song, Biao Yang, Guangying Chen, Johnny J He

Study Type : In Vitro Study

Additional Links

Substances:[Trigonostema xyphophylloides](#):CK(1):AC(1),[Vatica astrotricha](#):CK(1):AC(1)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Antiviral Agents](#) : CK(627) : AC(290)

Additional Keywords : [Plant Extracts](#) : CK(3263) : AC(1119)

Topic: [Tripterygium wilfordii](#)

[Tripterygium wilfordii contains a compound with anti-HIV activity.](#) - GMI Summary

Pubmed Data : Bioorg Med Chem. 1995 Oct;3(10):1345-8. PMID: [8564400](#)

Article Published Date : Oct 01, 1995

Authors : K Chen, Q Shi, T Fujioka, T Nakano, C Q Hu, J Q Jin, R E Kilkuskie, K H Lee

Study Type : In Vitro Study

Additional Links: **Substances** : [Tripterygium wilfordii](#) : CK(104) : AC(26)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Antiviral Agents](#) : CK(627) : AC(290)

Additional Keywords : [Plant Extracts](#) : CK(3263) : AC(1119)

Topic: [Tuberaria](#)

[Tuberaria lignosa contains ellagitannins which inhibit HIV entry.](#) - GMI Summary

Pubmed Data : Phytomedicine. 2010 Jan;17(1):69-74. Epub 2009 Sep 11. PMID: [19748255](#)

Article Published Date : Jan 01, 2010

Authors : L M Bedoya, M J Abad, S Sánchez-Palomino, J Alcami, P Bermejo

Study Type : In Vitro Study

Additional Links: Substances: [Tannic Acid: CK\(20\): AC\(16\)](#), [Tuberaria: CK\(1\):AC\(1\)](#)

Diseases : [HIV Infections : CK\(551\) : AC\(183\)](#)

Pharmacological Actions : [Antiviral Agents : CK\(627\) : AC\(290\)](#)

Topic: Valerian

[Valerian root contains the compound valtrate with has anti-HIV activity.](#) - GMI Summary

Pubmed Data : Bioorg Med Chem Lett. 2002 Oct 21;12(20):2807-10. PMID: [12270151](#)

Article Published Date : Oct 21, 2002

Authors : Nobutoshi Murakami, Ying Ye, Motoyuki Kawanishi, Shunji Aoki, Nobuaki Kudo, Minoru Yoshida, Emi E Nakayama, Tatsuo Shioda, Motomasa Kobayashi

Study Type : In Vitro Study

Additional Links: Substances : [Valerian : CK\(117\) : AC\(20\)](#)

Diseases : [HIV Infections : CK\(551\) : AC\(183\)](#)

Pharmacological Actions : [Reverse Transcriptase Inhibitors : CK\(42\) : AC\(24\)](#)

Topic: Vatica astrotricha

[Trigonostema xyphophylloides and Vatica astrotricha inhibit HIV-1 replication by blocking HIV-1 interaction with target cells.](#) - GMI Summary

Pubmed Data : BMC Complement Altern Med. 2009;9:29. Epub 2009 Aug 5. PMID: [19656383](#)

Article Published Date : Jan 01, 2009

Authors : In-Woo Park, Changri Han, Xiaoping Song, Linden A Green, Ting Wang, Ying Liu, Changchun Cen, Xinming Song, Biao Yang, Guangying Chen, Johnny J He

Study Type : In Vitro Study

Additional Links

Substance: [Trigonostema xyphophylloides:CK\(1\):AC\(1\)](#), [Vatica astrotrich: CK\(1\):AC\(1\)](#)

Diseases : [HIV Infections : CK\(551\) : AC\(183\)](#)

Pharmacological Actions : [Antiviral Agents : CK\(627\) : AC\(290\)](#)

Additional Keywords : [Plant Extracts : CK\(3263\) : AC\(1119\)](#)

Topic: Vatica cinerea

[Vatica cinerea contains anti-HIV constituents.](#) - GMI Summary

Pubmed Data : J Nat Prod. 2003 Feb;66(2):263-8. PMID: [12608862](#)

Article Published Date : Feb 01, 2003

Authors : Hong-Jie Zhang, Ghee Teng Tan, Vu Dinh Hoang, Nguyen Van Hung, Nguyen Manh Cuong, D Doel Soejarto, John M Pezzuto, Harry H S Fong

Study Type : In Vitro Study

Additional Links

Substances : [Vatica cinerea](#) : CK(1) : AC(1)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Pharmacological Actions : [Anti-HIV Agents](#) : CK(116) : AC(59)

Topic: [Massage/Therapeutic Touch](#)

[Massage therapy is associated with enhancement of the immune system's cytotoxic capacity.](#) -

GMI Summary

Pubmed Data : Int J Neurosci. 1996 Feb;84(1-4):205-17. PMID: [8707483](#)

Article Published Date : Feb 01, 1996

Authors : G Ironson, T Field, F Scafidi, M Hashimoto, M Kumar, A Kumar, A Price, A Goncalves, I Burman, C Tetenman, R Patarca, M A Fletcher

Study Type : Human Study

Additional Links

Diseases : [Catecholamines: Elevated](#) : CK(76) : AC(10), [Cortisol: High](#) : CK(831) : AC(60), [HIV Infections](#) : CK(551) : AC(183), [Immune Disorders: Low Immune Function](#) : CK(483) : AC(116), [Low Immune Function: Natural Killer Cells](#) : CK(90) : AC(15)

Therapeutic Actions : [Massage/Therapeutic Touch](#) : CK(710) : AC(72)

[There is some evidence to support the use of massage therapy to improve quality of life for people living with HIV/AIDS.](#) - **GMI Summary**

Pubmed Data : Cochrane Database Syst Rev. 2010(1):CD007502. Epub 2010 Jan 20. PMID: [20091636](#)

Article Published Date : Jan 01, 2010

Authors : Susan L Hillier, Quinette Louw, Linzette Morris, Jeanine Uwimana, Sue Statham

Study Type : Human Study

Additional Links

Diseases : [AIDS](#) : CK(610) : AC(9), [HIV Infections](#) : CK(551) : AC(183)

Therapeutic Actions : [Massage/Therapeutic Touch](#) : CK(710) : AC(72)

Topic: [Yoga](#)

[Yoga lifestyle intervention reduces blood pressure in HIV-infected adults with cardiovascular disease risk factors.](#) - **GMI Summary**

Pubmed Data : HIV Med. 2010 Jan 5. Epub 2010 Jan 5. PMID: [20059570](#)

Article Published Date : Jan 05, 2010

Authors : W T Cade, D N Reeds, K E Mondy, E T Overton, J Grassino, S Tucker,

C Bopp, E Laciny, S Hubert, S Lassa-Claxton, K E Yarasheski

Study Type : Human Study

Additional Links

Diseases : [HIV Infections](#) : CK(551) : AC(183), [Hypertension](#) : CK(1749) : AC(259)

Therapeutic Actions : [Yoga](#) : CK(671) : AC(74)

Pharmacological Actions : [Hypotensive](#) : CK(329) : AC(47)

Topic: Light Therapy

The anti-HIV-1 activity of hypericin (St. John's wort) is dependent on activation through visible light. - GMI Summary

Pubmed Data : Antiviral Res. 1993 Feb;20(2):173-8. PMID: [8460933](#)

Article Published Date : Feb 01, 1993

Authors : J B Hudson, L Harris, G H Towers

Study Type : Commentary

Additional Links

Substances : [St. Johns Wort](#) : CK(186) : AC(48)

Diseases : [HIV Infections](#) : CK(551) : AC(183)

Therapeutic Actions : [Light Therapy](#) : CK(67) : AC(17)

Pharmacological Actions : [Antiviral Agents](#) : CK(627) : AC(290)

Appendix D:

Unconventional Ways to Deal with HIV Infection and AIDS: Three Paths

by Gary Null, Ph.D. & Adam Atkin, Ph.D.

This paper will first sketch our current knowledge of some alternative ways to understand the health disturbances that now fall under the rubrics of "asymptomatic HIV infection," ARC (AIDS-related complex), and AIDS; and then it will look at examples of alternative approaches to treating these disorders. The objective is to show some current directions for therapy that seem deserving of more intensive and extensive testing.

The first direction that will be examined is therapy aimed primarily toward supporting the organism's own mechanisms for healing and defense, by bringing deficient nutrient levels back toward optimal levels - which for the diseased organism may be higher than those considered 'normal', if there is need to compensate for lowered abilities to absorb and/or utilize those nutrients. This supportive approach may also use herbal products that have been found to strengthen immune responses or other body functions, even where the exact mechanism of these effects remain unknown.

The second direction involves a sophisticated but highly unconventional approach to normalizing the body's metabolic balance, mostly through use of special fatty acid and trace metal preparations.

The third direction is a therapy that uses an elevated yet apparently entirely safe blood level of the triatomic form of the most common element in our body, oxygen, employing it for its effects (a) on the immune system, (b) on the metabolism of other cells, and (c) on viral activity and replication.

Then, examples of the application of these therapies to HIV infection will be given. Nutritional therapy will be exemplified by our first physician, Dr. Christopher Calapai; metabolic balance adjustment by our 2nd physician, Dr. Emanuel Revici (who originated and is the main exponent of this approach); and ozone therapy by our 3rd physician, Dr. 'Z'. In each case, the physician picked from his patient records some cases which demonstrated some benefit

from his therapy. Thus, this survey will not tell us what proportion of each physician's patient population were helped, but will show how some were apparently benefited.

AIDS Factors and Etiologies

What is AIDS? And what are the consequences of HIV infection? The presently dominant theory (too well known to require much comment) is that AIDS results primarily from HIV infection through viral invasion of and damage to cells of various tissues, especially of the immune system, setting the stage for other invaders that can no longer be repulsed.

Evidence for a more complex story that is now gaining support will be sketched briefly in the first part of this section: This the autoimmune hypothesis, which likens the immune system damage of AIDS to the phenomena of graft-versus-host-disease.^{1,3} Here also, HIV infection is the necessary and sufficient cause of AIDS.

Major variants of these single-factor scenarios are cofactor theories in which, though HIV may be necessary, it is not sufficient.⁴ These theories may be relevant not only through indicating what lifestyle changes can be beneficial preventatively and/or therapeutically, but also (a) when we consider antiviral therapies that can also counter other viruses than HIV, and (b) when we consider nutritional therapies to correct depletions that accompany HIV infection.⁵⁻⁸

However, whether or not nutrient depletions play a fundamental etiologic role, in the sense of being necessary for the development of AIDS in HIV-infected individuals, there is increasing evidence that they are important causes of the downward slide, which they accelerate in various ways both by further depressing immune function and by deranging other functions. These phenomena will be surveyed in the second part of this section.

Autoimmune Hypothesis: Though AIDS (acquired immunodeficiency syndrome) was so named only recently, this syndrome has been around for a long time. People had expired even 40 or 50 years ago with sickness that had the same presentation.⁹ And now, some knowledgeable people question whether the syndrome is caused primarily or solely by the human immunodeficiency virus, or HIV.^{10,11} It has been asserted that "this organism displays only weak cytopathic effects and that the viral load is generally much too low to account directly for the remorseless destruction of CD4 lymphocytes characteristic of the disease."¹²

A controversial theory of AIDS has HIV triggering an autoimmune response. The idea is that HIV does not attack the immune system directly, as most biologists believe, but rather, that "the virus provokes the immune system into attacking itself" - a theory "based partly on the finding that HIV's envelope protein, GB 120, seems to mimic the shape of certain crucial proteins in the body's own immune system."¹¹ There is "evidence that HIV may trigger a self-destructive immune response, for which appropriate models may be found in graft-versus-host disease (GVHD), certain autoimmune disorders, and some animal viral infections."¹²⁻¹⁴

The concept, then, is of an immune response destroying part of the immune system, and thereby destroying our ability to fight other infection. Dr. Calapai, our 1st physician, considers this to be the most plausible reason for the overall immune dysfunction and depletion. He says he has seen patients (and knows of others) that are HIV negative, and who never had HIV, but who have full-blown AIDS. Generally, they are people that have had repeated exposure to numerous bizarre bacterial or viral infections.

Besides the hypothesis that an autoimmune mechanism may destroy components of the immune system, there is reason to suspect an

autoimmune component in other symptoms of AIDS – for example, in the neuropathies:

Thus, there seems reason to suspect that some of the effects of HIV infection on the central nervous system – including, perhaps, dementia – may involve an autoimmune mechanism; but significant depletion of the B vitamins might also be involved. Dr. Calapai is sure that there are many things that are in combination, affecting the body in many ways.

Cofactor and other (non-HIV) immune suppression theories: Another controversial theory of AIDS is that of HIV discoverer Luc Montagnier. His central hypothesis is that HIV requires a cofactor to cause AIDS, and that mycoplasma act as cofactors in AIDS pathogenesis.

But many other immune-suppressant environmental and lifestyle factors may also be highly relevant. One researcher has reported that 97% of United States AIDS cases and 87% of European AIDS cases have been exposed to severe, numerous and repeated immune compromising health risks.¹¹ These health risks include: the use of orally and intravenously taken *recreational drugs* (over 80% of all AIDS cases in the West have a history of recreational drug use); *repeated infections* including sexually transmitted diseases, requiring repeated prescription of immune undermining orthodox drugs; use of the anti-HIV drug AZT; an immune-undermining *emotional state* (exacerbated by an HIV-positive diagnosis, owing to its implicit death sentence); *malnutrition*; and receipt of blood transfusions or *blood products*. What is very interesting, in this regard, is that most of these same immune-suppressant factors (recreational drug use, malnutrition, multiple blood transfusions, and some infectious diseases) increase the risk of false-positive HIV test results¹⁵ – which might falsely elevate the correlation of AIDS with HIV.

There are clues that seem to implicate the use of drugs as a major factor in this syndrome: It's been observed that AIDS defining illnesses are found in similar frequencies among IV drug users, irrespective of whether they carry antibodies to HIV or not, and the overall mortality rate in the

two groups is the same.¹⁶ Nitrites – the recreational drug known as 'poppers' – may be especially important, for epidemiological correlations indicate that they are implicated in the development of Kaposi's sarcoma, pneumocystis carinii pneumonia, and other opportunistic infections used to characterize AIDS.¹¹ Poppers are immunosuppressant.¹⁷⁻¹⁹

However, some prescribed drugs can also be immunosuppressive. For example, there is toxicological evidence that repeated prescriptions of antibiotics can cause a decrease in white blood cells, diarrhea with impaired food absorption and gradual weight loss, decreased resistance to infection, persistent fevers, skin rashes, weakness and prostration, and diseases that affect the nervous system – all of which are considered to be primary symptoms of AIDS.²⁰ But here also, the links (if any) of antibiotic treatment to AIDS may be complex, for while the repeated treatment of infections can be immune suppressive, so can the infections which are being treated. It has been noted that "multiple, concurrent infections begin to affect people at risk for AIDS prior to and in the absence of HIV infection.....many, if not most, infections are present prior to HIV."²¹ The most immunosuppressive of these infectious agents are cytomegalovirus (CMV), herpes simplex viruses (HSV), Epstein-Barr virus (EBV), hepatitis B virus (HBV), human T-cell lymphotropic viruses (HTLV I & HTLV II), Myobacteria species, Mycoplasma species, Candida species and various parasitic diseases.²² CMV, HSV and EBV infect macrophages and lymphocytes, and all cause a decrease in CD4 cells and an increase in CD8 cells leading to a reversed CD4/CD8 ratio, a situation characteristic of people with AIDS. HBV not only decreases CD4 cells leading to the same reversed CD4/CD8 ratio but can also cause severe liver damage impairing its ability to cleanse the body of accumulated drug toxicities.²³ Further, syphilis is common in those at risk for AIDS, is treated with antibiotics, is itself immunosuppressive, and has symptoms like those of AIDS – which has led to the suggestion that AIDS may be a combination of chemical immunosuppression and epidemic syphilis.²⁴

Micronutrient deficiencies (Malabsorption): But though autoimmune and immune suppressant factors may be important, they do not seem the only factors in the immune dysfunction of AIDS patients. Nutritional factors associated both with life-style and with absorption/utilization abnormalities can also be important, for intestinal function is often disturbed in AIDS patients.²⁵⁻²⁷

For example, there are interesting articles that talk about glutathione depletion in HIV-infected patients, the role of cysteine deficiency, and effect of oral n-acetyl cysteine.⁸ Glutathione is a very important substance: People with AIDS have lowered glutathione levels, and this deficiency could be a factor in the syndrome, since glutathione plays a major role in immune response, and (in part because a deficiency of antioxidants can allow an increase in free radical damage) is essential for healthy cell function.²⁸ "Reduced glutathione (GSH) is a major antioxidant and free radical scavenger" (though high levels of ascorbate can serve as a protective free radical scavenger when glutathione is exhausted).²⁹

Glutathione levels have immediate effects upon the immune system, for glutathione is a T-cell stimulator and activator. The T-cells that are lost most frequently as HIV progresses are the CD4's, which are the ones which are most dependent upon glutathione to function.³⁰ Further, among the CD4 and CD8 T-cells, the ones that are selectively lost as the HIV infection progresses are those that have high intracellular glutathione levels.³¹

There are also nutrient effects more directly upon the virus: Antioxidants such as N-acetylcysteine (NAC), glutathione (GSH), and glutathione-monomer (GSE) suppress HIV expression, with NAC, which inhibits cytokine-stimulated HIV replication, seeming the most effective of the three.^{30,32,33} Thiol-based compounds (including glutathione) may thereby limit AIDS progression.^{28,34} The drop in glutathione levels occurs early, and may be a contributing or even a major factor in the pathogenesis of AIDS.^{30,35}

Other nutrient depletions that may also be relevant to early HIV disease (AIDS CDC stage III) include Vitamins

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A, E, B6, B12, riboflavin, copper, zinc, and folate.^{5,6} Several of these are important for immune function: There are studies that were done at Tufts University that look at B6, and how, if individuals that are free of all other medical problems, are depleted in B6, their T-cells can drop. The same happens with glutathione deficiency (see above), with zinc deficiency (see below), as well as with protein malnourishment.

Even when the intake of vitamin B6 is normal, B6 deficiencies are found in HIV-positive men who are asymptomatic except for generalized lymphadenopathy (stage III HIV infection). Immune functions – including the effectiveness of their ‘natural killer cells’ – in a sample of such men has been found to be related to their B6 status.³⁶ But though that report described deficiencies that occur at the third stage of HIV infection, Dr. Calapai has seen deficiencies at earlier stages also. The observation (above) that: “The B6 deficiency occurs even if the intake of vitamin B6 is normal” would seem to implicate a malabsorption problem (more about this later).

Zinc depletion may be equally important. Serum copper levels are elevated and serum zinc levels are reduced in HIV+ individuals who progress to AIDS, and this also is not related to dietary intake.³⁷ There are both human and animal studies that suggest a critical relationship between zinc deficiency, poor immune function, and susceptibility to infectious disease.³⁸

Still another micronutrient that is important for immune function and that may be depleted in HIV-infected individuals is selenium: authors of a recent study concluded that “individuals with early HIV-1 infection frequently have abnormal selenium status, ...and that altered plasma selenium levels were associated with additional immune dysregulation.”³⁹

It has been shown, then, that AIDS is associated with nutritional depletion: and not only of the nutrients already examined, but also with significant protein and calorie malnutrition, resulting in depletion of body fat and muscle mass.

Finally, a very important observation is that deficiencies of

micronutrients are frequent in people with HIV disease even when their dietary intakes are high, suggesting absorption problems, perhaps consequent to viral attack on cells of the gastrointestinal tract.^{38,40}

When HIV-infected patients who were asymptomatic or had early ARC were evaluated, they usually exhibited decreased body mass, body fat, and total protein, which may have resulted in part from the frequently reported gastrointestinal dysfunction, diarrhea and malabsorption.^{41,42} (This general pattern of early changes has been confirmed in a multicenter study.⁴³) Thus malabsorption may be an early and continuing consequence of HIV infection, for “small intestinal malabsorption is a major component in the severe wasting seen in some HIV-infected patients with chronic diarrhea.”⁴⁴ A vicious circle will result: “Once occurring, malnutrition leads to immunosuppression, infection, and mucosal damage, with failure of normal intestinal mucosal turnover and healing, resulting in further malnutrition.”⁴⁵

Malabsorption associated with HIV disease has other effects: it may be that the cognitive deficits (‘AIDS dementia’) that often characterize later stages results at least in part from B12 malabsorption, for vitamin B12 malabsorption is common in AIDS, and may be a very early manifestation of HIV infection.⁴⁶⁻⁴⁹ Correspondingly, cognitive deficits may occur early in HIV infection.⁵⁰ Psychological functions are quite sensitive to vitamin deficiencies.⁵¹ And in early AIDS patients, various measures of cognitive function were found to correlate with B12 levels.^{47,48} Further, neural damage from demyelination may be a consequence of B12 or folate deficiencies in HIV-infected patients.⁶

Malabsorption in HIV-infected patients, at an early or a later stage, might also result in part from defective gastric acidity (possibly from an autoimmune reaction against gastric mucosa). For example, in 48 AIDS patients the mean fasting pH of gastric juice was 5.9, compared to 2.9 in controls.⁵² The resulting multiple depletions are insidious and progressive.

Nutritional and Herbal AIDS Therapies

Nutritional Depletion and Augmentation: Our nutritional therapist, Dr. Calapai, believes that multiple nutrient depletions can begin early in the progression of HIV-associated disease. While most of his data has been gathered from patients with advanced disease and opportunistic infections, Dr. Calapai thinks it's critical to look at the nutritional state of a person as soon as she or he is diagnosed. He feels it's critical to look at the nutritional state of every single person upon presentation at his office, “rather than waiting for some medical problem to occur, and then looking at how to play ‘catchup’ medicine to help the person back to health.” He emphasizes that the whole concept of preventive medicine is to make periodic assessments of the healthy person, and when you find things that are abnormal or problematic, correct them before they end up causing major problems. Dr. Calapai bases his therapeutic program of nutritional support upon results from many studies that showed improved immune function and other positive effects on health from various nutrient supplementations.

Malnutrition in HIV-infected patients can result not only from *malabsorption* of nutrients (already noted), but also from *anorexia* (high in HIV+ patients), and from *high resting energy expenditure*, which also occurs with HIV infection. The latter may be quite important: “in stable and malnourished HIV patients, the progressive wasting may be partly related to an increase in REE [resting energy expenditure],” even in the absence of opportunistic infection.⁵³

This is very interesting! For an increase in resting energy expenditure may characterize other kinds of tissue damage that have not direct relation to AIDS, yet share an impairment of immune responses. And these metabolic imbalances may also be aided by nutritional therapy.⁵⁴ “The roles of substances such as arginine, n-3 polyunsaturated fatty acids, and RNA ...are being evaluated for their ability to modulate inflammation and improve immune function. The initial results are encouraging. They suggest that the

administration of the added nutrients is associated with the return to more normal responses of the immune system.⁵⁵

Vitamins E and B6 are required to maintain the immune response, and supplementation at higher than RDA levels may be necessary for optimal immune function.⁵⁶ Beta-carotene may also prove useful for raising immune competence.⁵⁷ A preliminary trial of beta carotene with 11 HIV-infected patients showed rises in numbers of natural killer cells and activated lymphocytes after three months treatment, with no evidence of clinical toxicity.⁵⁸ A similar augmentation of cellular immunity by beta carotene was observed in HIV-negative subjects.⁵⁹ A cross-over study on 21 HIV-infected individuals showed a 17% higher CD4 (helper T-cell) count during a 4-week period of beta-carotene than during the placebo period.⁶⁰

Another demonstration of a general relation between nutrition and immune function examined a different group of hospitalized patients that is also at risk of both malnutrition and infection – institutionalized elderly people. This study sought to “determine whether supplementation with vitamins A, C, and E would improve cell-mediated immune function in elderly long-stay hospital patients,” with the result that “Several indices of immune function... showed significant improvement in the treated group but not in the placebo group.”⁶¹

Nutritional support of immune function with antioxidants was shown in another geriatric study: “Improving the antioxidant status of the aged might be very beneficial in slowing the decline of immune response, which could then decrease the incidence of severe age-related diseases.”⁶²

While, as we have been discussing, several sorts of nutrient augmentation improve immune function, and thereby aid the body in coping with infection (including that by HIV), some nutrients – if in adequate amount – may have more direct effects upon infecting organisms. For example, HIV is suppressed by ascorbate. One of the most interesting studies talks about the comparative study of the *anti-HIV activities* of ascorbate (vitamin C), and of thiol-containing reducing agents like glutathione and n-acetyl cysteine, in chronically HIV-infected cells. They

report several studies showing that vitamin C both inactivates HIV, and inhibits its growth. After showing the last effects using infected T-lymphocytes, the researchers conclude: “These results further support the potent antiviral activity of ascorbate and suggest its therapeutic value in controlling HIV infection in combination with thiols.”⁶³

The just-mentioned paper also summarized evidence that ascorbic acid can inactivate poliovirus, herpesvirus, vaccinia virus, and hepatitis virus, that it can prevent the intracellular replication of rhino virus, Rouse sarcoma virus, and human T-cell leukemia virus, as well as improving the condition of patients with poliomyelitis, hepatitis, and infectious

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- Aurum Metallicum
- Baptisia Tinctoria
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- Chamomilla
- Cinchona Officinalis
- Cocculus Indicus
- Coffea Cruda
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- Gelsemium
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- Histaminum
- Hypericum Perforatum
- Ignatia Amara
- Ipecacuanha
- Kali Bichromicum
- Ledum Palustre
- Lycopodium Clavatum
- Magnesia Phosphorica
- Mercurius Solubilis
- Nux Vomica
- Phosphorus
- Pulsatilla
- Pyrogenium
- Rhus Toxicodendron
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mononucleosis. And nutrients may also aid the use of more conventional antiviral medications: for example, it has been suggested that Vitamin E has clinical potential in ameliorating the fetal and bone marrow toxicity of AZT.^{64,65}

In summary, certainly individuals that have full-blown AIDS have overwhelming nutritional problems resulting from malabsorption – whether from secretion defects, or from gut infection. Because of this, Dr. Calapai has put some patients on total parenteral nutrition (TPN) when they're not eating and not absorbing terribly well, to try and bypass the gut, and get nutrients into the bloodstream – and has found that many times this works well. Others have also been given diet supplements directly into the intestines (enteral diet) to enhance immunity in patients with suppressed immune systems. "Certain amino acids, as well as omega-3, omega-6, and short-chain fatty acids have been shown to be effective in enhancing immunity. ... Arginine was shown to enhance the function and levels of immune T-cells and reduce the incidence of infection and duration of hospitalization."⁶⁶

Herbal Treatments: To complement such programs of nutritional supplementation, herbal therapies also deserve exploration. The Institute for Traditional Medicine (ITM) in Portland, Oregon has been sponsoring studies at AIDS clinics around the country, studying the effect of Chinese herbs on AIDS. Subhuti Dharmananda, Ph.D. (ITM's founder) has developed a formula for HIV-infected patients combining strong tonic herbs and other herbs used to directly inhibit infection and inflammation. In addition to the basic formula, ITM herbalists have developed a variety of adjunct formulas tailored to an individual's unique symptoms and constitution. Of 150 participants in the study who had undergone treatment for 12 weeks in San Francisco and Chicago centers: "76% of people who had described their prestudy energy levels as "poor" or "fair" reported an increase in energy. Sixty-eight percent of the patients had increased their activities. And 74% reported a greater sense of well-being. ...For patients suffering from diarrhea, 62.5% reported their condition was

cured and 12.5% said it was improved."

And in that group, other symptoms similarly resolved or improved in large portions of those who had them initially, and out of the 150 subjects, only one progressed to a more severe stage of AIDS.⁶⁷

Dr. Calapai notes that Dr. Chang at Sun Yat Sen Medical Center has also studied the usefulness of Chinese herbs for HIV infection.⁶⁸ Chang and Yeung found marked in vitro antiviral effects of eleven herbs used as traditional Chinese anti-infective medications. At concentrations nontoxic to growth of the H9 cells, extracts of the eleven herbs had inhibitory activity against HIV in the H9 cell line (reducing the percentage of cells positive for specific viral antigens by more than three standard deviations below the mean), and five of the extracts produced nearly complete inhibition of the synthesis of HIV antigens (97-100% inhibition of the growth of HIV) in H9 cell cultures.⁶⁹

Dr. Calapai feels that is significant. It is his belief that herbs – if used appropriately – are not as damaging as other medications, and he therefore favors trying them.

Metabolic Imbalance and AIDS: In contrast with Dr. Calapai's therapeutic approach, which (as we have tried to show) rests upon a broad framework of research by many investigators in nutritional and herbal methods, Dr. Revici's therapeutic approach is highly individual, and his theory of health and disease is largely his own creation, carefully worked out both in the laboratory and in the clinic over more than fifty years.

Dr. Emanuel Revici's theory of health and disease concerns the balance and imbalance of opposing processes. These are of two types, the *anabolic* (building up) processes, also referred to as "heterotropic," that generate negentropy; and the *catabolic* (breaking down) processes, also referred to as "homotropic," that generate entropy. "A normal entity can be conceived as one which is able to maintain its constants with their characteristic values, rhythms and intensities by means of the alternate operation of homotropic and heterotropic forces. ...As expected from the dualistic concept, abnormal changes can take place in either of two opposite directions and this is a

significant fact of abnormality. ... The large number of constants which compose each entity and which can become abnormal, help not only to explain the great variety of abnormalities but also offer a means of obtaining analytical pictures of disease."⁷⁰

He relates AIDS to the loss of specific phospholipids (which he calls "refractoriness lipids" that normally play an important role in disease resistance. He has summarized his approach to pathogenesis and treatment thus: "AIDS appears to represent a quadruple pathological condition as follows: (1) a primary viral infection inducing (2) a deficiency of the body's natural lipidic defense, followed by (3) secondary opportunistic infections or specific neoplastic conditions, consequent to the lack of the refractoriness lipids, resulting in (4) an exaggerated manifest imbalance, usually catabolic. In therapy, each of these conditions requires its own specific therapeutic approach. For the viral infections, the antiviral agents are indicated. For the refractoriness deficiency, the refractoriness lipids are administered by injection. For the secondary opportunistic infections, proper antibiotics or other antimicrobial/antifungal agents are applied. For the imbalances consequent to the opportunistic infections or neoplasms, the appropriate anticatabolic or antianabolic agents are used. ... each component must have its own specific therapeutic approach."⁷¹

Now we will look at some of the clinical experience of the doctors treating HIV infection using these two rather different yet not mutually exclusive theoretical frameworks. First the ways that Dr. Calapai works with nutritional variables and herbal tools will be outlined; then (in the following subsection) some of Dr. Revici's experience will be given.

Dr. Christopher Calapai (Nutritional support)

Approach and Method: Immune function is strongly influenced by nutritional status. In treating immunological disorders – AIDS currently being the most prominent – it seems eminently reasonable to pay close attention to nutrition. Such attention,

however, is now uncommon among physicians who treat AIDS. Dr. Calapai notes: "We see many patients who, as soon as they were determined to be HIV-positive, were put on anti-retroviral medication, with no attention to their diet, or other aspects of their life-styles that might affect their immune function. Nevertheless, there is considerable published research that supports our view that nutrition is highly relevant and should not be neglected." Some of this experience will be surveyed below.

Dr. Calapai wants new patients to bring in a week's worth of their diet history, which he goes over carefully. He then tells them how important it is to institute certain lifestyle changes that are beneficial for them. He is convinced that smoking is very damaging in many ways - it helps to wipe out vitamin C (interfering with its actions), and generates a great deal of free radicals, which is certainly bad for the body and the tissues. He also make sure that his patients don't drink any alcohol - again, because that interferes with the uptake of certain nutrients, as well as generating free radicals. He informs them about other lifestyle factors that also have strong effects on immune function - for example, high-fat diets depress immunocompetence.⁷² He wants to teach his patients not to do anything or to put anything into their bodies that's going to be damaging.

Nevertheless, he is flexible: for example, if a patient wants to use the anti-retrovirals - and many of the patients that do come in either have taken them, or want to take them - that's fine. While the crux of what he's doing is nutritional assessment and adjustment, if they do want to take the prophylactic Bactrim or antibiotics, that's fine too - he has recommended them for patients, and has written prescriptions for them. And he has no objection if a patient wants to see other doctors. His objective is be comprehensive, yet to tailor his program to the particular unique person, making the best use he can of many different approaches, so they complement and augment each other to ultimately get the best results for each patient.

One of the problems, he says, is that a lot of people are walking around who are HIV positive and are progressing into this syndrome, but haven't gotten diagnosed, because they don't think they

have a problem. So they may be HIV positive for five or ten years before they're actually tested. And they may also have other immune-suppressing infections. Therefore Dr. Calapai recommends aggressive testing for other common infections that can contribute to the progression of the disease: CMV, EBV, herpes, mycoplasma, TB, toxoplasma, etc.

Dr. Calapai's general diagnostic protocol begins with detailed blood evaluations of cellular, mineral, vitamin, hormone, and viral and antigen levels, as well as immunologic indices. It also includes a physical examination. These results plus the history are used to devise dietary recommendations. Lifestyle changes are recommended, and programs of oral, intravenous, and intramuscular supplementation (including certain herbs) are initiated.

Certain people, Dr. Calapai says, have opted not to have certain tests done, and they don't want to know whether or not they're HIV-positive - which is somewhat difficult. When patients don't want to have tests done - whether it's because they don't believe in it, or they don't have insurance necessary to cover the testing - that certainly ties a physician's hands. He notes that it's important to see if the T-cells were very high before, and now they're lower; or they were low before, and they're higher...

He then goes on to outline his therapeutic lifestyle recommendations:

In review of the blood testing, and review of the diet, I sit down with the patient, I give him a five-page handout as to what they should eat, what they shouldn't eat. I like to try to get them away from red meat, get them more towards a vegetarian diet. There's some interesting information relative to sea food - shell fish and chicken: both can present the body with a lot of arsenic. And arsenic is certainly something that's damaging to immune function. Arsenic exposure can also come from cigarette smoking. So I like to have people as close to a vegetarian diet as possible.

Clinical Experience: Here's how Dr. Calapai describes the results he's seen with this therapeutic program -

Many of the patients that I put on the protocol after two weeks or so say they're feeling very good - they have a lot of energy, they're sleeping better, many of them say that some of the skin problems that they have are changing, and their skin is improving. And I have not had people say: this is causing me a problem, or I feel worse. The majority - the overwhelming majority of people say that they feel better, in a number of different ways.

The interesting thing that I've seen is that a majority of people that come to me don't want to take prescription medication, they don't want to take the anti-retrovirals. Certainly, I'm not going to force things on patients - but they're

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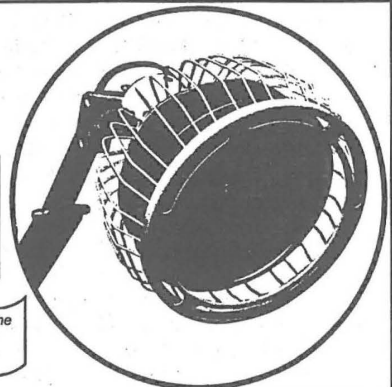
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doing extremely well, just on this protocol. Certainly, some of them do have very low T cells, and I don't know whether or not that's a great indicator of how well a person is doing. Because I have patients that have been on the intravenous protocol, and that have taken vitamins and minerals, and have opted not to take any prescriptions, and their T cells may be 5 or 12 total helper cells – but they've been for a year free of coughs, colds, or any other opportunistic infections. Some of them are exercising, gaining weight – some are body builders. It's hard to get a good handle on everything that's going on with them, but these people are coming back and saying that they're doing wonderfully! So, I think that's certainly an important picture.

One of the interesting things that a lot of the patients say to me is that all of their friends and people that they've known that have gone on some of the strong anti-virals – especially AZT – are individuals that either have expired, or have gotten sicker and sicker continually. But those who had not ever taken it seemed to be doing very well.

AIDS is a syndrome where people are dying relatively rapidly, so I don't know how appropriate it is to wait until there's firm and hard data before recommending some of these safe, nontoxic treatments. A lot of people are not doing well with the conventional approach. I think we have to try to use the safe things – the herbs and the nutrients – and see how much help we can offer the patient, whether they do or don't want to take the anti-virals. (Recent information is showing that the anti-virals may not actually prolong life.) If we could help to extend a person's life by a couple of years – by months, by whatever – that's important. Something may come out in six months to a year that may be of overwhelming benefit; but I certainly think we have to do whatever we can and be as comprehensive as we can with each patient.

Then Dr. Calapai told a story of a patient who almost made the changes that seemed essential for her health and survival but couldn't stay with it, resumed smoking, had a recurrence of bronchitis, and expired in the hospital. He said that only reinforced his low

opinion (from the health standpoint) of cigarettes – noting that its effect upon the development of AIDS has been examined by others. Dr. Calapai concluded: "That experience again showed how irritating and how much of a problem smoking can be."

Case Summaries: As examples of his approach, Dr. Calapai gives the following four brief case summaries –

Patient #045

This is a 32 year-old Caucasian female presenting 1/92 with a HIV+ history since testing 9/91. She has a history of headaches, sinus congestion and fatigue. Initial testing revealed low cholesterol level. CD4 T cells prior to presentation here (10/91) were 616.

Patient was put on protocol. CD4 cells went up to 1,000 by 9/92. P24, B2 and neopterin 2/93 were normal. The patient feels very good and hasn't had any opportunistic or other infections.

Patient #046

A 33 year-old male Caucasian presented 1/93. Had tested HIV+ 8/91. History of IV substance abuse 11 years ago. Patient experiencing fatigue, recurrent VRIs. Patient was put on Bactrim 3 x weekly. Initial blood testing revealed elevated liver enzymes, low WBC, RBC and hemoglobin, high monocytes and low vitamin C levels. CD4 was 2%.

Patient was put on I.V. protocol and after 3 weeks felt significant improvement in energy and strength. Patient exercises regularly, including weight lifting, and has gained weight since on protocol. P24 test was negative 2/93. B2 micro was normal 2/93. Neopterin 12.5H. Repeat chemistry showed a decrease in LFTs, CD4 # is 3 on 4/17/93. The patient clinically feels "great," hasn't had any symptoms, or infection history, and continues to exercise regularly without problem. (All tests that were abnormal are in the process of being repeated.)

Patient #541

This is a 32 year-old Caucasian male who presented 2/10/93 with a 3 year history of HIV+ by test. He had hepatitis B in the past. Initial testing revealed high protein, high LFTs, +herpes, and +CMV. There were

magnesium, vitamin A, B6 and vitamin D deficiencies. CD4 were 62 at 3%.

The patient was put on protocol. LFTs decreased, vitamin and mineral deficiencies were corrected, P24, B2 and Neopterin were normal. CMV turned negative. Clinically, the patient is doing very well, weight is stable. Patient exercises frequently, and is very energetic.

Patient #559

This is a 33 year-old male Caucasian presenting 2/93 with a 4 year history of HIV+. The patient has had no apparent opportunistic infections; however, has some fatigue. Initial blood testing revealed hypocalcemia, hyperproteinemia, low cholesterol, low WBC, high monocytes, positive for herpes and cytomegalovirus. B2 micro was 3.0, Neopt. was normal, P24 was negative, and beta carotene was deficient.

The patient was put on I.V. protocol. Repeat testing revealed B2 of 2.8, CMV negative (IgM), and a slight increase in WBC. The patient feels great, has a lot of energy, and weight is stable.

Summary of Experience and Results: All four patients reported on above showed a substantial improvement in health status in a very short time, and have continued to improve since the case summaries were assembled in Spring 1993.

Dr. Emanuel Revici (Metabolic Normalization)

Now ten cases of HIV infection treated by Dr. Revici will be reviewed. **Case Summaries:** The treatment records for 11 HIV+ patients were examined. One of these was seen by Dr. Revici on only one occasion (a 6 month old infant of one of the other patients), and so will not be mentioned again. The ages of the other ten patients at the time of HIV infection ranged from 24 to 50 years (averaging 33 years), and their periods of treatment by Dr. Revici ranged from 1 to 10 years (averaging a little less than 5 years). There were seven men and three women.

Patient #1

A 31 year-old man was diagnosed HIV positive in March 1986. In August, when therapy was started, there were swollen inguinal lymph glands and a

rectal discharge, with a slight elevation of temperature (99.5°), but he was otherwise asymptomatic. Before therapy his T4 count was 668, and since it has fluctuated between about 700 and 850 (Nov. '88 through July '91), then dropping slightly to a range between 500 and 650 (January through October 1992). T8 has also decreased correspondingly, so that his T4/T8 ratio remains between 0.4 and 0.6 with no downward or upward trend evident.

He continues to "feel pretty good", "feeling O.K.", and is continuing therapy.

Patient #2

A 50 year-old man was diagnosed HIV positive in July 1988. He had submaxillary and axillary adenopathy. He was treated from May 1989 to the present. At the end of 1991 he said he was "feeling very very well." In August 1989, shortly after the initial diagnosis, his absolute CD4 was 813; a year later it had dipped to 517. However, since then, it has remained in the range from 750 to 850, and his T4/T8 ratio has varied between .6 and .9, with no downward or upward trend evident. At the end of 1991 he said he was "feeling very very well" - and is reported to still feel well, to be working, and continuing treatment at this time (Spring 1993).

Patient #3

A 27 year-old man was diagnosed HIV positive in 1986. He had axillary adenopathy, and complained of tiredness, headaches, and night sweats. He was treated from April 1987 through March 1993, and is continuing treatment. Around the time of his initial HIV-positive diagnosis his absolute CD4 was 625; subsequently, it stayed around 650 until February 1992, when it was reported to have doubled - to 1,310. Correspondingly, his T4/T8 ratio has risen from about 0.8 in 1986 and 1991 to 1.6 in 1992 and 1.7 in 1993. In 1992, said he was "feeling well," in March 1993 "feels very well," with "no complaints except mild weakness." Now, in May 1993, he is working, and is doing and feeling well.

Patient #4

A 30 year-old man was diagnosed HIV positive in 1990. He came for treatment in 1992 with memory difficulties, and cervical, axillary, and

inguinal adenopathy. Nevertheless, he said he was "feeling well." He was treated from March 1992 through April 1993, and is continuing treatment. Around the time of his initial HIV-positive diagnosis his absolute CD4 was 243; after three months of treatment it had risen to 636, but at the time of treatment termination, though still above the pretreatment level, it had dropped somewhat, to 420. Over this time, his T4/T8 ratio changed very little. At the end of therapy in April 1993 the adenopathy remained, and there was a mild oral thrush.

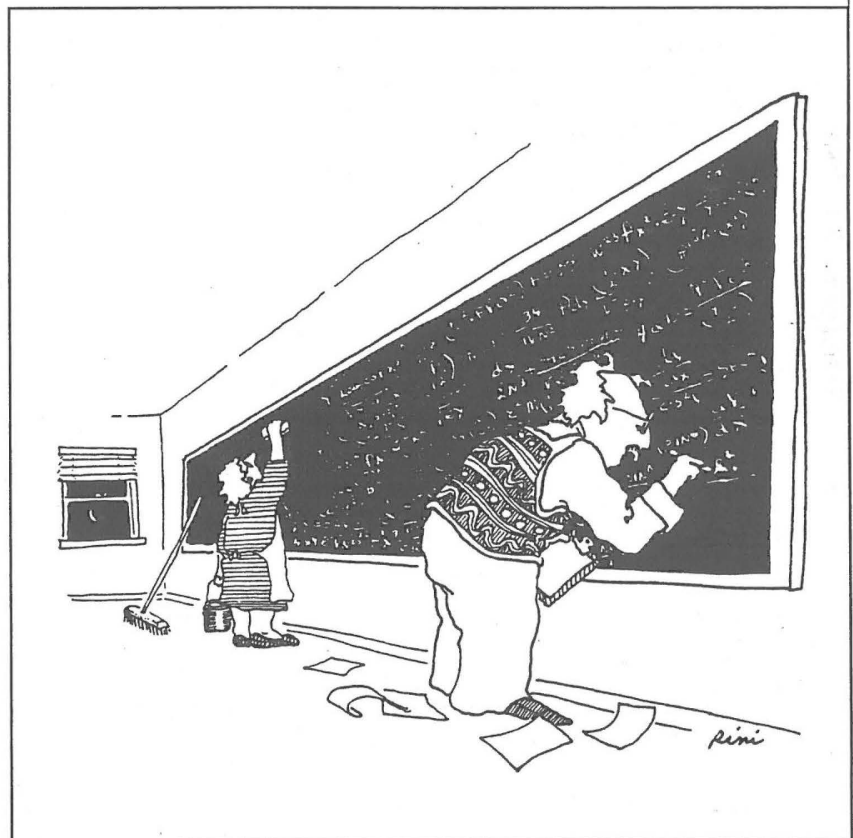
Patient #5

A 35 year-old man came for treatment in November 1988 with a previous diagnosis of "HIV positive." His only reported symptoms were "pain in left leg" and a herniated disk. He was treated from November 1988 through November 1992, and is continuing treatment. Over this period his T4 count showed a gradual decline, especially in 1992, starting above 600 (7/88 & 2/89)

and ending at 153 (7/92), while his T4/T8 ratio changed very little. Nevertheless, throughout he continued to report feeling "very well" (July & Aug. '89, July & Feb. '91), "feeling fine" (mid-June & Nov. '92) though at the end of June '92 his report was only "feeling O.K." During and at the end of the period of therapy, no symptoms were reported.

Patient #6

A 31 year-old woman was diagnosed HIV positive in April 1988, after her husband had died of AIDS. She complained of fatigue, insomnia, pain in abdomen, weak knees, itchy skin, hair loss, ganglions and hemorrhoids, as well as constipation and diarrhea. She was treated from August 1988 through November 1992, and is continuing treatment. She reported feeling "very well" soon after the start of therapy, and by 1989 she was gaining weight. Her T4 counts varied over a range from 158 to 953, but showed no



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TABLE 1 — Patient Status at time of HIV-Positive Diagnosis.

The symptoms and immunologic markers (columns 4-6) refer to patient's condition at the time of HIV+ diagnosis, or (sometimes) the findings within a month or so afterwards.

At time of HIV-positive diagnosis							
ID	Sex	Age	SYMPTOMS	Infections	Secondary Ca	T4	T4/T8
1	M	31	A, rectal discharge, intermittent F, tenesmus			668	0.4
2	M	50	A			813	0.69
3	M	27	A, F, G, N, headaches			456	0.8
4	M	32	A, M, T			248	0.36
5	M	35	A, herniated disk			625	0.5
6	F	31	D, I, G, "weakness of knees," hair loss			510	0.61
7	F	24	A, D	H (dx 1987)	Cervical Ca dx 3/89	600	0.42
8	M	40	bronchitis (smoking)			617	0.74
9	M	36	A, F, G	Herpes (dx '85)	K dx 7/91, H 12/90	1305	0.8
10	F	24	A, D, F, pulmonary			717	0.5

TABLE 2 — Course and Results of Treatment.

Treatment duration ("Yrs Rx"); response trends during treatment (TRENDS during Rx); status at end of treatment ("Status POST-Rx &/or now").

TRENDS during Rx:					Status POST-Rx &/or now:			
ID	Yrs Rx	Sx	T4	T4/T8	SYMPTOMS	T4	T4/T8	Gen'l Health (self-report)
1	4.6	++	0	0	none	567	0.5	3 (pretty good, O.K.)
2	3.5	++	0	0	none	756	0.65	4 (feeling very very well)
3	6	++	++	++	none	1310	1.7	3 or 4 (feels very well)
4	1	+/0	+	0	A, M (& mild T)	420	0.29	?
5	4	+/0	—	0/-	none mentioned	153	0.48	3 (is feeling fine)
6	4.2	+	-	0	A	425	0.46	3 (feeling well)
7	3.3	+	++	++	"no complaints"	1016	0.83	3
8	5	0/+	0	++	G	560	1.67	3 ("feeling well")
9	10	+/0	-	-	none (K gone '92)	591	0.47	2-3 ("well", "doing pretty good")
10	5.7	-	-	0	N, A, F, pulmonary (pneumonia?), T	479	0.69	-

Key Used In Tables 1 and 2 (Dr. E. Revici's Patients and Outcomes):

Symptoms: A (adenopathy); D (diarrhea); F (fever); G (fatigue); I (insomnia); M (memory/thinking); N (neuropathy); P (depression); S (night sweats); W (weight loss).

Infections: C (CMV); H (herpes); T (thrush); V (vaginitis); X (toxoplasmosis).

Secondary Ca: K (KS); L (lymphoma). Trends of Symptoms: 0 (no clear trend); + (improved, partial resolution); ++ (full resolution); - (somewhat worse); -- (severe decline).

TRENDS of T4: 0 (no clear trend); + (count raised somewhat, 15-50%); ++ (count markedly raised, e.g., >50%); - (count lower, 15-50%); -- (count markedly lower, e.g., <50%).

TRENDS of T4/T8: 0 (no clear trend); + (ratio raised somewhat, 15-50%); ++ (ratio markedly raised, e.g., >50%); - (ratio lower, 15-50%); -- (ratio markedly lower, e.g., <50%).

Post-Rx/now: General Health: 1 (very ill); 2 (moderately ill); 3 (moderately well: feel "pretty good", "good", "O.K."...); 4 (very well: feel "very good", "great",...).

consistent trend; her count at the start was 510, and at the end of treatment was 425. (Her T4/T8 ratios also varied widely, but ended just slightly below where they started.) Throughout she continued to report "feeling well," though in 9/89 there may have been a fever episode, and in 8/91 she complained of "some pain in upper abdomen." In 2/92 there was mention of herpes, and in 11/92 it was reported that she had axillary adenopathy, and had had diarrhea for two months. Nevertheless, she said she "feels fine."

Patient #7

A woman diagnosed HIV positive in 1985 at the age of 24, came for treatment in 1989. She was treated from November 1989 to April 1993. When she came she had carcinoma in situ of the cervix, bilateral adenopathy, tiredness, nausea, and complained first of constipation, then (after starting treatment) some diarrhea. In 10/91 patient reported severe pain in her lower abdomen during her menstrual period,

and endometriosis was noted. Over the course of her treatment her T4 counts and T4/T8 ratios nearly doubled, from 600 to 1016 and from 0.42 to 0.83, respectively. Axillary adenopathy was again noted in 3/92, and she was feeling "well" in 5 & 6/92, though there was "tiredness" in 9/92. In 3/93 it was mentioned that she has "no complaints." Now (May 1993) she is well, working, and continuing treatment.


Patient #8

A 40 year-old man who was HIV positive came for treatment in 1987, with no symptoms except bronchitis, attributed to smoking (which he stopped). He was treated from 11/87 to 10/92. His T4 levels fluctuated considerably, but ended (at 560) about where they had started (at 617); however, his T4/T8 ratios more than doubled over the same period, going from 0.74 to 1.67. He continued "feeling well" or "feeling very well" most of the time, and at the end of treatment there was still no adenopathy or other

symptoms except "harsh pulmonary murmur with crackles"; and he reported feeling "tired."

Patient #9

A 36 year-old man came for treatment in 1983, having been found in 1980 to be HIV positive. He had left axillary and submaxillary adenopathy, a slight elevation of temperature, and was "tired." He was treated from 3/16/83 to 2/19/93. His T4 levels started at 1305 in 8/83, by 1/85 had dropped to 544, then in 10/85 to 275; but thereafter fluctuated between 500 and 700, ending at 591 (6/92). Over the same period, his T4/T8 ratios dropped gradually to about half the starting value - from 0.8 to 0.47. By 6/94 he was "feeling well." In 3/85 he had a "cold" with fever and chills, and in 8/85 herpes zoster was noted. In 3/86 a fever of 102-104° was noted, but was gone a few days later. In 9/87 "some pain right upper chest front" was noted. At the beginning of 1989 a "very small lesion left arm" was


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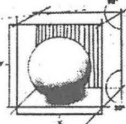
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noted, and in 4/89 he was "not well"; in 5/89 "submaxillary glands" were noted. However, by 6/89 he was "well," in 8/89 reported "feeling well." In 11/90 herpes is mentioned, and in 12/90 there is a notation of "severe herpes - otherwise well." In 7/91 he had a rectal biopsy revealing Kaposi sarcoma lesions. But the next year (10/92) he said his proctologist said that "The K.S. was totally gone." In 1992, he was feeling "better," then "well" (7/92), and finally, "pt. says he's doing pretty good." (11/92)

Patient #10

A 24 year-old woman whose ex-boyfriend had AIDS was diagnosed HIV positive, and treated from 5/87 to 2/93. Her T4 count was 717 when she came, and 479 at the end. The T4/T8 ratio increased slightly, from 0.50 to 0.69. At the start (5/87) she had some adenopathy, fever, night sweats, and pains in the legs, neck and hands. In 7/87 diarrhea was reported. In 10/87 she was "not well," but no diarrhea," and no fever. In 2/88 she was "feeling well," but had a "bad taste." At the end of therapy in 2/93, there was no adenopathy, but a low grade fever, a cough, and ralls at base of thorax were noted; and night sweats were again mentioned.

Summary of Treatment Result: The foregoing case summaries were assembled in Spring 1993. The ten patients have continued to improve since then.

Of these ten patients, only three (two men and one woman; patients #5, #9, and #10) seem not to have improved *during* therapy. Yet of these three, patient #9, though worsening in immunologic markers (T4 count and T4/T8 ratio declining to about half), nevertheless felt "well" at the end of 10 years of treatment, and his KS had disappeared, according to his proctologist. Further, patient #5, though his T4 count also declined considerably (from 625 to 153) over his 4 years of treatment, was still "feeling fine" at the end of that period.

Of the other seven who showed more clear improvement, two (patients #3 and #7) had considerable increases in T4 counts and T4/T8 ratios - they roughly doubled. Both also showed complete resolution of pretreatment symptoms

(which for patient #3 had been fatigue, adenopathy, headaches, fevers and night sweats; for patient #7, adenopathy and diarrhea).

Two others (patients #2 and #6), though not showing such improvement in immunologic markers, also had diminution of symptoms.

Thus, of the ten patients, eight currently (or recently) report feeling well (or "very well" - patient #3; and "very very well" - patient #2) after an average period of 5.2 years of therapy. Five of the eight also report no remaining symptomatic complaints; and two of those have had a marked improvement in immune markers. All are currently continuing in therapy.

While there was insufficient detail in the records at our disposal to stage all ten patients, it seemed that three were Stage 2 (Asymptomatic HIV disease), three were Stage 3 (ARC) patients, and one was Stage 4 (AIDS). Then there were two who might have been either Stage 2 or Stage 3, and one who might have been either Stage 3 or Stage 4 - deciding would require more information.

It appears, then, that some HIV+ patients were certainly helped by Dr. Revici's therapy. However, since we do not yet have full statistics on all the HIV+ patients he has treated, nor on the relation of this subset to that larger population, we cannot draw inferences about the overall effectiveness of his treatment.

An observation that, we believe, deserves further exploration has to do with metabolic imbalances - the special sphere of interest of this physician. As noted in a previous section, it seems that there are highly stressed patients, some with HIV infections and some without, who suffer, simultaneously, from an abnormally elevated resting energy expenditure, and depressed immune function.^{53,55} It was also noted that nutritional therapies seemed simultaneously helpful for both the metabolic and the immunologic abnormalities. I hope to find further information on the relation between the 'nutritional augmentation' carried out by the first physician and the 'metabolic rebalancing' performed, using a quite different rationale and method, by Dr. Revici.

Oxygen, Ozone, and AIDS

This section will begin with a survey of some of the health and medical applications of ozone, with special attention to HIV and other viral infections.

Certainly, oxygen is an essential nutrient. It is, in fact, the most essential - as it is the only one which must be continuously available, at pain of quick death. As we all know, life ceases if the supply is cut off for more than a few minutes. But are the levels necessary for life identical with those which support optimal health? Clearly, the answer here is 'no,' since chronic hypoxia is consistent with continued life but has many deleterious health effects.

Those observations are so taken for granted that we hardly think about them further. Specifically, have we thought in any depth about how ubiquitous 'hidden' hypoxias may be? Certainly, there are possibilities for all kinds of highly localized hypoxias, many far less obvious than the gross ones we're wary of. This, at any rate, might be one approach to explaining the sometimes surprising therapeutic effectiveness of oxygenation therapies, of which the application of ozone to HIV infection is one of the newest.

While it is well known that ozone is toxic to pulmonary epithelium, it has also been found to be "highly effective against viruses and has an unusually high degree of tolerance when administered parenterally."⁷⁴ In the case of AIDS and ARC patients, hyperbaric ozone therapy can lead to obvious remittances of the reduced lymphocytic population and to an astonishing improvement in the clinical status provided that the disease has not severely progressed. If the complete manifestation of AIDS is present partial remissions can still be achieved in 30% of the cases.⁷⁴

Virucidal effects: Ozone inactivates viruses, and the HIV virus specifically, at low and safe concentrations. Carpendale has outlined how ozone was shown to inactivate human immunodeficiency virus (HIV) in serum at noncytotoxic concentrations and in whole blood.^{75,76} These latter data are consistent with the improved clinical and immunologic status found in patients with acquired immunodeficiency syndrome (AIDS) or

AIDS-related complex (ARC) who have undergone ozone therapy.⁷⁴ "In all experiments reported here, treatment of serum or culture media with ozone was completed before the addition of virus or cells ... [supporting] the hypothesis that HIV inactivation is effected by secondary reaction products of ozone in serum... The ozonide reaction products of fatty acids have been shown to mimic the direct cellular effects of ozone..."⁷⁷

Nevertheless, one report appears to be at odds with this apparent lack of cytotoxicity, for levels of ozone in blood that produced greater than 4 log₁₀ inactivation of an animal virus (VSV) and a bacterial virus (phi 6) also resulted in 30% hemolysis.⁷⁸ It may better be said, therefore, that the level of cytotoxicity is low relative to its antiviral effectiveness, but may not be zero. Another report found "no significant toxicity" in "a phase I study of ozone blood treatments in 10 patients," but then, after a "phase II controlled and randomized double-blinded study" with an 8-week treatment period, the conclusion was that "ozone therapy does not enhance parameters of immune activation nor does it diminish measurable p24 antigen in HIV-infected individuals."⁷⁹ (A negative result has also been reported by another group.⁸⁰)

Extracellularly, ozone appears to be highly effective as a virucidal treatment: "Greater than 11 log inactivation has been achieved within 2 hours at a concentration of 1,200 ppm ozone. ... The data indicate that the antiviral effects of ozone include viral particle disruption, reverse transcriptase inactivation, and/or a perturbation of the ability of the virus to bind to its receptor on target cells."⁸¹

However, it is inferred that ozone treatment must somehow reach and inactivate intracellular virus, because otherwise the inactivation could not be as extensive as has been observed. The mystery has been how extracellular ozone could affect virus particles within the cell, even within its nucleus. It is proposed that such effects might be mediated through the oxidation of molecules which are able to enter the cell in a highly activated and reactive state. Alternatively, however, the extensive viral inactivation might be effected not by making infected cells 'healthy' - that is, inactivating their

intracellular virus - but rather by destroying infected cells. Some studies indicated that infected cells are in fact more vulnerable.⁸²

Effects on immune system: Those would be some more direct effects upon an infecting organism. But amelioration of infection may be mediated by the immune system, perhaps in the way proposed by Bocci.⁸³ Several studies have shown that ozone treatments can strengthen immune responses: as oxidizing agents can induce interferon and probably other cytokines, it was hypothesized that ozone or its reactive oxygen species may stimulate the release of lymphokines from peripheral blood mononuclear cells - and it was found that "under strictly defined conditions of ozonisation, [peripheral blood mononuclear cells] either in whole blood or after isolation can be induced to produce significant amounts of [interferon]." Then "interferon and other mediators may ... operate either directly as antiviral, or indirectly by activation of immune effector cells."⁸⁴

Dr. 'Z' -

A holistic Physician (Ozone)

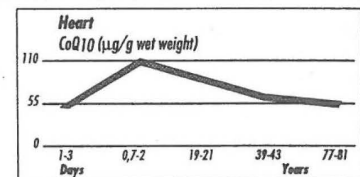
Treatment Protocol: Dr. Z reports that he has treated several hundred patients with ozone therapy, including many HIV+ patients. The method he used in the patient reported below is as follows:

About a pint of venous blood is taken from the patient into an IV bottle, to which is introduced an O3/O2 mixture (on the order of 2% O3), generated using an ozone machine. The blood is shaken up with the ozone mixture, and then dripped back into the patient.

Case Summary: A man exposed in 1988 by an HIV-positive woman began to experience fevers, night sweats, malaise, muscle aches, and swollen glands. He was diagnosed HIV-positive in 1989, when he was found to have a T4 cell count of 153, and started immediately on a 70-day program of daily ozone treatments, plus some adjunctive therapy.

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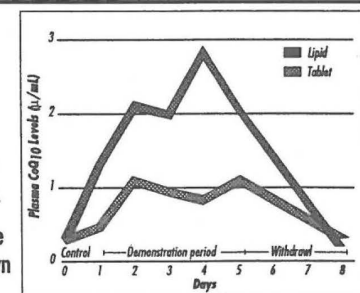
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He became asymptomatic within about a month, and his T4 cell count began to rise, reaching 728 a year later. Some time thereafter, he applied for a hospital job and was retested for AIDS. *The result showed him to be HIV-negative.* This was confirmed by repeated testing, including a PCR test indicating no virus in his system.

Summary of Experience and Results: Dr. 'Z' reports that he has treated many other HIV+ patients with ozone therapy, and most have been helped; but this is his first experience of an instance of HIV seroconversion. Especially now, after this episode, he is very impressed with the possibilities of this mode of therapy, and is continuing to apply it where it seems indicated.

Discussion (Alternative health-disease-therapy concepts)

The three physicians whose work with HIV infection was examined approach health and illness from somewhat different perspectives. Medicine, like other therapeutic human enterprises, is inherently teleological. Therapies are directed towards the maintenance and/or restoration of health. But this can mean different things, for there are several more or less distinct ways to understand health and its perturbations. We may here sketch four *alternative concepts of disease and therapy*:

- (1) Disease as loss of adaptive flexibility, and therapy as 'retraining.'
- (2) Disease as excess deviation from 'normal' balance-points, and therapy as restoration of balance.
- (3) Disease as impoverishment of essential resources, and therapy as replacement (or enrichment).
- (4) Disease as invader, and therapy as a kind of 'war' which removes and/or destroys the invader.

In our estimation, the first physician, Dr. Christopher Calapai, makes use mainly of the third approach (restore depleted resources); the second physician, Dr. Emanuel Revici, is deeply committed to the second viewpoint (that of restoring balance); while the third physician, Dr. 'Z,' who also uses the third (restoration of resources) approach, here employed it in combination with the fourth approach (inactivate the viral invader).

Actually, it's not so simple: nutrients are used for more than countering deficiencies; and ozone may do more than kill HIV. While in the nutritional approach to therapy, the third view of "Disease as impoverishment of essential resources, and therapy as replacement (or enrichment)" does quite precisely determine the means of therapy, the use of megadose nutrients goes beyond that rationale, as it can partake also of the second ("rebalancing") and fourth ("repulsing") approaches. Similarly, there is no simple correspondence of herbal therapies to any one health-disease paradigm: some herbal therapies can be understood in terms of the second ("balancing") perspective; some in terms of the third ("replacement") perspective; and others in terms of the fourth ("expulsion") perspective.

Similarly, the ozone story also is not a simple one, for studies were cited showing effects that might make all of the four reference frames appropriate. As will be seen, ozone may (1) 'exercise' the immune system, and thereby increase its adaptive flexibility; it also (2) brings some immune variables back toward a more normal balance; and (4) it has antiviral effects. Only the third reference frame is not obviously fitted; yet perhaps it is also, as ozone raises levels of oxygenation, and thus might sometimes be viewed in the "enrichment" frame.

So there is no simple correspondence between the four identified 'paradigms' and specific therapeutic modalities. Nevertheless, they seem conceptually useful in giving some order to how we think about disorder. The four concepts of disease and therapy progress from the active, self-organizing and self-dependent organism to one that is passive and externally dependent. In the first paradigm, the origin of disorder is internal to the disordered living system ("loss of adaptive flexibility"); in the last, it is external to it ("invasion" scenario); and in the middle two, there is some combination of internal and external source (an impoverished or unbalanced state from deprivation of essential supplies). Thus the approaches of the three physicians, though differing considerably, share a greater emphasis upon supporting the body's own healing powers than is usual among allopathic

physicians (who work for the most part within the fourth, "invasion," paradigm).

Underlying this inside/outside, active/passive distinction with regard to cause is a more pervasive difference of worldviews. How do I think of my own health and illnesses? My understanding of health and disease taps very deep attitudes that I take toward myself and my life. What is the complexity of the health-state? Am I (a) a congeries of mechanisms, with subsystems that can be adequately understood separately, with little regard to the status of all the myriad other subsystems? Or (b) is the level of interconnectedness far higher than such ideas acknowledge, so that in a healthy organism all the subsystems are supporting each other in myriad ways (most of which are not yet observable or understood)? In the first (allopathic) worldview, most disease originates through the breakdown of some one mechanism, or a few discrete mechanisms; disease then is to be treated by fixing (or bypassing) the defective mechanism(s). In the second (holistic) worldview, however, disease has to do not only with individual mechanisms, but with weakenings of many kinds of couplings between mechanisms, and with overstressing supporting systems through excessive demands for support. In this view, the total system can be strengthened by adding inputs that may rouse relatively quiescent supporting subsystems to become more active, as well as by giving additional resources to many different supporting systems – therapeutic strategies that are emphasized in the work of the three doctors we have used as examples.

Thus, depending upon one's ruling conception either (a) of mechanistic simplicity or (b) of self-organizing complexity of the health state, one's concepts of what is required for maintaining or returning toward health will range from (a) completely passive ("comply with doctor's orders: take your prescribed medicine") to (b) highly active ("take responsibility for your own health, learn all you can, make your own choices"). As we are becoming increasingly aware, today's high-tech medicine shows a decided preference, in how it organizes its decisions and actions, for the simplifying, mechanistic

models that put the "patient" in a passive role. The aim, usually, is to find a single "pathogen" that is the cause of each definable disease. Then the therapy can be aimed at removing or "inactivating" the pathogen, after which the "patient" can be presumed to have been "cured" – or if not, then at least to be "in remission." In our current health care system, the drive to structure things in this way is very powerful. And according to one prominent virus researcher, it has taken our concept of AIDS and its etiology up a blind alley.^{10,11}

Conclusions

Theories and methods that seem very different can have broadly similar results. All three of these treatment approaches have, at the very least, reversed some of the symptoms of HIV infection in some patients, and have improved the quality of life, according to the patients themselves, in many. Some of the observed improvements – but certainly not all – have been accompanied by some normalization of immune system indices; parameters such as T4 counts and T4/T8 ratios. But even when these indices did not improve appreciably, immunological status, and general health, was usually better, as indicated by a marked decline in opportunistic infections.

The three approaches – the *nutritional* therapy of Dr. Calapai, *metabolic* therapy of Dr. Revici, and *ozone* therapy of Physician Z – are not mutually exclusive. Is there any reason why they should not be used together, complementing each other? For example, it was noteworthy that some of the reported actions of the vitamin C infusions^{61,63} used by the first physician were very similar to those of the ozone infusions^{74,75,81} used by the third physician: both were found to be highly effective in inactivating many viruses, and HIV in particular; and both seemed to augment the effectiveness of the immune system. Perhaps if they were used together, these effects of each would potentiate each other, with results better than either alone. (Here, however, is a further question: Is there something paradoxical about these similarities of effect? Ozone is a powerful oxidant; vitamin C a very effective antioxidant. These parallel effects of seeming opposites may deserve more looking into!)

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Here it must be noted again that many of these techniques that are widely thought of as "non-conventional" (and in many instances as "unproven") are in fact supported not only by much clinical experience, but also by a considerable quantity of publications in peer-review journals. In our experience, many if not most of those who denigrate these other methods are unaware of this literature. What has been cited in this paper is only a very small sample of what is available - much of it in our own professional and scientific journals, and still more from other parts of the world. Good science and good medicine are practiced in many other countries as well as ours, and if this is recognized, we will be more open than we have been in recent years to effective methods that are in use elsewhere, and give our physicians and their patients the freedom to choose whatever, in their most carefully considered judgment, best meets their professional and personal needs.

One of the very important advantages of many of these "non-conventional" methods is that, whether or not they are effective (and there is evidence that some are), they are generally safe. Most nutritional and herbal methods cause far fewer side effects than the pharmaceutical and surgical methods now in favor here. This is a major argument for permitting them to be used at the discretion of the individual, as an exercise of each one's constitutional rights to self-determination.

That is a reason for not bringing these modalities under the regulatory authority of the state or organized medicine. It is a matter of constitutional freedoms. But there are also strong economic arguments. The costs of these 'alternative' techniques are almost always far lower than the treatments now approved by organized medicine

for the same disorders. Thus, encouraging the use of these other approaches can save the American public, both as taxpayer and as health-care consumer, vast sums of money. And since these approaches offer important help not only for the treatment but also for the prevention of disease, if their prophylactic use (where appropriate) were to be encouraged, additional vast savings would accrue.

Those are some of the reasons why we feel it is important for American physicians to acquaint themselves more fully with the uses of these methods, and have here presented some preliminary evidence of their potential value for the treatment of AIDS, and of other effects of HIV infection. It is the authors' view that a physician can be most effective by becoming knowledgeable about several schools and traditions of healing, in addition to that in which she/he has been trained, so that conventional allopathic methods can be supplemented by other approaches that have in practice been proven helpful, even when they have not yet been fitted fully within the explanatory framework of today's 'scientific medicine.'

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Appendix I

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AIDS PROTOCOL

1. Complete blood evaluation:
 - CBC
 - SMA 20
 - Thyroid function panel
 - Viral titers CMV, EBV, herpes, adenovirus
 - Vitamin & mineral levels
 - Gastrin; total protein; albumin; globulin
 - IgG, A, M
 - T cell subsets
 - Total IgE, and IgE for food allergens
2. Physical examination:
 - EKG
 - Spirometer
 - TB test
3. Discussion – Lifestyle changes:
 - No smoking, drug use, caffeine or alcohol
 - No unprotected intimate activities
4. Intravenous therapy
(infused over 2-3 hours, done 1-2 times per week as needed):
 - Vit. C 15-30 grams
 - B complex 1-2 cc
 - Zinc 1-2 cc
 - Glutathione 5-10 cc
 - Magnesium 1-2 cc
 - B12 1-2 cc
 - Dexpanthenol 1-2 cc
5. Intramuscular therapy:
 - Gamma globulin 1-2 cc (if needed) 1x week
 - Iron/B12 injection 1-2 cc (if needed) 1x week
 - Magnesium sulfate 1-2 cc (if needed) 1x week
6. Oral nutrients:
 - Vitamins*
 - Multivitamin (B complex, A, beta carotene) 4x daily
 - Buffered vit. C 3x daily (10-15 grams)
 - Digestive enzymes 1-3 daily
 - NAC (glutathione) 1500 mg daily
 - Garlic capsules 3x daily
 - Herbs*
 - St. John's Wort (Hypericum) 5 drops 2x daily
 - Echinacea
 - Ginseng
 - Astragalus
7. TPN
 - Intravenous therapy consisting of proteins, carbohydrates, and fats if patient has lost 15 lbs or more, or has severe malabsorption.
8. Individual blood tests are repeated as needed.
 - Patients with bacterial or fungal infections are treated with appropriate antibacterial or antifungal therapy, as well as the foregoing protocol.

NOTE: A majority (almost all, in fact) of the patients who have been put on this protocol have chosen on their own not to use AZT, or if they had already started, to discontinue it.

Appendix E



