
# Ascended Health

## Corona Virus Strategies

# Proactive Measures to Eliminate the Curve

## Appendix 1 – Studies of Natural Supplements

# Targeted Natural Supplements for Coronavirus

## Supplements that Coat the Coronavirus (anti-attachment)

- Chondroitin Sulfate, Glucosamine, Marine Phytoplankton
- Elderberry

## Supplements that prevent spikes (anti-attachment)

- L-arginine, Green & Black Tea, Milk Thistle (Silymarin)

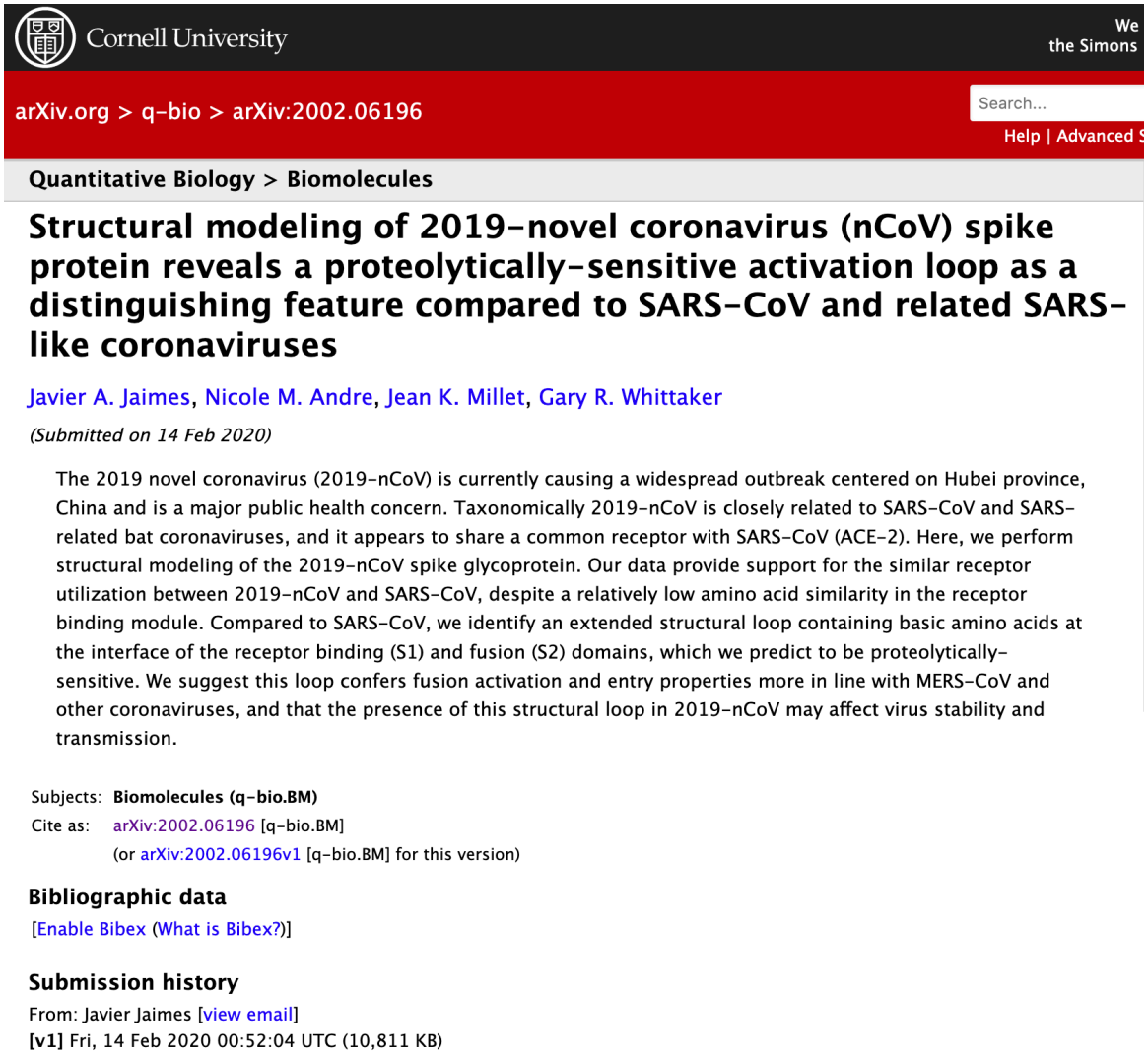
## Supplements that prevent RNA inversion

- Olive Leaf Extract

## Supplements that prevent replication

- Black Cumin Seed with Honey & Lemon
- Grape Skin Extract, Chamomile, Skullcap

# Strategy 1: Prevent Viral Attachment by flooding the body with (-) charged particles



Cornell University

We the Simons

arXiv.org > q-bio > arXiv:2002.06196

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Quantitative Biology > Biomolecules

## Structural modeling of 2019-novel coronavirus (nCoV) spike protein reveals a proteolytically-sensitive activation loop as a distinguishing feature compared to SARS-CoV and related SARS-like coronaviruses

Javier A. Jaimes, Nicole M. Andre, Jean K. Millet, Gary R. Whittaker

*(Submitted on 14 Feb 2020)*

The 2019 novel coronavirus (2019-nCoV) is currently causing a widespread outbreak centered on Hubei province, China and is a major public health concern. Taxonomically 2019-nCoV is closely related to SARS-CoV and SARS-related bat coronaviruses, and it appears to share a common receptor with SARS-CoV (ACE-2). Here, we perform structural modeling of the 2019-nCoV spike glycoprotein. Our data provide support for the similar receptor utilization between 2019-nCoV and SARS-CoV, despite a relatively low amino acid similarity in the receptor binding module. Compared to SARS-CoV, we identify an extended structural loop containing basic amino acids at the interface of the receptor binding (S1) and fusion (S2) domains, which we predict to be proteolytically-sensitive. We suggest this loop confers fusion activation and entry properties more in line with MERS-CoV and other coronaviruses, and that the presence of this structural loop in 2019-nCoV may affect virus stability and transmission.

Subjects: **Biomolecules (q-bio.BM)**
Cite as: arXiv:2002.06196 [q-bio.BM]
(or arXiv:2002.06196v1 [q-bio.BM] for this version)

### Bibliographic data

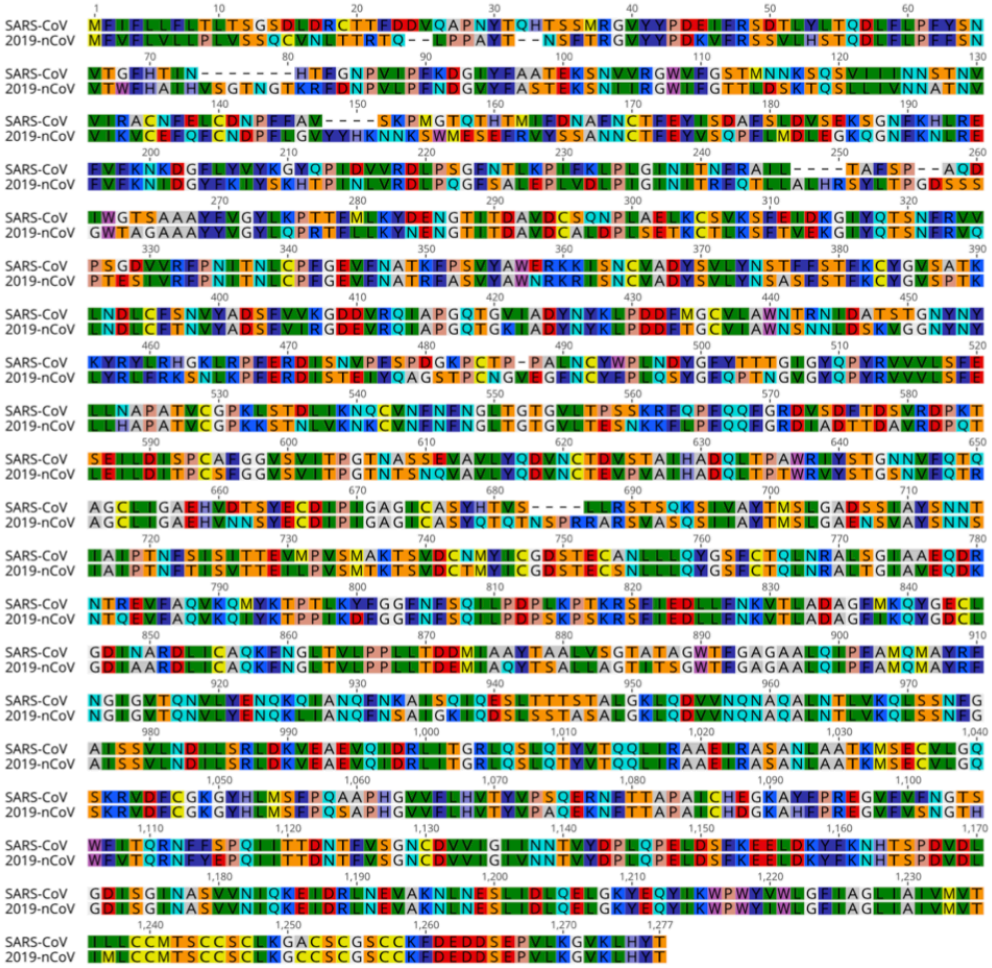
[Enable Bibex (What is Bibex?)]

### Submission history

From: Javier Jaimes [view email]
**[v1]** Fri, 14 Feb 2020 00:52:04 UTC (10,811 KB)

**https://arxiv.org/abs/2002.06196**

# Why? COVID-19 is (+) charged on the outside




**Supplementary figure 1. Sequence alignment of the S protein of 2019-nCoV with SARS-CoV.** The sequences of the S proteins of 2019-nCoV and SARS-CoV were aligned and the full-length alignment is shown. Accession numbers of sequences used in the analysis are found in the methods section.

**Protein Sequencing Analysis show high amounts of (+) positive charges on the surface of the viral coat**

# Natural Supplements with (-) charged particles

**Chondroitin Sulfate**

**Glucosamine**

**Chitosan**

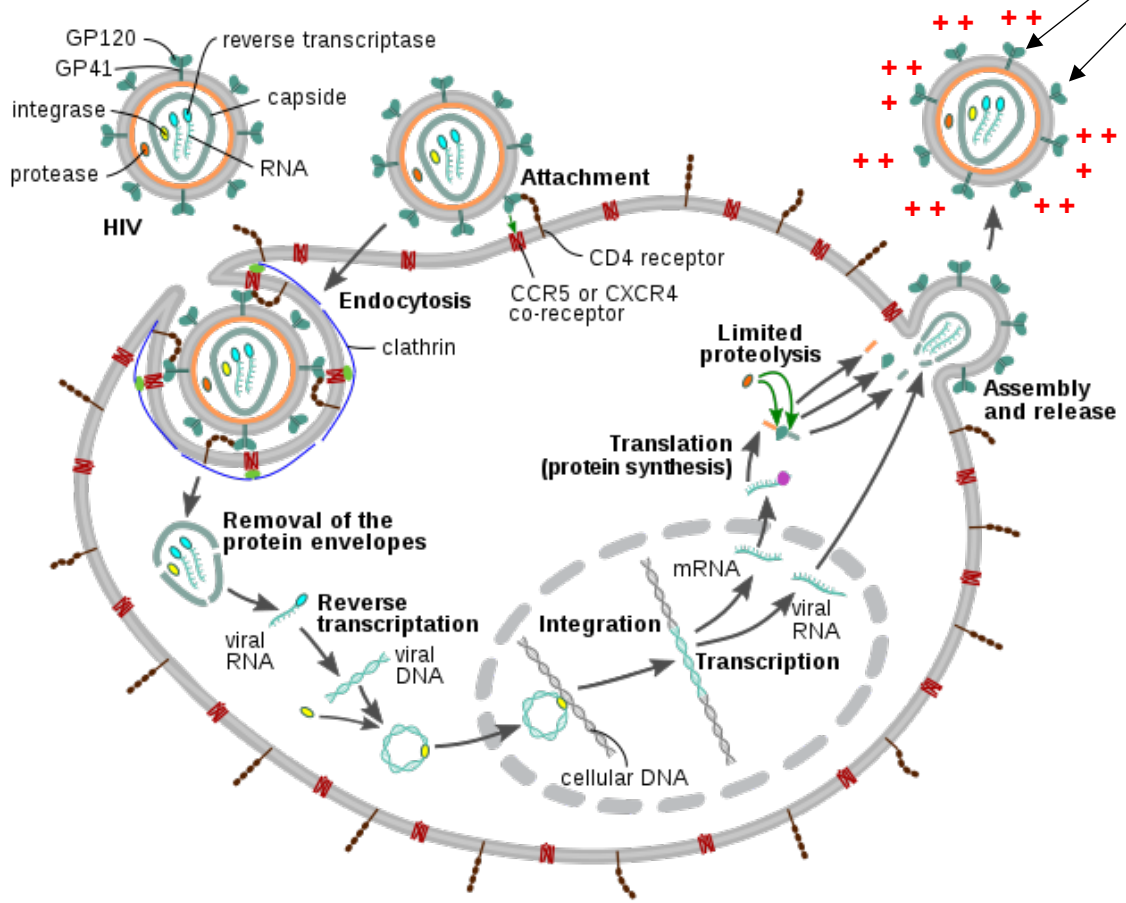
**Marine Phytoplankton & Blue Green Algae**

- **If these work, then there should be some studies claiming to their efficacy either to Coronavirus itself, or to HIV, which is similar on the outside**

- **The next slides show these studies**

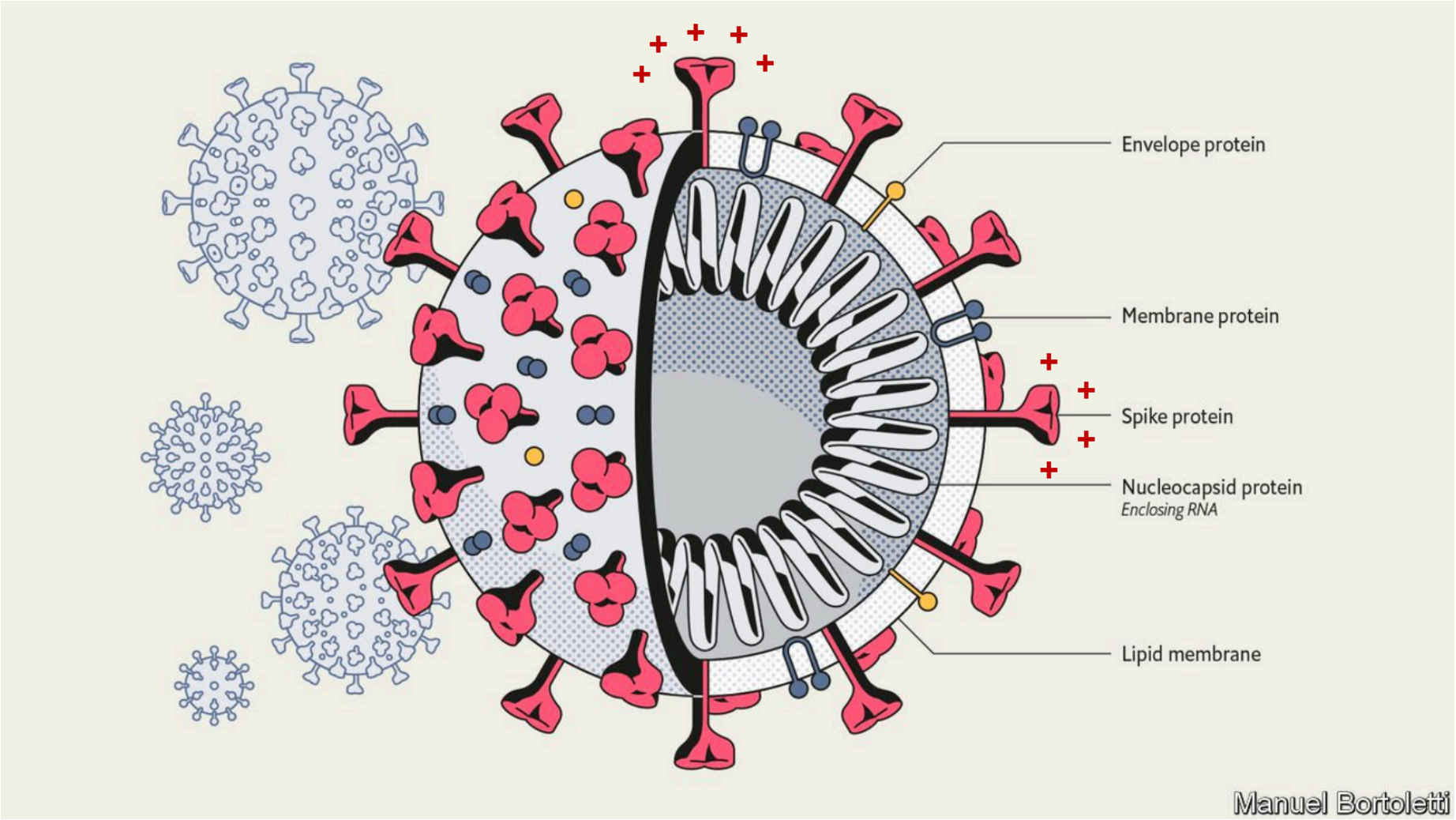
# Coronavirus is highly (+) charged on the OUTSIDE

The S-Glycoprotein "Spikes" are similar and highly (+) charged

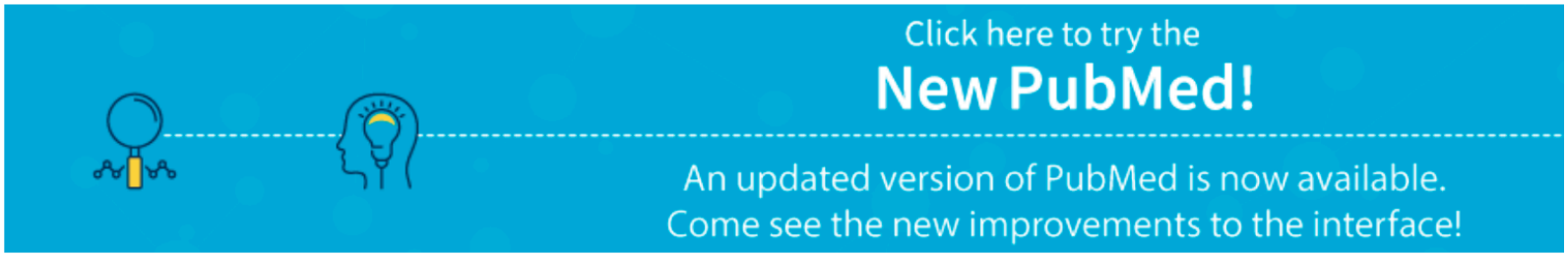



Respiratory Human Cell (Lung)

# If we wish to neutralize the (+) charges on the tips of the spike protein, we need to flood the body with high density of (-) charges



# Evidence for Chondroitin, Glucosamine & Carrageenan


Format: Abstract Send to

Posit Health News. 1998 Fall;(No 17):4-7.

**Sulfated polysaccharides (chondroitin sulfate and carrageenan) plus glucosamine sulfate are potent inhibitors of HIV.**

Konlee M.

**Abstract**

**AIDS:** Chondroitin sulfate, a fusion inhibitor found in human milk, appears to work by blocking the ability of a virus, such as HIV, to infect a cell. There are questions about whether cow or goat milk can offer the same fusion-inhibiting benefits. One sulfated monosaccharide, glucosamine 6-sulfate, appears to have significant anti-HIV activity. Carrageenan, a seaweed derivative, shows promise as a vaginal microbicide, and should be tested further to determine its effectiveness against HIV transmission.

PMID: 11366556

[Indexed for MEDLINE]

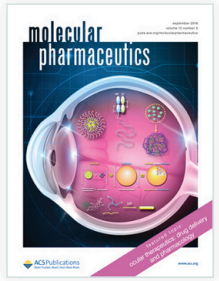
# Evidence for Chitosan & Chondroitin



## Zinc-Stabilized Chitosan-Chondroitin Sulfate Nanocomplexes for HIV-1 Infection Inhibition Application

Danjun Wu[†], Agathe Ensinas[‡], Bernard Verrier[‡], Charlotte Primard[§], Armelle Cuvillier[⫽], Gaël Champier[⫽], Stephane Paul[⊥] and Thierry Delair[*†]

View Author Information




Molecular Pharmaceutics

**Cite this:** *Mol. Pharmaceutics* 2016, 13, 9, 3279-3291
Publication Date: July 25, 2016
https://doi.org/10.1021/acs.molpharmaceut.6b00568
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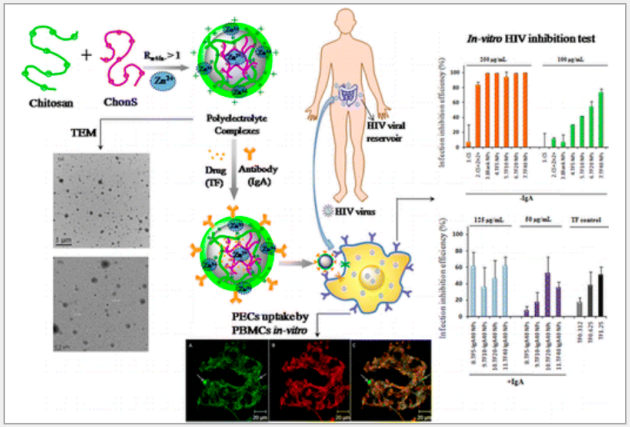
## Abstract

Polyelectrolyte complexes (PECs) constituted of chitosan and chondroitin sulfate (ChonS) were formed by the one-shot addition of default amounts of polyanion to an excess of polycation. Key variables of the formulation process (e.g., degree of depolymerization, charge mixing ratio, the concentration, and pH of polyelectrolyte solutions) were optimized based on the PECs sizes and polydispersities. The PECs maintained their colloidal stability at physiological salt concentration and pH thanks to the complexation of polyelectrolytes with zinc(II) ion during the nanoPECs formation process. The PECs were capable of encapsulating an antiretroviral drug tenofovir (TF) with a minimal alteration on the colloidal stability of the dispersion. Moreover, the particle interfaces could efficiently be functionalized with anti-OVA or anti-α4β7 antibodies with conservation



# Evidence for Marine Phytoplankton & Blue-Green Algae

Ecotoxicol Environ Saf. 2000 Mar;45(3):208-27.

## Anti-HIV activity of extracts and compounds from algae and cyanobacteria.

Schaeffer DJ[1], Krylov VS.

Author information

**Abstract**

The human immunodeficiency virus (HIV) is the retrovirus that causes the acquired immune deficiency disease syndrome (AIDS). This review discusses the anti-HIV activity of extracts and compounds isolated from freshwater and marine algae, and cyanobacteria (formerly called "blue-green algae"). Compounds and extracts with anti-HIV activity are also active against other retroviruses such as herpes simplex virus (HSV), but the amount of antiviral activity varies with the compound and the virus. Most of the research has focused on sulfated homopolysaccharides and heteropolysaccharides. Sulfoglycolipids, carrageenans, fucoidan, sesquiterpene hydroquinones, and other classes of compounds with anti-HIV activity that have been isolated from algae have received less attention. Most studies have used in vitro test systems, but a few in vivo studies have been carried out using compounds isolated from algae or analogs produced synthetically or isolated from other natural sources. Sulfated homopolysaccharides are more potent than sulfated heteropolysaccharides. The presence of the sulfate group is necessary for anti-HIV activity, and potency increases with the degree of sulfation. Studies using nonsulfated and sulfated homo- and heteropolysaccharides isolated from algae or other natural sources, or synthesized, have revealed the mechanisms of binding of drugs to the virion, and the mechanisms of viral binding to host cells. However, given the few classes of compounds investigated, most of the pharmacopeia of compounds in algae and cyanobacteria with antiretroviral activity is probably not known.

Copyright 2000 Academic Press.

PMID: 10702339 DOI: 10.1006/eesa.1999.1862

[Indexed for MEDLINE]

**https://www.ncbi.nlm.nih.gov/pubmed/10702339**

# Evidence for Elderberry, Chondroitin, Glucosamine & Olive Leaf Extract

Posit Health News. 1998 Fall;(No 17):12-4.

## A new triple combination therapy.

Konlee M.

**Abstract**

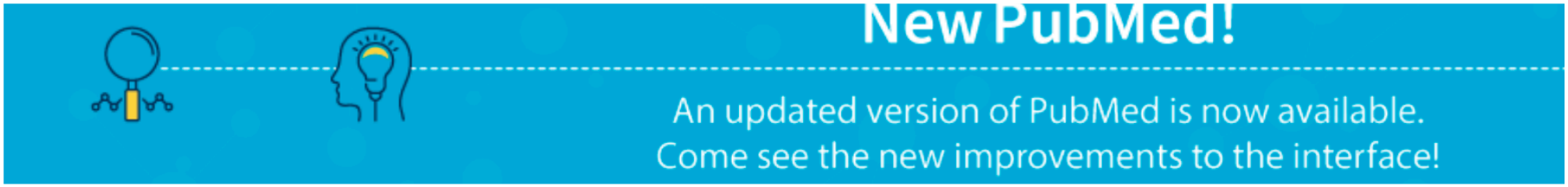
**AIDS:** Elderberry, chondroitin, and glucosamine sulfate have been found to block HIV replication at three distinct points in the replication cycle. For quadruple therapy, a reverse transcriptase inhibitor such as olive leaf extract or Epivir (3TC) could be added. In one case, a female, taking no HIV drugs, used an elderberry extract, called Sambucol, with olive leaf extract and experienced a viral load drop from 17,000 to 4,000. Instructions are given for making both alcohol-free and alcohol-based elderberry extracts. In 1993, researchers at Jerusalem?s Hebrew University Medical School found in a placebo-controlled double-blind study that Sambucol led to a rapid recovery from influenza and inhibited replication of nine other strains of the flu virus. A theory is that elderberry renders viruses nonfunctional by staining and coating them. Another promising treatment is soil based organisms, which improved Natural Killer cell function in a person with CFIDS.

PMID: 11366542

[Indexed for MEDLINE]

**https://www.ncbi.nlm.nih.gov/pubmed/11366542**

# Evidence for Elderberry, Chondroitin & Glucosamine




**Format**: Abstract **Send to**

Posit Health News. 1998 Fall;(No 17):7-11.

## Anecdotal reports: elderberry extract plus chondroitin and glucosamine sulfate and Thy-mate reduces viral load to non-detectable levels in 10 days.

[No authors listed]

### Abstract

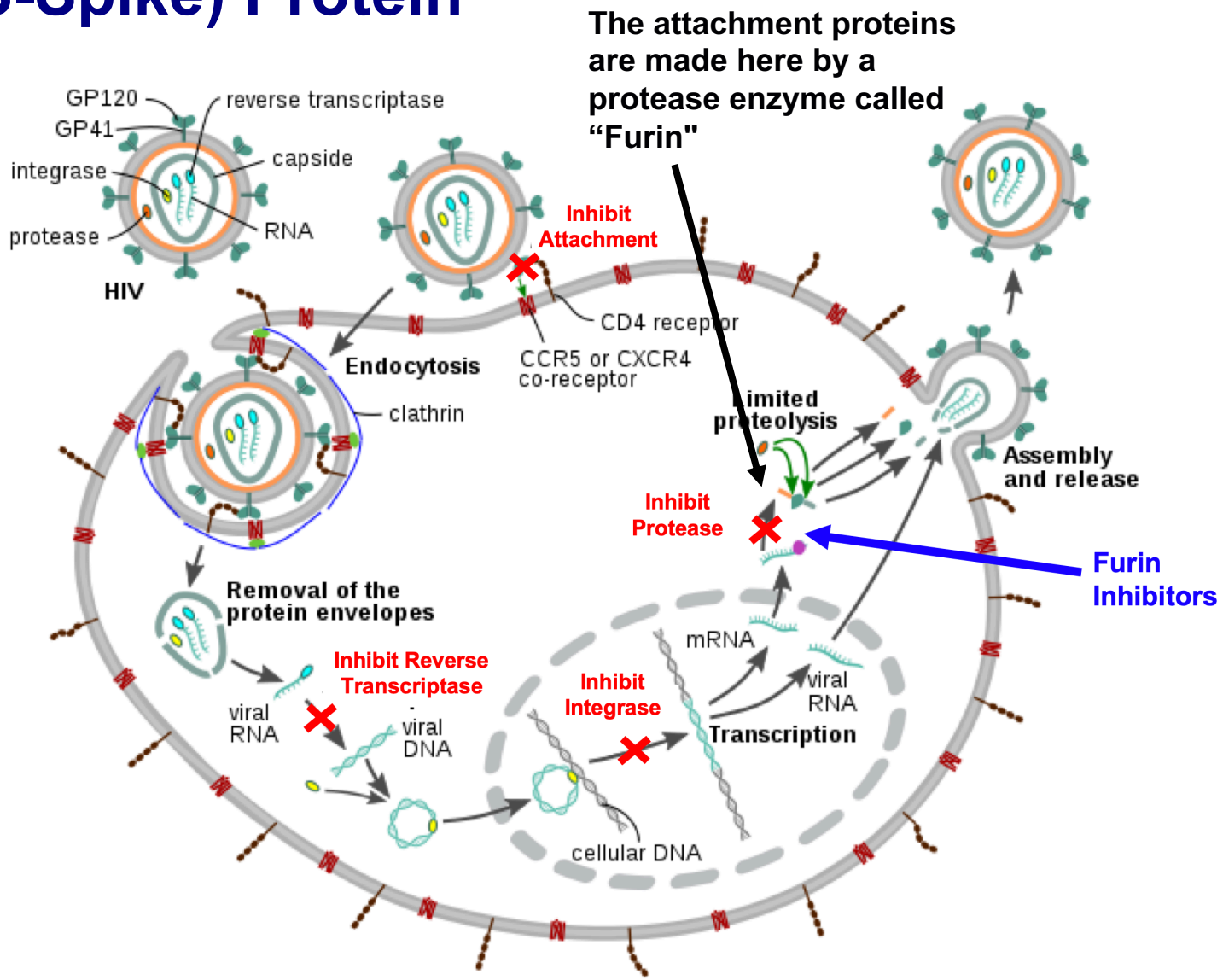
**AIDS:** Several HIV patients offer anecdotal reports in which they attribute significant viral load reductions to taking elderberry extract. Thy-Mate was also used. Case studies from six patients are presented. In an interview, Steven Rahn describes his self-imposed treatment and its effect on his viral load. Another case discusses reports of dicalcium phosphate, a binding agent found in some dietary supplements such as glucosamine, inhibiting absorption of the supplements. Other cases are described, and contact information is included.

PMID: 11366557

[Indexed for MEDLINE]

**https://www.ncbi.nlm.nih.gov/pubmed/11366557**

# Strategy 2: Block the creation of the Attachment (S-Spike) Protein



# Evidence that blocking Furin can work

## Furin, a potential therapeutic target for COVID-19

Submit Time: 2020-02-23

Author: Hua Li [1,2] ; Canrong Wu [1] ; Yueying Yang [2] ; Yang Liu [2] ; Peng Zhang [2] ; Yali Wang [2] ; Qiqi Wang [2] ; Yang Xu [2] ; Mingxue Li [2] ; Mengzhu Zheng [1] ; Lixia Chen [2] ;

Institute: 1. Hubei Key Laboratory of Natural Medicinal Chemistry and Resource Evaluation, School of Pharmacy, Tongji Medical College, Huazhong University of Science and Technology, Wuhan 430030, China; 2.Wuya College of Innovation, Key Laboratory of Structure-Based Drug Design & Discovery, Ministry of Education, Shenyang Pharmaceutical University, Shenyang 110016, China;

Abstracts

更多

A novel coronavirus (SARS-CoV-2) infectious disease has broken out in Wuhan, Hubei Province since December 2019, and spread rapidly from Wuhan to other areas, which has been listed as an international concerning public health emergency. We compared the Spike proteins from four sources, SARS-CoV-2, SARS-CoV, MERS-CoV and Bat-CoVRaTG13, and found that the SARS-CoV-2 virus sequence had redundant PRRA sequences. Through a series of analyses, we propose the reason why SARS-CoV-2is more infectious than other coronaviruses. And through structure based virtual ligand screening, we foundpotentialfurin inhibitors, which might be used in the treatment of new coronary pneumonia.

**http://www.chinaxiv.org/abs/202002.00062**

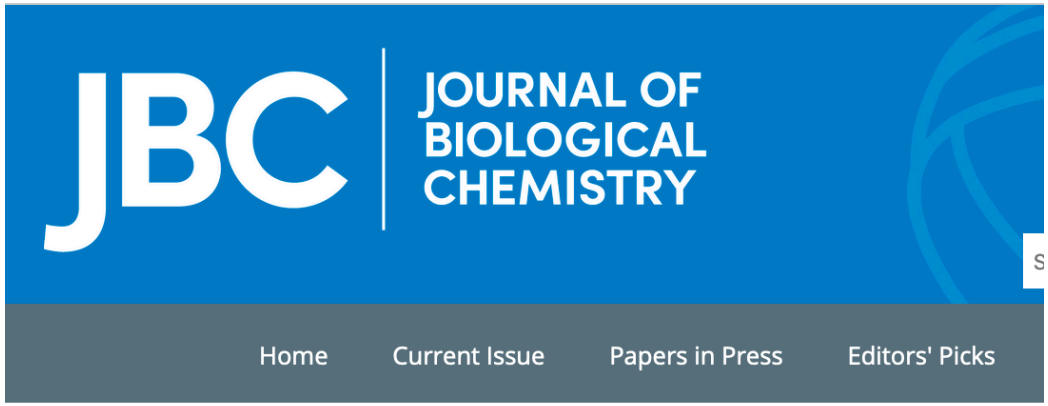
# Strategy 2: Furin Inhibitors

**The Attachment protein (S-Spike) is created by the body's enzyme, Furin. So there are natural supplements that block this enzyme, called Furin Protease Inhibitors**

## Natural Protease (Furin) Inhibitors

- L-arginine
- Green Tea Extract
- Silymarin extract (Milk Thistle)

# Furin Inhibitor: L-arginine




## Polyarginines Are Potent Furin Inhibitors*

Angus Cameron‡, Jon Appel§, Richard A. Houghten§ and Iris Lindberg‡¶

+ Author Affiliations

### Abstract

The ubiquitous serine endoprotease furin has been implicated in the activation of bacterial toxins and viral glycoproteins as well as in the metastatic progression of certain tumors. Although high molecular mass bioengineered serpin inhibitors have been well characterized, no small nontoxic nanomolar inhibitors have been reported to date. Here we describe the identification of such inhibitors using positional scanning amidated and acetylated syntheticL- and D-hexapeptide combinatorial libraries. The results indicated that L-Arg orL-Lys in all positions generated the most potent inhibitors. However, further investigation revealed that the peptide terminating groups hindered inhibition. Consequently, a series of non-amidated and acetylated polyarginines was synthesized. The most potent inhibitor identified, nona-L-arginine, had a$K_i$ for furin of 40 nM. The$K_i$ values for the related convertases PACE4 and

# Furin Inhibitor: Green & Black Tea

Curr Med Chem. 2013 Feb 1;20(6):840-50.

## Polyphenols can inhibit furin in vitro as a result of the reactivity of their auto-oxidation products to proteins.

Zhu J[1], Van de Ven WJ, Verbiest T, Koeckelberghs G, Chen C, Cui Y, Vermorken AJ.

Author information

**Abstract**

Methods using fluorogenic peptide substrates have been proposed for screening of proprotein convertase (PC) inhibitors and they are attractive since they offer the advantage of being sensitive, cost-effective and susceptible to miniaturization. Several polyphenols, including epigallocatechin gallate ((-)EGCG), the main component of green tea, and quercetin, widely distributed in fruit and vegetables, however, led to false positive results when fluorogenic peptide substrates were used. Processing of genuine furin substrates was not inhibited by these polyphenols. In the present study, these discordant effects of (-)EGCG on the PC furin were studied. While quercetin can form aggregates in solution, aggregate-based promiscuous inhibition could be ruled out as underlying mechanism for (-)EGCG. Hydrogen peroxide production, from auto-oxidation, was too low to be a major factor but appeared associated to furin inhibition, suggesting a role for other auto-oxidation products. Since the instability of catechins is related to their electrophilic character, we tested the nucleophilic substance glutathione for stabilization. Indeed glutathione reduced furin inhibition and (-)EGCG binding to furin and serum albumin as shown by redox-cycling staining. Catechins, therefore, seem to form reactive compounds and this should be taken into account in screening assays. Adding glutathione to the detergent-based assay, as used in these studies to measure furin processing activity, strongly reduced inhibition by a number of polyphenols (catechins, gallic acid and quercetin), while the effect on the genuine inhibitor nona-D-arginine remained unchanged.

**IN CONCLUSION:** the combined use of detergent and glutathione in the screening assay for furin inhibitors improves the predictive value.

PMID: 23231348

# Furin Inhibitor: Milk Thistle (Silymarin)

PLoS One. 2012;7(7):e41832. doi: 10.1371/journal.pone.0041832. Epub 2012 Jul 25.

## Silibinin inhibits HIV-1 infection by reducing cellular activation and proliferation.

McClure J[1], Lovelace ES, Elahi S, Maurice NJ, Wagoner J, Dragavon J, Mittler JE, Kraft Z, Stamatatos L, Horton H, De Rosa SC, Coombs RW, Polyak SJ.

Author information

**Erratum in**
PLoS One. 2012;7(10). doi: 10.1371/annotation/78ba072a-6b7a-430a-8fcd-ef020e4fc458. Stamatatos, Leonidis [corrected to Stamatatos, Leonidas].

**Abstract**

Purified silymarin-derived natural products from the milk thistle plant (Silybum marianum) block hepatitis C virus (HCV) infection and inhibit T cell proliferation in vitro. An intravenous formulation of silibinin (SIL), a major component of silymarin, displays anti-HCV effects in humans and also inhibits T-cell proliferation in vitro. We show that SIL inhibited replication of HIV-1 in TZM-bl cells, PBMCs, and CEM cells in vitro. SIL suppression of HIV-1 coincided with dose-dependent reductions in actively proliferating CD19+, CD4+, and CD8+ cells, resulting in fewer CD4+ T cells expressing the HIV-1 co-receptors CXCR4 and CCR5. SIL inhibition of T-cell growth was not due to cytotoxicity measured by cell cycle arrest, apoptosis, or necrosis. SIL also blocked induction of the activation markers CD38, HLA-DR, Ki67, and CCR5 on CD4+ T cells. The data suggest that SIL attenuated cellular functions involved in T-cell activation, proliferation, and HIV-1 infection. Silymarin-derived compounds provide cytoprotection by suppressing virus infection, immune activation, and inflammation, and as such may be relevant for both HIV mono-infected and HIV/HCV co-infected subjects.

PMID: 22848626 PMCID: PMC3404953 DOI: 10.1371/journal.pone.0041832

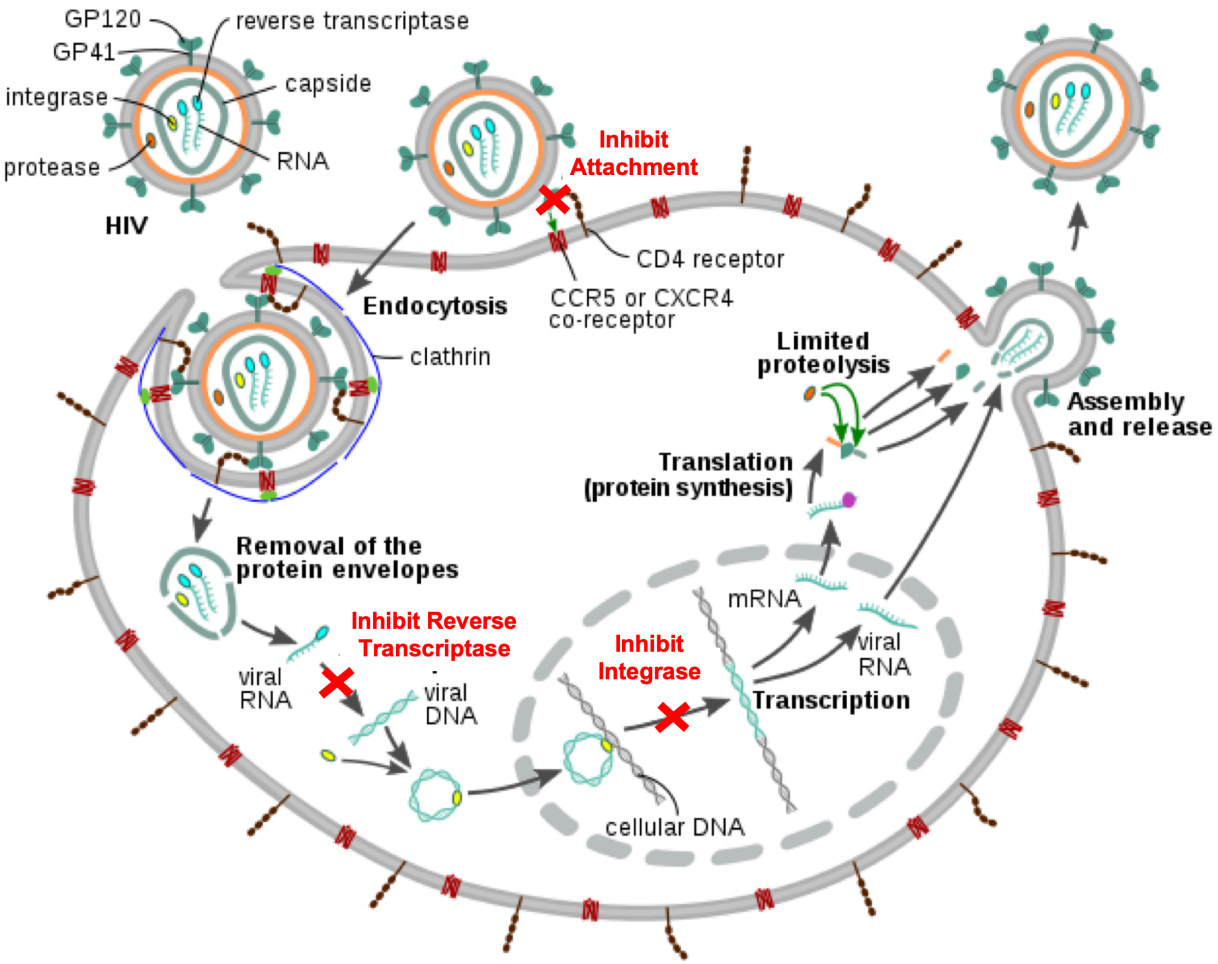
[Indexed for MEDLINE] **Free PMC Article**

**https://www.ncbi.nlm.nih.gov/pubmed/22848626**

# Strategy 3: Block the Integrase Enzyme Protein

## Natural Integrase Inhibitors

- Olive Leaf Extract



# Evidence that Olive Leaf Extract works

Biochem Biophys Res Commun. Author manuscript; available in PMC 2009 Dec 9.
Published in final edited form as:
Biochem Biophys Res Commun. 2007 Mar 23; 354(4): 872–878.
Published online 2007 Jan 24. doi: 10.1016/j.bbrc.2007.01.071

PMCID: PMC2790717
NIHMSID: NIHMS18537
PMID: 17275783

## Discovery of Small-Molecule HIV-1 Fusion and Integrase Inhibitors Oleuropein and Hydroxytyrosol: I. Fusion Inhibition

Sylvia Lee-Huang,[1,†*] Philip Lin Huang,[2,§*] Dawei Zhang,[1,§] Jae Wook Lee,[3] Ju Bao,[3] Yongtao Sun,[1] Young-Tae Chang,[3] John Zhang,[3] and Paul Lee Huang[4,*]

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The publisher's final edited version of this article is available at Biochem Biophys Res Commun

**This article has been corrected.** See the correction in volume 356 on page 1068.

See other articles in PMC that cite the published article.

### Abstract

Go to:

We have identified oleuropein (Ole) and hydroxytyrosol (HT) as a unique class of HIV-1 inhibitors from olive leaf extracts effective against viral fusion and integration. We used

**https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2790717/**

# Evidence for Black Cumin Seed (Nigella sativa)

**Review Article | Open Access**
Volume 2019 | Article ID 1528635 | 16 pages | https://doi.org/10.1155/2019/1528635

## *Nigella sativa* L. (Black Cumin): A Promising Natural Remedy for Wide Range of Illnesses

**Ebrahim M. Yimer**,[1] Kald Beshir Tuem,[1] Aman Karim,[2] Najeeb Ur-Rehman,[3] and Farooq Anwar[4]

Show more

**Academic Editor:** Nativ Dudai

| Received | Revised | Accepted | Published |
|---|---|---|---|
| 20 Oct 2018 | 26 Feb 2019 | 30 Apr 2019 | 12 May 2019 |

## Abstract

The seed of *Nigella sativa* (*N. sativa*) has been used in different civilization around the world for centuries to treat various animal and human ailments. So far, numerous studies demonstrated the seed of *Nigella sativa* and its main active constituent, thymoquinone, to be medicinally very effective against various illnesses including different chronic illness: neurological and mental illness, cardiovascular disorders, cancer, diabetes, inflammatory conditions, and infertility as well as various infectious diseases due to bacterial, fungal, parasitic, and viral infections. In spite of limited studies conducted so far, the promising efficacy of *N. sativa* against HIV/AIDS can be explored as an alternative option for the treatment of this pandemic disease after substantiating its full therapeutic efficacy. Moreover, the strong antioxidant property of this valued seed has recently gained increasing attention with regard to its potential role as dietary supplement with minimal side effects. Besides, when combined with different conventional chemotherapeutic agents, it synergizes their effects resulting in reducing the dosage of concomitantly used drugs with optimized efficacy and least and/or no toxicity. A number of pharmaceutical

https://www.hindawi.com/journals/ecam/2019/1528635/

# Evidence for Black Cumin Seed (Nigella sativa)

Afr J Tradit Complement Altern Med. 2013; 10(5): 332–335.
Published online 2013 Aug 12.
PMCID: PMC3847425
PMID: 24311845

## *Nigella Sativa* Concoction Induced Sustained Seroreversion in HIV Patient

Abdulfatah Adekunle Onifade,[1] Andrew Paul Jewell,[2] and Waheed Adeola Adedeji[3]

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This article has been cited by other articles in PMC.

### Abstract

Go to:

*Nigella sativa* had been documented to possess many therapeutic functions in medicine but the least expected is sero-reversion in HIV infection which is very rare despite extensive therapy with highly active anti-retroviral therapy (HAART). This case presentation is to highlight the complete recovery and sero-reversion of adult HIV patient after treatment with *Nigella sativa* concoction for the period of six months. The patient presented to the herbal therapist with history of chronic fever, diarrhoea, weight loss and multiple papular pruritic lesions of 3 months duration. Examination revealed moderate weight loss, and the laboratory tests of ELISA (Genscreen) and western blot (new blot 1 & 2) confirmed sero-positivity to HIV

**https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3847425/**

# Evidence for Black Cumin Seed & Honey

J Ethnopharmacol. 2015 Dec 4;175:147-52. doi: 10.1016/j.jep.2015.09.022. Epub 2015 Sep 18.

## Efficacy and safety of honey based formulation of Nigella sativa seed oil in functional dyspepsia: A double blind randomized controlled clinical trial.

Mohtashami R[1], Huseini HF[2], Heydari M[3], Amini M[4], Sadeqhi Z[5], Ghaznavi H[6], Mehrzadi S[7].

Author information

**Abstract**

**ETHNOPHARMACOLOGICAL RELEVANCE:** A honey based formulation from Nigella sativa L. (N. sativa) has been used in Traditional Persian Medicine for upper gastrointestinal symptoms. Considering the traditional use of this formulation and its ingredients known pharmacologic effects, this study aimed to evaluate the efficacy and safety of N. sativa seed oil mixed with honey in treatment of patients with functional dyspepsia.

**METHODS AND MATERIALS:** Seventy patients diagnosed with functional dyspepsia according to ROME III criteria and confirmed by upper gastrointestinal endoscopy were selected to receive a traditional honey based formulation of N. sativa (5 ml N. sativa oil orally daily) or placebo for 8 weeks in a double-blind randomized placebo-controlled clinical trial using a parallel design with a 1:1 allocation ratio. Patients were evaluated prior to and following 8 weeks of the intervention in terms of the Hong Kong index of dyspepsia severity, presence of Helicobacter pylori infection based on urease test, scores in different domains of short form (SF-36) health survey, and any observed adverse events.

**RESULTS:** The mean scores of Hong Kong index of dyspepsia severity sores and the rate of H. pylori infection were significantly lower in the N. sativa group comparing the placebo group after the intervention ($P<0.001$). No serious adverse event was reported.

**CONCLUSION:** This study showed that adjuvant supplementation of honey based formulation of N. sativa can cause significant symptomatic improvement of patients with functional dyspepsia whom received the standard anti-secretory therapy. The results should be investigated further in studies with longer duration and larger sample size.

**https://www.ncbi.nlm.nih.gov/pubmed/26386381**

# Evidence for Black Cumin Seed, Lemon & Chamomile

## The effects of *Nigella sativa* (Ns), *Anthemis hyalina* (Ah) and *Citrus sinensis* (Cs) extracts on the replication of coronavirus and the expression of TRP genes family

Mustafa Ulasli, Serdar A. Gurses, Recep Bayraktar, Onder Yumrutas, Serdar Oztuzcu, Mehri Igci, Yusuf Ziya Igci, Ecir Ali Cakmak, and Ahmet Arslan

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### Associated Data

Supplementary Materials

### Abstract

Go to:

Extracts of *Anthemis hyalina* (Ah), *Nigella sativa* (Ns) and peels of *Citrus sinensis* (Cs) have been used as folk medicine to fight antimicrobial diseases. To evaluate the effect of extracts of Ah, Ns and Cs on the replication of coronavirus (CoV) and on the expression of TRP genes during coronavirus infection, HeLa-CEACAM1a (HeLa-epithelial carcinoembryonic antigen-related cell adhesion molecule 1a) cells were inoculated with MHV-A59 (mouse hepatitis virus–A59) at moi of 30. 1/50 dilution of the extracts was found to be the safe active dose. ELISA kits were used to detect the human IL-8 levels. Total RNA was isolated from the infected cells and cDNA was synthesized. Fluidigm Dynamic Array nanofluidic chip 96.96 was used to analyze the mRNA expression of 21 TRP genes and two control genes. Data was analyzed using the BioMark digital array software. Determinations of relative gene expression values were carried out by using the $2^{-\Delta\Delta Ct}$ method (normalized threshold cycle (Ct) value of

**https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3933739/**

# Evidence for Grape Skin Extract & Skullcap

Bioorg Med Chem Lett. 2012 Jun 15;22(12):4049-54. doi: 10.1016/j.bmcl.2012.04.081. Epub 2012 Apr 25.

## Identification of myricetin and scutellarein as novel chemical inhibitors of the SARS coronavirus helicase, nsP13.

Yu MS[1], Lee J, Lee JM, Kim Y, Chin YW, Jee JG, Keum YS, Jeong YJ.

Author information

**Abstract**

Severe acute respiratory syndrome (SARS) is an infectious disease with a strong potential for transmission upon close personal contact and is caused by the SARS-coronavirus (CoV). However, there are no natural or synthetic compounds currently available that can inhibit SARS-CoV. We examined the inhibitory effects of 64 purified natural compounds against the activity of SARS helicase, nsP13, and the hepatitis C virus (HCV) helicase, NS3h, by conducting fluorescence resonance energy transfer (FRET)-based double-strand (ds) DNA unwinding assay or by using a colorimetry-based ATP hydrolysis assay. While none of the compounds, examined in our study inhibited the DNA unwinding activity or ATPase activity of human HCV helicase protein, we found that myricetin and scutellarein potently inhibit the SARS-CoV helicase protein in vitro by affecting the ATPase activity, but not the unwinding activity, nsP13. In addition, we observed that myricetin and scutellarein did not exhibit cytotoxicity against normal breast epithelial MCF10A cells. Our study demonstrates for the first time that selected naturally-occurring flavonoids, including myricetin and scultellarein might serve as SARS-CoV chemical inhibitors.

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# Evidence for Elderberry, Cinnamon & Green Tea Extract

## Research Demonstrates that HIV Infection May be Inhibited by Elderberry, Cinnamon, and Green Tea Extracts

HerbalScience | Aug 19, 2009

The development of new antiviral drugs has had a tremendous impact on the quality of life and life expectancy of HIV-positive and AIDS patients, as the drugs effectively disrupt the replication cycle of the HIV virus. Yet the regular use of those drugs - such as zidovudine (also known as azidothymidine or AZT), protease

# Review: Targeted Natural Supplements for Coronavirus

## Supplements that Coat the Coronavirus (anti-attachment)

- Chondroitin Sulfate, Glucosamine, Marine Phytoplankton
- Elderberry

## Supplements that prevent spikes (anti-attachment)

- L-arginine, Green & Black Tea, Milk Thistle (Silymarin)

## Supplements that prevent RNA inversion

- Olive Leaf Extract

## Supplements that prevent replication

- Black Cumin Seed with Honey & Lemon
- Grape Skin Extract, Chamomile, Skullcap