

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 L-histidine carboxy-lyase (histamine-forming) 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
Sorangium cellulosum	species		56	Kitasatospora setae	species		2066
Francisella tularensis subsp. novicida	subspecies		264	Halomonas elongata	species		2746
Pseudomonas fluorescens	species		294	Francisella philomiragia	species		28110
Methylococcus capsulatus	species		414	Vibrio nigripulchritudo	species		28173
Acinetobacter baumannii	species		470	Arcobacter nitrofigilis	species		28199
Iodobacter fluviatilis	species		537	Ornithobacterium rhinotracheale	species		28251
Klebsiella aerogenes	species		548	Streptantibioticus cattleyicolor	species		29303
Dickeya chrysanthemi	species		556	Aeromonas salmonicida subsp. salmonicida	subspecies		29491
Klebsiella pneumoniae	species		573	Vibrio tubiashii	species		29498
Aeromonas hydrophila	species		644	Staphylococcus saccharolyticus	species		33028
Aeromonas salmonicida	species		645	Gloeobacter violaceus	species		33072
Vibrio vulnificus	species		672	Streptomyces subrutilus	species		36818
Vibrio gazogenes	species		687	Xenorhabdus poinarii	species		40577
Plesiomonas shigelloides	species		703	Micromonospora aurantiaca	species		47850
Haemophilus influenzae	species		727	Acinetobacter pittii	species		48296
Bacteroides fragilis	species		817	Tatumella citrea	species		53336
Fusobacterium varium	species		856	Dactylosporangium vinaceum	species		53362
Fusobacterium ulcerans	species		861	Nocardiopsis alba	species		53437
Cellulophaga lytica	species		979	Fructilactobacillus lindneri	species		53444
Solitalea canadensis	species		995	Raoultella ornithinolytica	species		54291
Leptolyngbya boryana	species		1184	Erwinia persicina	species		55211
Clostridium perfringens	species		1502	Vibrio anguillarum	species		55601
Paenidoctridium sordellii	species		1505	Streptomyces platensis	species		58346
Clostridium tetani	species		1513	Desulfobacca acetoxidans	species		60893
Acetivibrio thermocellus	species		1515	Shewanella woodyi	species		60961
Clostridium baratii	species		1561	Serratia rubidaea	species		61652
				Zobellia galactanivorans	species		63186
Limosilactobacillus reuteri	species		1598	Streptomyces fungicidicus	species		68203
Fructilactobacillus fructivorans	species		1614	Musicola paradisiaca	species		69223
Limosilactobacillus vaginalis	species		1633	Allivibrio wodanis	species		80852
Streptomyces clavuligerus	species		1901				

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 stabilize 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

ginger

Hesperidin (polyphenol) 1.5 gram/day

N-Acetyl Cysteine (NAC), 2400 mg/day

nigella sativa seed (black cumin) 1000 mg/day

peppermint (spice, oil)

rosmarinus officinalis, rosemary

syzygium aromaticum (clove)

thyme (thymol, thyme oil)

trachyspermum ammi, Ajwain

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.

arabinogalactan (prebiotic)	lactobacillus plantarum (probiotics)
bacillus subtilis (probiotics)	lactobacillus reuteri (probiotics)
barley	lactulose
Burdock Root	noni
Conjugated Linoleic Acid	Pulses
dairy	raffinose(sugar beet)
fat	red wine
fructo-oligosaccharides (prebiotic)	resveratrol (grape seed/polyphenols/red wine)
Human milk oligosaccharides (prebiotic, Holigos, Stachyose)	sesame cake/meal
inulin (prebiotic)	Slippery Elm
jerusalem artichoke (prebiotic)	vegetarians
lactobacillus acidophilus (probiotics)	vitamin a
Lactobacillus Johnsonii (probiotic)	walnuts
	wheat bran

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, Idriss H, Alshammari AS, Shommo SAM

Targeted modification of gut microbiota and related metabolites via dietary fiber.

Carbohydrate polymers , Volume: 316 2023 Sep 15

Authors Nie Q, Sun Y, Li M, Zuo S, Chen C, Lin Q, Nie S

Low-Dose Lactulose as a Prebiotic for Improved Gut Health and Enhanced Mineral Absorption.

Frontiers in nutrition , Volume: 8 2021

Authors Karakan T, Tuohy KM, Janssen-van Solingen G

Selective Utilization of the Human Milk Oligosaccharides 2`-Fucosyllactose, 3-Fucosyllactose, and Difucosyllactose by Various Probiotic and Pathogenic Bacteria.

Journal of agricultural and food chemistry , Volume: 69 Issue: 1 2021 Jan 13

Authors Salli K, Hirvonen J, Siitonen J, Ahonen I, Angenius H, Maukonen J

Relationship between gut environment, feces-to-food ratio, and androgen deficiency-induced metabolic disorders.

Gut microbes , Volume: 12 Issue: 1 2020 Nov 9

Authors Harada N, Minami Y, Hanada K, Hanaoka R, Kobayashi Y, Izawa T, Sato T, Kato S, Inui H, Yamaji R

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

Immunomodulatory and Prebiotic Effects of 2`-Fucosyllactose in Suckling Rats.

Frontiers in immunology , Volume: 10 2019

Authors Azagra-Boronat I, Massot-Cladera M, Mayneris-Perxachs J, Knipping K, Van` t Land B, Tims S, Stahl B, Garssen J, Franch A, Castell M, Rodríguez-Lagunas MJ, Pérez-Cano FJ

Arabinoxylan from Argentinian whole wheat flour promote the growth of Lactobacillus reuteri and Bifidobacterium breve.

Letters in applied microbiology , Volume: 68 Issue: 2 2019 Feb

Authors Paesani C, Salvucci E, Moiraghi M, Fernandez Canigia L, Pérez GT

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

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

Extensive impact of non-antibiotic drugs on human gut bacteria.

Nature , Volume: 555 Issue: 7698 2018 Mar 29

Authors Maier L, Pruteanu M, Kuhn M, Zeller G, Telzerow A, Anderson EE, Brochado AR, Fernandez KC, Dose H, Mori H, Patil KR, Bork P, Typas A

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 JJ

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

Draft Genome Sequence of Klebsiella pneumoniae Strain AS Isolated from Zhejiang Provincial Hospital of TCM, China.

Genome announcements , Volume: 4 Issue: 5 2016 Sep 22

Authors Yang XJ, Wang S, Cao JM, Hou JH

Microbial Community of Healthy Thai Vegetarians and Non-Vegetarians, Their Core Gut Microbiota, and Pathogen Risk.

Journal of microbiology and biotechnology , Volume: 26 Issue: 10 2016 Oct 28

Authors Ruengsomwong S, La-Ongkham O, Jiang J, Wannissorn B, Nakayama J, Nitisinprasert S

- 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
In vitro digestion and fermentation properties of linear sugar-beet arabinan and its oligosaccharides.
- Carbohydrate polymers** , Volume: 131 2015 Oct 20
 Authors Moon JS,Shin SY,Choi HS,Joo W,Cho SK,Li L,Kang JH,Kim TJ,Han NS
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
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
Modulation of the intestinal microbiota is associated with lower plasma cholesterol and weight gain in hamsters fed chardonnay grape seed flour.
- Journal of agricultural and food chemistry** , Volume: 63 Issue: 5 2015 Feb 11
 Authors Kim H,Kim DH,Seo KH,Chon JW,Nah SY,Bartley GE,Arvik T,Lipson R,Yokoyama W
In vitro fermentation of lactulose by human gut bacteria.
- Journal of agricultural and food chemistry** , Volume: 62 Issue: 45 2014 Nov 12
 Authors Mao B,Li D,Zhao J,Liu X,Gu Z,Chen YQ,Zhang H,Chen W
Fermentable non-starch polysaccharides increases the abundance of Bacteroides-Prevotella-Porphyrromonas in ileal microbial community of growing pigs.
- Animal : an international journal of animal bioscience** , Volume: 8 Issue: 11 2014 Nov
 Authors Ivarsson E,Roos S,Liu HY,Lindberg JE
Strict vegetarian diet improves the risk factors associated with metabolic diseases by modulating gut microbiota and reducing intestinal inflammation.
- Environmental microbiology reports** , Volume: 5 Issue: 5 2013 Oct
 Authors Kim MS,Hwang SS,Park EJ,Bae JW
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
Consumption of human milk oligosaccharides by gut-related microbes.
- Journal of agricultural and food chemistry** , Volume: 58 Issue: 9 2010 May 12
 Authors Marcobal A,Barboza M,Froehlich JW,Block DE,German JB,Lebrilla CB,Mills DA
Lactose utilization in Klebsiella pneumoniae: the slow utilization of lactose by resting cells of lactose fermenting strains.
- Journal of bacteriology** , Volume: 70 Issue: 1 1955 Jul
 Authors CABELLI VJ
The significance of lactose fermentation and its relationship to resistance in Klebsiella pneumoniae.
- Journal of bacteriology** , Volume: 66 Issue: 4 1953 Oct
 Authors CABELLI VJ,PICKETT MJ
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
The fermentation of lactulose by colonic bacteria.
- Journal of general microbiology** , Volume: 128 Issue: 2 1982 Feb
 Authors Sahota SS,Bramley PM,Menzies IS
R-plasmid linked lactose fermentation in Klebsiella pneumoniae.
- The Indian journal of medical research** , Volume: 70 1979 Nov
 Authors Walia SK,Chugh TD,Sharma KB,Bhat MB
Curated database of commensal, symbiotic and pathogenic microbiota
- Generative Bioinformatics** , Volume: Issue: 2014 Jun

Authors D'Adamo Peter