

Kyoto Encyclopedia of Genes and Genomes derived Suggestions

Review Overview

These suggestions are based on an Expert System (Artificial Intelligence) modelled after the MYCIN Expert System produced at Stanford University School of Medicine in 1972. The system uses almost 2 million facts with backward chaining to sources of information. The typical sources are studies published on the US National Library of Medicine. Note: That many of the bacteria species used are *NOT* reported on many tests.

These are suggestions that are predicted to independently Decreasing Methane | CH4 CH4 by impacting the bacteria listed on [KEGG: Kyoto Encyclopedia of Genes and Genomes](#). Suggestions should *only be done after a review* by a medical professional factoring in patient's conditions, allergies and other issues.

This report may be freely shared by a patient to their medical professionals

This is an experimental feature – manual validations is recommended. For background, see this [post](#)

There is a separate report for probiotics. That report use the enzymes in probiotic species.

Analysis Provided by Microbiome Prescription

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Bacteria being targeted by suggestions.

These bacteria levels were deemed atypical

Bacteria Name	Rank	Shift	Taxonomy ID	Bacteria Name	Rank	Shift	Taxonomy ID
Methylococcus capsulatus	species		414	Nitrosococcus watsonii	species		473531
Methylomonas methanica	species		421	Mycobacterium dioxanotrophicus	species		482462
Methylosinus trichosporium	species		426	Candidatus Methylacidiphilum infemorum	species		511746
Methylovivimicrobium buryatense	species		95641	Candidatus Nitrosacidococcus tergens	species		553981
Methylomonas sp. LW13	species		107637	Candidatus Methylomirabilis oxyfera	species		671143
Methylocystis heyeri	species		391905	Methylomonas koyamae	species		702114
Methylocystis bryophila	species		655015	Methylomonas paludis	species		1173101
Methylocaldum marinum	species		1432792	Nitrosospira lacus	species		1288494
Methylomagnum ishizawai	species		1760988	Methylogaea oryzae	species		1295382
Candidatus Methylospira mobilis	species		1808979	Nitrosomonas stercoris	species		1444684
Methylocystis parvus	species		134	Methylomonas denitrificans	species		1538553
Nitrosomonas europaea	species		915	Candidatus Nitrosoglobus terrae	species		1630141
Nitrosomonas eutropha	species		916	Methylovulum psychrotolerans	species		1704499
Nitrosococcus oceani	species		1229	Candidatus Nitrospira inopinata	species		1715989
Nitrosospira multiformis	species		1231	Methylomonas sp. DH-1	species		1727196
Mycolicibacterium chubuense	species		1800	Nitrosococcus wardiae	species		1814290
Mycolicibacterium rhodesiae	species		36814	Azoarcus sp. DD4	species		2027405
Nitrosomonas communis	species		44574	Nocardia tengchongensis	species		2055889
Nitrosomonas ureae	species		44577	Burkholderia sp. JP2-270	species		2217913
Hydrogenophaga pseudoflava	species		47421	Burkholderia thailandensis	species		57975
Nitrosococcus halophilus	species		133539	Pseudomonas fluorescens	species		294
Mycolicibacterium holsaticum	species		152142	Ralstonia pickettii	species		329
Nitrosomonas sp. AL212	species		153948	Stutzerimonas stutzeri	species		316
Methylocystis rosea	species		173366	Shigella boydii	species		621
Methylocystis sp. SC2	species		187303	Desulfovibrio desulfuricans	species		876
Methylocella silvestris	species		199596	Clostridium pasteurianum	species		1501
Methylocella tundrae	species		227605	Marinobacter nauticus	species		2743
Nitrosomonas sp. Is79A3	species		261292	Rhodococcus opacus	species		37919
Methylovivimicrobium alcaliphilum	species		271065	Pandoraea pnomenus	species		93220
Methylacidiphilum kamchatkense	species		431057	Variovorax paradoxus	species		34073

Substance to Consider Adding or Taking

These are the most significant substances that are likely to improve the microbiome dysfunction. Dosages are based on the dosages used in clinical studies. For more information see: <https://microbiomeprescription.com/library/dosages>. These are provided as examples only

Colors indicates the type of substance: i.e. probiotics and prebiotics, herbs and spices, etc. There is no further meaning to them.

The recommended process to obtain a *persistent shift* of the microbiome is:

Generate 4 lists from the suggestions with nothing repeated on another list

Emphasize one list each week

After 8 weeks (2 cycles), retest the microbiome to obtains the next set of *course corrections*

This approach allows the microbiome to stablize towards normal.

Pick only as many suggestions that suits you; there is no need to do all of them. Suggestions are based on your specific bacteria and not marketing concepts such as 'healthy choices'.

cinnamon (oil, spice) 6 gram/day

coriander oil

Curcumin 3 gram/day

foeniculum vulgare, fennel

ginger

lactobacillus casei (probiotics) 48 BCFU/day

lactobacillus plantarum (probiotics) 60 BCFU/day

nigella sativa seed (black cumin) 1000 mg/day

oregano (organum vulgare, oil) |

schinus molle (herb)

syzygium aromaticum (clove)

thyme (thymol, thyme oil)

trachyspermum ammi, Ajwain

Retail Probiotics

Over 260 retail probiotics were evaluated with the following deemed beneficial with no known adverse risks.

theramedix / probiotic
newrhythm / probiotics 20 stains
Lake Avenue Nutrition / Probiotics 10 Strain Blend
Windlove Probiotics / Ecologic®825
ASEA VIA / BIOME
HLH BIOPHARMA(DE) / LACTOBACT® METABOLIC
jarrow formula / jarro-dophilus original
HLH BIOPHARMA(DE) / LACTOBACT® PREMIUM
fürstenmed / lacto-bifido
udo's choice /super 8 gold
Krauterhaus / Lactopro
bioray / cytoflora
renew life / ultimate flora
up4 / ultra
Advanced Bio-Cultures / Advance Multi Strain Probiotics
elixa / probiotic
bioglan bio (au) / happy probiotic 100
Global Healing Center / FloraTrex
SuperSmart / Lactoxira
douglas laboratories / multi probiotic 40 billion
visbiome
garden of life / primal defense
renew life men's probiotic - ultimate
SuperSmart / Full Spectrum Probiotic Formula
jarrow formulas / jarro-dophilus eps
7 AM Ultra Probiotics
quantum wellness / restora flora
vita miracle / ultra-30 probiotics
HLH BIOPHARMA(DE) / LACTOBACT® 60PLUS
Northwest Natural Products / PBS
seed / female version
jarrow formulas / jarro-dophilus® ultra
SuperSmart / Probio Forte
Physician Choice /60 Billion Probiotics
1 md / complete probiotics platinum
SuperSmart / Derma Relief
fairvital / microflora basic
MegaFood / MegaFlora
Invivo / Bio.Me Femme UT
Physis / Advance Probiotics
Dr. Mercola / Complete Probiotics
Garden of Life / Dr. Formulated Once Daily Women's
vinco / probiotic eight 65
hyperbiotics / pro-15
nature's way (au) / restore probiotic 100 billion
OMNI-BIOTIC®/ TRAVEL
organic 3 / primal gut
bioglan bio (au) / happy probiotic 50
HLH BIOPHARMA(DE) / LACTOBACT® LDL-CONTROL
HLH BIOPHARMA(DE) / LACTOBACT® OMNI FOS
seed / male version
solaray / microbiome probiotic colon formula
lifted naturals / mood boosting probiotic
NOW FOODS / Clinical GI Probiotic

ecology_allergycare
PharmExtracta (IT) / INatal Sachets
NaturalPharma / Profit Probiotics
Bio Schwartz / Advance Strength Probiotics (40 BCFU)
OMNI-BIOTIC®/ 10 AAD
up4 /women's
young living/life 9
Bromatech (IT) / Adomelle
nature's bounty / probioti 10
Ombre / Heart Health
organic 3 / gutpro
custom probiotics / six strain probiotic powder
Bromatech (IT) / Citogenex
ImmuneBiotech Medical Sweden AB / GutMagnific®
naturopathica (au) / gastrohealth probiotic dairy free 20 bcfu
biospec / probiotic-5
CustomProbiotics.com / L. Plantarum Probiotic Powder
Ombre / Healthy Gut
just for tummies / live bacteria
naturopathica (au) / gastrohealth probiotic dairy free 50 billion
jarrow formula / ideal bowel support® Ip299v®
Seeking Health / Probiota HistaminX
Thryve Inside/ L.Reu,Rham,Casi; B.Lactis
Sash Vitality /Bio-Cultures Probiotics for Adults
SuperSmart / Vaginal Health
klaire labs / target gb-x
ferring / vsl#3
Resbiotic /resB® Lung Support
spain (es) / I3.1
Ombre / Mood Enhancer
up4 / adult
nature's way (au) /restore probiotic bowel & colon health 30s
Realdose
Ombre / Ultimate Immunity
optibac / for your cholesterol
ProbioMax® Daily DF
SuperSmart / Lactobacillus Plantarum Postbiotic (Pasturized)
LiveWell Nutrition / Pro-45
Metabolics / Lactobacillus Plantarum Powder
Jetson (US) / Immunity Probiotics
spain (es) / vivomixx
zint nutrition / probiotic collagen +
Smidge /Sensitive Probiotic
probiotic pur (de) / realdose nutrition
SuperSmart / Candalb
custom probiotics / four strain lactobacilli
naturopathica (au) /gastrohealth probiotic ultimate daily care 100billion
CustomProbiotics.com / L. Casei Probiotic Powder
Bromatech(IT) / FEMELLE
Wholesome Wellness / Raw Probiotic
bio-k+

Note: Some of these are only available regionally – search the web for sources.

Substance to Consider Reducing or Eliminating

These are the most significant substances have been identified as probably contributing to the microbiome dysfunction.

In some cases blood work may show low levels of some vitamins, etc. listed below. This may be due to *greedy* bacteria reported at a high level above. Viewing bacteria data on the Kyoto Encyclopedia of Genes and Genomes (<https://www.kegg.jp/>) may provide better insight on the course of action to take.

aspartame (sweetner)

iron

Slippery Elm

Sample of Literature Used

The following are some of the studies used to generate these suggestions.

- Spices as Sustainable Food Preservatives: A Comprehensive Review of Their Antimicrobial Potential. Pharmaceuticals (Basel, Switzerland) , Volume: 16 Issue: 10 2023 Oct 12**
 Authors Sulieman AME, Abdallah EM, Alanazi NA, Ed-Dra A, Jamal A, Idriess H, Alshammari AS, Shommo SAM
Supplementation of ginger root extract into broiler chicken diet: effects on growth performance and immunocompetence.
Poultry science , Volume: 102 Issue: 10 2023 Jul 11
 Authors Dosu G, Obanla TO, Zhang S, Sang S, Adetunji AO, Fahrenholz AC, Ferket PR, Nagabhusanam K, Fasina YO
Preparation and characterization of curcumin/chitosan conjugate as an efficient photodynamic antibacterial agent.
Carbohydrate polymers , Volume: 313 2023 Aug 1
 Authors Zhao L, Ding X, Khan IM, Yue L, Zhang Y, Wang Z
Antibacterial efficacy of different combinations of clove, eucalyptus, ginger, and selected antibiotics against clinical isolates of *Pseudomonas aeruginosa*.
Ayu , Volume: 41 Issue: 2 2020 Apr-Jun
 Authors Sagar PK, Sharma P, Singh R
Correction to "ZnO/Curcumin Nanocomposites for the Enhanced Inhibition of *Pseudomonas aeruginosa* Virulence via LasR-RhlR Quorum Sensing Systems".
Molecular pharmaceutics , 2021 Dec 7
 Authors Prateeksha, Rao CV, Das AK, Barik SK, Singh BN
Multidimensional exploration of essential oils generated via eight oregano cultivars: Compositions, chemodiversities, and antibacterial capacities.
Food chemistry , Volume: 374 2022 Apr 16
 Authors Hao Y, Kang J, Yang R, Li H, Cui H, Bai H, Tsitsilin A, Li J, Shi L
Promiscuous *Pseudomonas*: Uptake of Non-Endogenous Ligands for Iron Acquisition.
Tetrahedron letters , Volume: 75 2021 Jul 6
 Authors Kaplan AR, Wuest WM
Thyroid-Gut-Axis: How Does the Microbiota Influence Thyroid Function?
Nutrients , Volume: 12 Issue: 6 2020 Jun 12
 Authors Knezevic J, Starchl C, Tmava Berisha A, Amrein K
Antioxidant, Anti-Inflammatory, and Microbial-Modulating Activities of Essential Oils: Implications in Colonic Pathophysiology.
International journal of molecular sciences , Volume: 21 Issue: 11 2020 Jun 10
 Authors Spisni E, Petrocelli G, Imbesi V, Spigarelli R, Azzinnari D, Donati Sarti M, Campieri M, Valerii MC
Dietary prophage inducers and antimicrobials: toward landscaping the human gut microbiome.
Gut microbes , 2020 Jan 13
 Authors Boling L, Cuevas DA, Grasis JA, Kang HS, Knowles B, Levi K, Maughan H, McNair K, Rojas MI, Sanchez SE, Smurthwaite C, Rohwer F
Antimicrobial activity of spices essential oils and its effectiveness on mature biofilms of human pathogens.
Natural product research , 2018 Oct 13
 Authors Condò C, Anacarso I, Sabia C, Iseppi R, Anfelli I, Forti L, de Niederhäusern S, Bondi M, Messi P
Antibacterial activity of traditional spices against lower respiratory tract pathogens: combinatorial effects of *Trachyspermum ammi* essential oil with conventional antibiotics.
Letters in applied microbiology , Volume: 67 Issue: 5 2018 Nov
 Authors Gradinaru AC, Trifan A, Spac A, Brebu M, Miron A, Aprotosoiaie AC
The bacterium *Pseudomonas aeruginosa* senses and gradually responds to interspecific competition for iron.
Evolution; international journal of organic evolution , 2018 Apr 17
 Authors Leinweber A, Weigert M, Kümmerli R
Prebiotic Potential of Herbal Medicines Used in Digestive Health and Disease.
Journal of alternative and complementary medicine (New York, N.Y.) , Volume: 24 Issue: 7 2018 Jul
 Authors Peterson CT, Sharma V, Uchitel S, Denniston K, Chopra D, Mills PJ, Peterson SN
Polysaccharides from *Dolichos biflorus* Linn and *Trachyspermum ammi* Linn seeds: isolation, characterization and remarkable antimicrobial activity.
Chemistry Central journal , Volume: 11 Issue: 1 2017 Nov 21
 Authors Basu S, Ghosh M, Bhunia RK, Ganguly J, Banik BK
In-vitro antimicrobial activity and identification of bioactive components using GC-MS of commercially available essential oils in Saudi Arabia.

- Journal of food science and technology** , Volume: 54 Issue: 12 2017 Nov
 Authors Ashraf SA,Al-Shammari E,Hussain T,Tajuddin S,Panda BP
Monitoring *in vitro* antibacterial efficacy of 26 Indian spices against multidrug resistant urinary tract infecting bacteria.
- Integrative medicine research** , Volume: 3 Issue: 3 2014 Sep
 Authors Rath S,Padhy RN
The effects of micronutrient deficiencies on bacterial species from the human gut microbiota.
- Science translational medicine** , Volume: 9 Issue: 390 2017 May 17
 Authors Hibberd MC,Wu M,Rodionov DA,Li X,Cheng J,Griffin NW,Barratt MJ,Giannone RJ,Hettich RL,Osterman AL,Gordon JI
Effects of long-term Bacillus subtilis CGMCC 1.921 supplementation on performance, egg quality, and fecal and cecal microbiota of laying hens.
- Poultry science** , Volume: 96 Issue: 5 2017 May 1
 Authors Guo JR,Dong XF,Liu S,Tong JM
In vitro antimicrobial activity of five essential oils on multidrug resistant Gram-negative clinical isolates.
- Journal of intercultural ethnopharmacology** , Volume: 5 Issue: 3 2016 Jun-Aug
 Authors Sakkas H,Gousia P,Economou V,Sakkas V,Petsios S,Papadopoulou C
Survey of the Antibiofilm and Antimicrobial Effects of Zingiber officinale (in Vitro Study).
- Jundishapur journal of microbiology** , Volume: 9 Issue: 2 2016 Feb
 Authors Aghazadeh M,Zahedi Bialvaei A,Aghazadeh M,Kabiri F,Saliani N,Yousefi M,Eslami H,Samadi Kafil H
Gas chromatography coupled with mass spectrometric characterization of Curcuma longa: Protection against pathogenic microbes and lipid peroxidation in rat`s tissue homogenate.
- Pakistan journal of pharmaceutical sciences** , Volume: 29 Issue: 2 2016 Mar
 Authors Hassan W,Gul S,Rehman S,Kanwal F,Afridi MS,Fazal H,Shah Z,Rahman A,da Rocha JB
Lactobacillus plantarum NCU116 attenuates cyclophosphamide-induced intestinal mucosal injury, metabolism and intestinal microbiota disorders in mice.
- Food & function** , Volume: 7 Issue: 3 2016 Mar
 Authors Xie JH,Fan ST,Nie SP,Yu Q,Xiong T,Gong D,Xie MY
Evaluation of probiotic properties of Lactobacillus plantarum WLPL04 isolated from human breast milk.
- Journal of dairy science** , Volume: 99 Issue: 3 2016 Mar
 Authors Jiang M,Zhang F,Wan C,Xiong Y,Shah NP,Wei H,Tao X
Antibacterial Activity of Probiotic Lactobacillus plantarum HK01: Effect of Divalent Metal Cations and Food Additives on Production Efficiency of Antibacterial Compounds.
- Probiotics and antimicrobial proteins** , Volume: 5 Issue: 2 2013 Jun
 Authors Sharafi H,Alidost L,Lababpour A,Shahbani Zahiri H,Abbasi H,Vali H,Akbari Noghabi K
Antibacterial activity of cinnamaldehyde and clove oil: effect on selected foodborne pathogens in model food systems and watermelon juice.
- Journal of food science and technology** , Volume: 52 Issue: 9 2015 Sep
 Authors Siddiqua S,Anusha BA,Ashwini LS,Negi PS
In vitro probiotic characteristics of Lactobacillus plantarum ZDY 2013 and its modulatory effect on gut microbiota of mice.
- Journal of dairy science** , Volume: 98 Issue: 9 2015 Sep
 Authors Huang R,Tao X,Wan C,Li S,Xu H,Xu F,Shah NP,Wei H
Antimicrobial Impacts of Essential Oils on Food Borne-Pathogens.
- Recent patents on food, nutrition & agriculture** , Volume: 7 Issue: 1 2015
 Authors Ozogul Y,Kuley E,Ucar Y,Ozogul F
Antimicrobial activity and chemical composition of the essential oils of Portuguese Foeniculum vulgare fruits.
- Natural product communications** , Volume: 10 Issue: 4 2015 Apr
 Authors Mota AS,Martins MR,Arantes S,Lopes VR,Bettencourt E,Pombal S,Gomes AC,Silva LA
Phytonutrient diet supplementation promotes beneficial Clostridia species and intestinal mucus secretion resulting in protection against enteric infection.
- Scientific reports** , Volume: 5 2015 Mar 19
 Authors Wlodarska M,Willing BP,Bravo DM,Finlay BB
Empirical prediction and validation of antibacterial inhibitory effects of various plant essential oils on common pathogenic bacteria.
- International journal of food microbiology** , Volume: 202 2015 Jun 2
 Authors Akdemir Evrendilek G
Probiotic potential of lactobacillus strains isolated from sorghum-based traditional fermented food.
- Probiotics and antimicrobial proteins** , Volume: 7 Issue: 2 2015 Jun
 Authors Rao KP,Chennappa G,Suraj U,Nagaraja H,Raj AP,Sreenivasa MY

Probiotic features of two oral Lactobacillus isolates.

Brazilian journal of microbiology : [publication of the Brazilian Society for Microbiology] , Volume: 43 Issue: 1
2012 Jan

Authors Zavisic G,Petricevic S,Radulovic Z,Begovic J,Golic N,Topisirovic L,Strahinic I

In-vitro antimicrobial activity and synergistic/antagonistic effect of interactions between antibiotics and some spice essential oils.

Journal of environmental biology , Volume: 32 Issue: 1 2011 Jan

Authors Toroglu S

Antibacterial activity in spices and local medicinal plants against clinical isolates of Karachi, Pakistan.

Pharmaceutical biology , Volume: 49 Issue: 8 2011 Aug

Authors Ali NH,Faizi S,Kazmi SU

Antibacterial effects of the essential oils of commonly consumed medicinal herbs using an in vitro model.

Molecules (Basel, Switzerland) , Volume: 15 Issue: 11 2010 Oct 27

Authors Sokovic M,Glamoclija J,Marin PD,Brkic D,van Griensven LJ

Biodegradable gelatin-chitosan films incorporated with essential oils as antimicrobial agents for fish preservation.

Food microbiology , Volume: 27 Issue: 7 2010 Oct

Authors Gómez-Estaca J,López de Lacey A,López-Caballero ME,Gómez-Guillén MC,Montero P

In vitro antimicrobial activity and chemical composition of the essential oil of Foeniculum vulgare Mill.

Revista medico-chirurgicala a Societatii de Medici si Naturalisti din Iasi , Volume: 112 Issue: 3 2008 Jul-Sep

Authors Aprotosoai AC,Hancianu M,Poata A,Tuchilus C,Spac A,Cioana O,Gille E,Stanescu U

The antimicrobial efficacy of plant essential oil combinations and interactions with food ingredients.

International journal of food microbiology , Volume: 124 Issue: 1 2008 May 10

Authors Gutierrez J,Barry-Ryan C,Bourke P

Vapor-phase activities of cinnamon, thyme, and oregano essential oils and key constituents against foodborne microorganisms.

Journal of agricultural and food chemistry , Volume: 55 Issue: 11 2007 May 30

Authors López P,Sanchez C,Battle R,Nerín C

Antimicrobial and antiplasmid activities of essential oils.

Fitoterapia , Volume: 77 Issue: 4 2006 Jun

Authors Schelz Z,Molnar J,Hohmann J

Probiotic activities of Lactobacillus casei rhamnosus: in vitro adherence to intestinal cells and antimicrobial properties.

Research in microbiology , Volume: 152 Issue: 2 2001 Mar

Authors Forestier C,De Champs C,Vatoux C,Joly B

Antimicrobial activity of essential oils and other plant extracts.

Journal of applied microbiology , Volume: 86 Issue: 6 1999 Jun

Authors Hammer KA,Carson CF,Riley TV

Antimicrobial activity of essential oil from Schinus molle Linn.

The Central African journal of medicine , Volume: 39 Issue: 11 1993 Nov

Authors Gundidza M

Studies on the antimicrobial activity of Nigella sativa seed (black cumin).

Journal of ethnopharmacology , Volume: 34 Issue: 2-3 1991 Sep

Authors Hanafy MS,Hatem ME

Curcumin consumption reduces gut microbial diversity among patients with colorectal adenomas

The FASEB Journal , Volume: 26 Issue: 1 2012 Apr 1

Authors April McLauchlin,Felix Araujo-Perez,Nikki McCoy,Kevin Smith,Bob Sandler,Gary Asher,Temitope Keku

Curated database of commensal, symbiotic and pathogenic microbiota

Generative Bioinformatics , Volume: Issue: 2014 Jun

Authors D'Adamo Peter