PureBiotic™

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MORE POTENT · LESS CAPSULES
MORE EFFECTIVE SPECIES · OPTIMIZE IMMUNITY ·
MORE REGENERATIVE IMPACT · SAME PRICE!

Natural Full Spectrum Probiotic Blend Featuring 15 Probiotic Species Blended to Attain +28 Billion CFU per Serving

Our new advanced **PureBiotic™** formula optimally promotes quenching systemic inflammation, supporting superior immune system functions while facilitating better digestive functions than ever before. It remains the ideal choice for individuals with poor B-vitamin status, or for those who recently have undergone antibiotic therapy. Our new formula maximally supports against gut microbial overgrowth (dysbiosis), constipation, diarrhea, and of course all gut conditions associated with gastro-intestinal inflammatory states.*

Our New Specific Formula Advantages Now Includes 5 different Bifidobacterium:

In general, Bifidobacteria are among the best colonizers of the human gut, especially with continued supplementation.[1,2] For perspective, Bifidobacteria are considered by some scholars to be more important to human gut health than contributions made by the Lactobacillus group.[3] In breastfeeding infants, nearly 100% of probiotics colonizing the gut are Bifidobacteria, and climb to between 10^{10} to 10^{11} CFU/gram of the breast-fed infants' feces.[4] Several of their pan-functions are to digest carbohydrates, manufacture B-complex vitamins, protect the gut from microbial invasion, reduce episodes of diarrhea, provide anti-mutagenic protection, and to build up and mature the immune system.[5] By adulthood, Bifidobacteria will comprise only 5% to 10% of the total gut microbiota.*[6]

Among the more prevalent Bifidobacterium residing in the human gut, from infancy into adulthood, are:*

- Bifidobacterium bifidum,
- B. breve,
- B. longum,
- B. animalis lactis and
- B. lactis.

1. **Bifidobacterium bifidum** – This species has been extensively studied and has an excellent ability to colonize the gut. Studies show it was among the top in persisting in the feces after over 3 weeks from when supplementation had ceased.*[7]
2. **B. breve** - is also known to be immediately taken up and colonize the gut of newborn infants.*[8]
3. **B. longum** – As mentioned above, studies reveal that B. longum is one species that is persistent in the gut into adulthood. It is considered to be the most prevalent in the human gut of all the Bifidobacteria.[9] The species possesses remarkable immune-modulating effects throughout the life of the host. B. longum has a good ability to colonize in the gut after supplementation has ceased.*[10]
4. **B. animalis lactis** (VK2) – A study in combinations of select probiotics have shown that B. animalis lactis, when combined with L. acidophilus, can have up to 90% effectiveness in helping to eradicate H. pylori overgrowth.*[11]
5. **B. lactis** (BI-04) – This bacteria has an unusually high tolerance exposures to both high concentrations of oxygen and acid, leaving it very desirable to ferment milk products. B. lactis is most prevalent in human infants.*[12]

Into adulthood, Bifidobacteria continue to promote a long list of health benefits but decline in overall numbers by at least one order of magnitude. On the other hand, Lactobacillus colonization escalates and will attain approximately 10^7 CFU/gram of feces.[13] Both genuses do not promote any kind of deleterious effects on the human being.*

However, both Bifidobacteria and Lactobacillus are greatly outnumbered by a variety of other not-so-friendly (opportunistic or pathogenic) gut microbes by approximately 8 to 1. Overall the gut will contain from 100 to 400 Trillion microbes, or about 10X to 40X the number of total human cells in the body. So, the main job of both Bifidobacteria and Lactobacillus is to help reign-in rogue microbial actions which might otherwise turn against regions of human tissues.*

Our New **PureBiotic™** formula has 8 of the more studied Lactobacillus spp. Among the more common of Lactobacilli found in the human gut when consuming healthy diets are:*

- Lactobacillus acidophilus
- L. helveticus
- L. plantarum
- L. lactis

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- L. rhamnosus
- L. salivarius
- L. casei
- L. bulgaricus
- L. brevis

6. **Lactobacillus acidophilus** (LA-14) – has the ability to temporarily populate deeply into the human gut. Interestingly, when it does so, the numbers of Lactobacilli in the gut soar after only 7 days of supplementation, but returns to their prior levels after 9 days after L. acidophilus supplementation is stopped. Therefore, this implies that to keep the numbers of lactobacilli up to optimal, L. acidophilus should be taken regularly with other lactobacilli.*[14]
7. **L. helveticus** – the species is renowned for impacting the immune system in a multifunctional capacity in that both a variety of healthy bacteriocins as well as a fleet of bioactive peptides are secreted in abundance. In general, L. helveticus colonizes the human gut adequately to perform a plethora of health benefits.*[15]
8. **L. plantarum** (LP-115) – is a species well known to be able to pass through the upper intestinal tract to freely colonize the human gut. Several researchers have pointed out the L. plantarum acts similar to a living vaccine, providing ongoing immune modulation when and as needed.*[16]
9. **L. rhamnosus** (LR-32) – is an excellent species to promote healthy modulation in a hyperimmune state. For example, L. rhamnosus is known to balance and calm T-cell hyperactivity associated with hyperimmune states. More specifically, L. rhamnosus modulates the precursor dendritic cells (DCs), which in turn calm the T-cell population contributing to the hyperimmune states.*[17]
10. **L. salivarius** (LS-33) – this species is among the most populated in the human oral cavity. It protects against dental cavities and promotes healthy oral immunity.*[18]
11. **L. casei** (LC-11) – in a way similar to L. rhamnosus, L. casei calms skin contact hypersensitivity conditions, though beneficially modulating DCs.*[19]
12. **L. bulgaricus** (LB-64) – species is a very important probiotic to enhance the digestion of cows milk. L. bulgaricus is known for abundantly producing highly bioactive proteases very helpful to aid digestion of cheeses and milk.*[20]
13. **L. brevis** – this species is known for secreting a powerful immune-modulating brevican which helps check unfriendly gut bacteria such as E. coli and especially Staphylococcus aureus.*[21]

Finally, our new PureBiotic™ contains two remarkable probiotic species that have a synergistic interface, offering the host considerable defense against opportunistic microbes.*

Lactococcus lactis

Streptococcus thermophilus

14. **Lactococcus lactis** – This species is very common to cultured milk products and acts as a natural preservative. Other features include its production of an abundance of immune-modulating bacteriocins.*[22]
15. **Streptococcus thermophilus** (ATCC 5B5207) – Both Lactococcus lactis and Streptococcus thermophilus offer unique protections to their host by way of their secreted phages which interface and knock-down unfriendly bacterial phages which can cause severe gut inflammation.*[23]

MORE POTENT - Potency is not just about the CFU count (colony forming units), but also about the ability of the individual species to survive and pass through your patient's stomach acid and take up residency (colonize) their 20+ feet of the gut lining.*

So, how can you tell if a high CFU count probiotic has effective species that do indeed pass on through to deliver alive probiotics into your patients' entire digestive system? Simply put, it is about (A) lactic acid production (temporary gas!) and (B) achieving swifter successful outcomes.*

For example, many patients will report that when first taking a more potent probiotic they experience gas initially, even cramps, which soon subside. This well-known temporary effect indicates that the all-important pH of the gut is being favorably modified.[24] Just imagine when baking soda comes into contact with vinegar, and you get the idea. pH is critical to gut health or ill-health, to enable patients to recover from long-term ingrained immune dis-regulation or not, as well as whether regenerative effects can be achieved in those patients or not.*

Other patients will experience more significant detoxification events, such as mild headaches, temporary nausea or transient looser stools. More rarely your patients with long-term microbe stresses may experience generalized achiness, malaise and mild night sweats as probiotics correct the gut microbiota.*

In patients long established on other probiotics, they too may notice more gas production or mild detoxification symptoms when taking a more potent and effective probiotic formula such as PureBiotic™.*

Other indicators your patients are achieving better results with

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the new PureBiotic™ formula would be evidence of more efficacious outcomes, especially when managing your patients with the 5 Point Model System. Difficult cases will often bear evidence they are healing faster than before when dosing PureBiotic™ optimally.*

Any one or more of these symptoms above is how you know that, in fact, you are giving them a more potent and effective probiotic product than the prior one they were given.*

Because our new PureBiotic™ formula is more potent, it is important to more carefully manage patient experiences with their new inoculation of superior probiotics. Simply giving them a heads-up usually suffices, along with instructions to drink more water. When cleansing or detoxification reactions still occur, reducing dosage or skipping days in between dosage makes this adjustment period easier and more comfortable to accomplish in your patients. It is well worth the effort to do so since better outcomes will soon become evident.*

And as just mentioned above, a third indicator would be achieving regenerative healing, such as unscheduled healing (tough conditions thought by consensus to never heal, are in fact healed; for example, ingrained non-healing rectal wounds or fissures). Regenerative healing always involves enhanced detoxification, re-modulation of gut microbiota, enhanced liver function, enhanced metabolic performance (i.e., better blood fat/ blood sugar regulation), enhanced immunity, and proper absorption and utilization of ' regenerative nourishment', all promoted by a superior probiotic formula.*[25]

FEWER CAPSULES - Survey after survey shows that patients prefer to take fewer capsules per day rather than more capsules of any given formula. Therefore, we designed and crafted PureBiotic™ to be more convenient for your patients by reducing our recommended serving dose down from 3 capsules daily to just 2 capsules daily. But to preserve all prior benefits, and yet boost even more benefits, we found we could only do this by: (1) retaining all prior probiotic members, (2) adding in three more health-promoting species, and (3) increasing the potency per capsule. In fact, with your patients taking only 2 capsules daily now of our new formula they receive 1 billion more CFU count compared to before that when they were taking 3 capsules daily! In summary, with our carefully selected and coordinated combination of probiotic species, they now receive over 28 Billion CFU per serving from our new PureBiotic™ formula.*

MORE EFFECTIVE SPECIES - With thousands of our patients having benefited from the original PureBiotic™ formula, we made sure to keep all of the original 12 individual probiotic species in our new formula.

Additionally, we added three superior probiotic species (Lactobacillus helveticus and L. Brevis, plus Bifidobacterium animalis lactis) to enhance immune functions, promote mental well-being, focus and calm, and enable regenerative effects to better initiate body-wide.[26,27,28,29,30,31] Stay tuned for more info on these wonderful critters in follow-up emails.*

But at this moment, in order to give you a clear clinical picture on the impact that PureBiotic™ is bound to have in your patients, it would be best to review the two-fold primary effects of probiotics – (A) gut microbiota reconditioning including gut pH modulation, and (B) immune optimization. Both these primary effects provide the foundation for the practice of regenerative medicine. There is the age-old dictum that death begins in the gut attributed to Hippocrates.[32] But we say, regeneration must also begin in the gut. In fact, the word probiotics derives from "probios" which means, conducive to life, after Metchnikoff). So, what must we know to initiate from the deepest, most inner recesses of the body true and sustained regenerative healing? We must know and master the use of probiotics!*

To understand the innermost workings of regenerative medicine stemming from the gut, we must begin with the basics. Feces are 90% water, 9% of bacteria (good or bad) and only 1% fiber. So, optimal ingestion of water is key to optimize all probiotic supplementation outcomes. Next, living fecal bacteria can only come from colonized gut microbes (the patients' gut microbiota). If those colonized microbes have been producing harmful wastes and pH values along any section of the gut, the patient cannot properly heal themselves and is actually hastening their own ill-health.*[33]

PureBiotic™ places (right where it counts the most), 15 very powerful probiotics that both (A) out-compete those unhealthy microbes while correcting the gut pH,[34] as well as (B) optimize immune functions.[35] And remember, with such a potent probiotic formula, the diet must contain the best nourishment for these health-promoting species. Fiber, therefore, is quintessential to optimizing PureBiotic™ colonization into your patients' gut. So, it is good to know that each capsule of PureBiotic™ contains a hefty dose of F.O.S., a preferred fiber happily eaten by PureBiotic™ microbes to enhance your patients' gut colonization.[36] In this manner and in this manner only, can your patients' gut microbiota and pH become optimized, and enhanced immunity initiate.*[37]

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SYMPTOMS TO EXPECT - As a direct result, with such a more potent formula, you can expect to see a greater impact on:

(1) normalizing constipation quicker (e.g., more frequent bowel movements, easier bowel movements, less stinky bowel movements, etc.).*

(2) correcting liver function, first confirmed by observing mild liver cleansing reactions, which typically may manifest as temporary mild nausea. This nausea will pass in a few days with persistent daily use of our new PureBiotic™ recommended dosage level.*

(3) temporarily increased gas production, which likewise will also pass away and cease over the first week or two of supplementation.*

We see about 15% to 20% of our patients experience one or more of these kinds of cleansing symptoms when using PureBiotic™. You will too. When these signs and symptoms do arise, it is a clear indication of increased therapeusis instilled into our new formula. Just have the patient drink more water, eat a high fiber diet and temporarily reduce their dosage until the patient is able to tolerate optimal dosage.*

OPTIMIZE IMMUNITY – Select probiotics found within PureBiotic™ have been carefully selected to stimulate beneficial immune responses by the white blood cells. Three precise mechanisms stand out as to how probiotics enhance immune functions. In addition to probiotics' secretions that target direct intervention against noxious members of the gut microbiota,[38] since 2000, elegant studies have decisively demonstrated that probiotics induce both innate and adaptive immune responses. Enhanced, induced innate immune responses would include probiotics' ability to both upregulate immune cells' respiratory burst and Phagocytic Index.[39] Enhanced, induced adaptive immune responses would include probiotics' ability to upregulate 'balanced' immune cell cytokine production and chemokine dynamics,[40] as well as to induce immune tissues to secrete protective antimicrobial agents and/or activate and launch armies of fresh immune cells.[41,42,43,44,45] Together, these mechanisms bring about a modulation of the entire body's gut microbiota which lessens deleterious members and increases symbiotic members.*

REGENERATIVE IMPACT – Over time, this symbiosis between colonized probiotics triggering enhanced performance by immune cells, engages regenerative activities that impact the entire body. But one may ask how does this actually come about? Recall that the intestinal tract from mouth to anus is considered the exterior part of the intestines since it is in continuous contact with the external environment. This is termed the brush border. And recall that as food passes through this brush border to the other side, this other side (the interior intestinal region) is completely inundated, coated if you will, with approximately 70% of all immune cells by quantity. This enormous number of immune cells numbering in the high billions are voraciously awaiting to engulf regenerative effectors (food factors rich in growth factors), to speed and enhance their primary job of repair and systemic regeneration.*[46]

The carcasses (antigens) and immunomodulating actions and secretions of the beneficial probiotics are taken up by the awaiting immune cells stationed along the 20+ feet of the interior/internal intestinal region.[47] For example, the probiotic antigens when engulfed by the awaiting immune cells trigger a regenerative healing sequence, starting with promoting secretion of cytokines by the immune cells themselves, due to the probiotics' immune-stimulating antigenic nature.[48,49,50] The more these immune cells feast on the probiotic carcasses, the greater their production of beneficial cytokines. Cytokines are also known as growth factors and for good reason. Growth factors are the core foundation for regenerative healing in the body. Other growth factors secreted by probiotics that are not strictly cytokines, but yet induce rapid healing, are L-lactic acid and butyric acid. Growth factors awaken adult stem cells (e.g., osteochondroprogenitor cells).[51] If the diet is also adhering to the principles of the 5 Point Model System of regenerative medicine, additional growth factors from the diet join these white blood cells own production of growth factors of probiotic etiology,[52,53] and the stage is set for high-gain targeted tissue regeneration.*[54,55,56,57]

Put another way, gut-associated cells feasting continually on:

(A) adequate levels of incoming dietary raw embryonic foods, such as blue-green algae[58], mushrooms, bee pollen, freeze-dried glandular meats, etc., (collectively termed colloidal Regenerative Factors – cRFs)[59] PLUS

(B) on growth factor stimulating probiotic secretions and carcasses[60]...

... induce target tissue specificity into immune cells to (i) heighten repair to optimal, (ii) reduce all biomarkers to aging (e.g., phase angle index, etc.) and (iii) mimic the core

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regenerative mechanisms of the long-living. More on this later.*

Suggested Use: Take two daily - one in AM and one in PM, with food or as directed by your healthcare practitioner.

THERAPEUTIC INDEX – The long-living people from around the world are in fact the original source of our probiotics in use today. They eat hefty dosages each and every day and their gut microbiota abound with Lactobacillus and Bifidobacterium, just like PureBiotic™ contains.*[61,62,63,64,65]

Maximum Therapeutic Index Range (e.g., for patients with significant to severe immune dysfunctions) - Titrating up slowly, starting with 1 capsule with meals for three days to determine tolerance, then raising dosage up to 1 capsule hourly (12 daily) for 3 months can bring about restored immunity. It is imperative that the 5 Point Model System of regenerative medicine is in place, which stresses detoxification procedures to lessen Jarisch-Herxheimer events associated with re-modulating the patients' gut microbiota.*

Ideal Therapeutic Index Range - We recommend everyone desiring to achieve living a regenerative lifestyle to take 2 capsules PureBiotic™ daily, one with breakfast and one with dinner indefinitely.*

Adequate Therapeutic Index Range - For maintenance and when on a tight budget, simply take 1 capsule with breakfast.*

During antibiotic therapy - We recommend taking 2 capsules PureBiotic™ at bedtime or 3 hours after the last antibiotic dose of the day.*[66]

After completing a course of antibiotic therapy – We recommend taking 2 capsules per meal. Thereafter, reduce dosage to one capsule with breakfast and one with dinner.*[67]

For short-term intestinal disturbances – For those unexpected events such as mild food poisoning, mild diarrhea, intestinal griping, nausea, etc., we recommend taking 1 capsule every two hours until symptoms disappear.*[68,69]

For long-term intestinal disturbances – For ingrained gut events such as: (a) polyps, (b) irritable gut contractions, (c) inflamed gut lining, (d) entrenched dysbiosis, (e) chronic constipation, (f) fissures, (g) hemorrhoids, (h) liver congestion or inflammation, (i) pancreatic inflammation, (j) stomach inflammation, (k) indigestion, (l) heartburn, (m) esophageal inflammation, (n) throat inflammation, (o) dental inflammation, (p) dermal inflammation or dysbiosis, (q) joint inflammation, (r) respiratory inflammation and congestion, (s) immune dysregulation, (t) metabolic dysregulation, (u) aberrant cell growth, (v) blood sugar regulation, blood lipids regulation, (w) malabsorption, etc. ... taking 1 to 2 with each meal will promote and aid optimal outcomes when administered within the 5 Point Model System of regenerative medicine.*[70,71,72,73,74,75,76,77]

Minimal Therapeutic Index Range – We recommend taking at least 1 capsule PureBiotic™ every three days to minimally recharge your patients' gut flora, so long as high-fiber diets are in place with good water intake.*

Be sure to ensure that there is no ongoing noxious EMF exposure (WiFi, nearby Cell Towers, Smart Meters, etc.).[78,79,80] Protect your patients with our line of proven EMF protection products from DefenderShield.®

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1. Roger LC, et al. Examination of faecal Bifidobacterium populations in breast- and formula-fed infants during the first 18 months of life. Microbiology. 2010;156:3329–3341.Abstract/FREE Full Text
2. Favier CF, et al. Molecular monitoring of succession of bacterial communities in human neonates. Appl Environ Microbiol. 2002;68:219–226. Abstract/FREE Full Text
3. Mitsuoka, T. Bifidobacteria and their role in human health. Journal of Industrial Microbiology. 1990;6:263. https://doi.org/10.1007/BF01575871.
4. Gill H, Prasad J. Probiotics, Immunomodulation, and Health Benefits. In: Bösze Z. (eds) Bioactive Components of Milk. Advances in Experimental Medicine and Biology. 2008;606. Springer, New York, NY.
5. Macfarlane GT, Cummings JH. Probiotics and prebiotics: can regulating the activities of intestinal bacteria benefit health? BMJ. 1999;318:999.
6. Gill H, Prasad J. Probiotics, Immunomodulation, and Health Benefits. In: Bösze Z. (eds) Bioactive Components of Milk. Advances in Experimental Medicine and Biology. 2008;606. Springer, New York, NY.
7. Bartosch S, et al. Microbiological Effects of Consuming a Synbiotic Containing Bifidobacterium bifidum, Bifidobacterium lactis, and Oligofructose in Elderly Persons, Determined by Real-Time Polymerase Chain Reaction and Counting of Viable Bacteria (see Table 2). Clinical Infectious Diseases. 2005 Jan; 40(1):28–37. See: https://doi.org/10.1086/426027

8. Bottacini F, et al. Comparative genomics of the Bifidobacterium breve taxon. BMC Genomics. 2014;15:170.
9. Chaplin AV, et al. Intraspecies Genomic Diversity and Long-Term Persistence of Bifidobacterium longum. PLoS One. 2015; 10(8): e0135658.
10. Bartosch S, et al. Microbiological Effects of Consuming a Synbiotic Containing Bifidobacterium bifidum, Bifidobacterium lactis, and Oligofructose in Elderly Persons, Determined by Real-Time Polymerase Chain Reaction and Counting of Viable Bacteria (see Table 2). Clinical Infectious Diseases. 2005 Jan; 40(1):28–37. See: https://doi.org/10.1086/426027
11. McFarland LV, et al. Systematic review and meta-analysis: Multi-strain probiotics as adjunct therapy for Helicobacter pylori eradication and prevention of adverse events. United European Gastroenterol J. 2016 Aug; 4(4): 546–561.
12. Meile L, Ludwig W, Rueger U, Gut C, Kaufmann P, Dasen G, Wenger S, Teuber M. Bifidobacterium lactis sp. nov., a moderately oxygen tolerant species isolated from fermented milk. Syst Appl Microbiol. 1997;20:57–64.
13. Gill H, Prasad J. Probiotics, Immunomodulation, and Health Benefits. In: Bösze Z. (eds) Bioactive Components of Milk. Advances in Experimental Medicine and Biology. 2008;606. Springer, New York, NY.
14. Lidbeck A, et al. Impact of Lactobacillus acidophilus Supplements on the Human Oropharyngeal and Intestinal Microflora. Scandanavian Journal of Infectious Diseases. 1987;19(5):531-7.
15. Skrzypczak K, Gustaw W, Waśko A. Health-promoting properties exhibited by Lactobacillus helveticus strains. ACTA ABP Biochimica Polonica. 2015;62(4): 713-20.
16. de Vries MC, Vaughan EE, Kleerebezem M, de Vos WM. Lactobacillus plantarum—survival, functional and potential probiotic properties in the human intestinal tract. International Dairy Journal. 2006 Sep;16(9):1018-28.
17. Braat H, et al. Lactobacillus rhamnosus induces peripheral hyporesponsiveness in stimulated CD4+ T cells via modulation of dendritic cell function. The American Journal of Clinical Nutrition. 2004 Dec;80(6):1618–1625. See: https://doi.org/10.1093/ajcn/80.6.1618
18. Koll P, Mandar R, Marcotte H, Leibur E, Mikelsaar M, Hammarstrom L. Characterization of oral lactobacilli as potential probiotics for oral health. Oral Microbiol Immunol 2008:23:139–147.
19. Chapat L, Chemin K, Dubois B, Kaiserlian D. Lactobacillus casei reduces CD8+ T cell-mediated skin inflammation. European Journal of Immunology. 2004 Sep;34(9):2520-28.
20. Hou J-c, et al. Effect of culturing conditions on the expression of key enzymes in the proteolytic system of Lactobacillus bulgaricus. J Zhejiang Univ Sci B. 2015 Apr; 16(4): 317–326.
21. Azizi F, Najafi MBH, Dovom MRE. The biodiversity of Lactobacillus spp. from Iranian raw milk Motal cheese and antibacterial evaluation based on bacteriocin-encoding genes. AMB Express. 2017; 7: 176.
22. Parada J.L., Caron C.R., Medeiros A.B.P., Soccol C.R. Bacteriocins from lactic acid bacteria: Purification, properties and use as biopreservatives. Braz. Arch. Biol. Technol. 2007;50:521–542.
23. Ali Y, et al. Temperate Streptococcus thermophilus phages expressing superinfection exclusion proteins of the Ltp type. Front Microbiol. 2014; 5: 98.
24. Molina-Gutierrez A, et al. In Situ Determination of the Intracellular pH of Lactococcus lactis and Lactobacillus plantarum during Pressure Treatment. Appl Environ Microbiol. 2002 Sep; 68(9): 4399–406.
25. See - The Regeneration Effect: A Professional Treatise on Self-Healing by Dr. John Apsley è https://www.amazon.com/Regeneration-Effect-Professional-Treatise-Healing/dp/B0029ZN6LY/ref=sr_1_5?keywords=John+Apsley&qid=1553438206&s=hpc&sr=8-5
26. Griffiths MW, Tellez AM. Lactobacillus helveticus: The Proteolytic System. Front Microbiol. 2013;4:30.
27. Wu Q, Tun HM, Law Y-S, Khafipour E, Shah NP. Common Distribution of gad Operon in Lactobacillus brevis and its GadA Contributes to Efficient GABA Synthesis Toward Cytosolic Near-Neutral pH. Front Microbiol. 2017;8:206.
28. Centanni M, et al. Tumor Necrosis Factor Alpha Modulates the Dynamics of the Plasminogen-Mediated Early Interaction between Bifidobacterium animalis subsp. Lactis and Human Enterocytes. Appl Environ Microbiol. 2012 Apr;78(7):2465-9.
29. Riveiere A, Selak M, Lantin D, Leroy F, Vuyst LD. Bifidobacteria and Butyrate-Producing Colon Bacteria: Importance and Strategies for Their Stimulation in the Human Gut.; Front Microbiol. 2
30. Liu H-X, Keane R, Sheng L, Wan Y-JY. Implications of Microbiota and Bile Acid in Liver Injury and Regeneration. J Hepatol. 2015 Dec;63(6):1502-10.
31. He X, Slupsky CM, Dekker JW, Haggarty NW, Lönnerdal B. Integrated Role of Bifidobacterium animalis subsp. lactis Supplementation in Gut Microbiota, Immunity, and Metabolism of Infant Rhesus Monkeys. mSystems. 2016 Nov-Dec; 1(6): e00128-16.

32. Gasbarrini G, Bonvicini F, Gramenzi A. Probiotics History. J Clin Gastroenterol. 2016 Nov/Dec;50 Suppl 2, Proceedings from the 8th Probiotics, Prebiotics & New Foods for Microbiota and Human Health meeting held in Rome, Italy on September 13-15, 2015:S116-S119.
33. Clemente JC, Ursell LK, Parfrey LW, Knight R. The impact of the gut microbiota on human health: an integrative view. Cell. 2012;148(6):1258–1270. doi: 10.1016/j.cell.2012.01.035.[PMC free article]
34. Sghir A, Chow JM, Mackie RI. Continuous culture selection of bifidobacteria and lactobacilli from human faecal samples using fructooligosaccharide as selective substrate. J Appl Microbiol. 1998 Oct;85(4):769-77.
35. Markowiak P, Śliżewska K. Effects of Probiotics, Prebiotics, and Synbiotics on Human Health. Nutrients. 2017 Sep;9(9):1021.
36. Patel R, DuPont HL. New Approaches for Bacteriotherapy: Prebiotics, New-Generation Probiotics, and Synbiotics. Clin Infect Dis. 2015 May 15;60(Suppl 2):S108-S121.
37. Cani PD, Neyrinck AM, Fava F et al. Selective increases of bifidobacteria in gut microflora improve high-fat-diet-induced diabetes in mice through a mechanism associated with endotoxaemia. Diabetologia 2007; 50: 2374–2383.
38. Liévin-Le Moal V, Servin AL. Anti-Infective Activities of Lactobacillus Strains in the Human Intestinal Microbiota: from Probiotics to Gastrointestinal Anti-Infectious Biotherapeutic Agents. Clin Microbiol Rev. 2014 Apr; 27(2): 167–199.
39. Rocha-Ramírez LM, et al. Probiotic Lactobacillus Strains Stimulate the Inflammatory Response and Activate Human Macrophages. J Immunol Res. 2017; 2017: 4607491.
40. Plaza-Diaz J, Gomez-Llorente C, Fontana L, Gil A. Modulation of immunity and inflammatory gene expression in the gut, in inflammatory diseases of the gut and in the liver by probiotics. World J Gastroenterol. 2014 Nov 14;20(42):15632-49.
41. Ayabe T, Satchell DP, Wilson CL, Parks WC, Selsted ME, Ouellette AJ. Secretion of microbicidal alpha-defensins by intestinal Paneth cells in response to bacteria. Nat Immunol. 2000 Aug; 1(2):113-8.
42. Stappenbeck TS, Hooper LV, Gordon JI. Developmental regulation of intestinal angiogenesis by indigenous microbes via Paneth cells. Proc Natl Acad Sci U S A. 2002 Nov 26; 99(24):15451-5.
43. Weaver CT, Harrington LE, Mangan PR, Gavrieli M, Murphy KM. Review - Th17: an effector CD4 T cell lineage with regulatory T cell ties. Immunity. 2006 Jun; 24(6):677-88.
44. Cash HL, Whitham CV, Behrendt CL, Hooper LV. Symbiotic bacteria direct expression of an intestinal bactericidal lectin. Science. 2006 Aug 25; 313(5790):1126-30.
45. Macpherson AJ, Gatto D, Sainsbury E, Harriman GR, Hengartner H, Zinkernagel RM. A primitive T cell-independent mechanism of intestinal mucosal IgA responses to commensal bacteria. Science. 2000 Jun 23; 288(5474):2222-6.
46. See – Integrative Regenerative Medicine: Colloidal Regenerative Factors (cRFs) and The Regeneration Effect è https://www.amazon.com/Integrative-Regenerative-Medicine-Colloidal-Regeneration-ebook/dp/B01EEPYJRQ/ref=sr_1_1?keywords=John+Apsley&qid=1553438206&s=hpc&sr=8-1
47. Mammalian intestine contains a large diversity of commensal microbiota, which is far more than the number of host cells. Probiotics play an insecure and protective role against the colonization of intestinal pathogenic microbes and increase mucosal integrity by stimulating epithelial cells. Probiotics have innate capabilities in many ways, including receptor antagonism, receptor expression, binding and expression of adapter proteins, expression of negative regulatory signal molecules, induction of microRNAs, endotoxin tolerance, and ultimately secretion of immunomodulatory proteins, lipids, and metabolites to modulate the immune system. Probiotic bacteria can affect homeostasis, inflammation, and immunopathology through direct or indirect effects on signaling pathways as immunosuppressant or activators. Probiotics suppress inflammation by inhibiting various signaling pathways such as the nuclear factor-κB (NF-κβ) pathway, possibly related to alterations in mitogen-activated protein kinases and pattern recognition receptors pathways. Probiotics can also inhibit the binding of lipopolysaccharides to the CD14 receptor, thereby reducing the overall activation of NF-κβ and producing proinflammatory cytokines. Some effects of modulation by probiotics include cytokine production by epithelial cells, increased mucin secretion, increased activity of phagocytosis, and activation of T and natural killer T cells, stimulation of immunoglobulin A production and decreased T cell proliferation. Intestinal microbiota has a major impact on the systemic immune system. Specific microbiota controls the differentiation of cells in lamina propria, in which Th17 cells secrete interleukin 17. The presence of Th17 and Treg cells in the small intestine is associated with intestinal microbiota, with the preferential Treg differentiation and the absence of Th17 cells, possibly reflecting alterations in the lamina propria cytokines and the intestinal gut microbiota. Abstract to: Yousefi B, et al. Probiotics Importance and Their Immunomodulatory Properties. J Cell Physiol. 2019 Jun;234(6):8008-18.
48. Patel R, DuPont HL. New Approaches for Bacteriotherapy:

Prebiotics, New-Generation Probiotics, and Synbiotics. Clin Infect Dis. 2015 May 15;60(Suppl 2):S108-S121.
49. Yousefi B, et al. Probiotics Importance and Their Immunomodulatory Properties. J Cell Physiol. 2019 Jun;234(6):8008-18.
50. Llewellyn A, Foey A. Probiotic Modulation of Innate Cell Pathogen Sensing and Signaling Events. Nutrients. 2017 Oct; 9(10): 1156.
51. Houschyar KS, et al. Wnt Pathway in Bone Repair and Regeneration - What Do We Know So Far. Front Cell Dev Biol. 2019 Jan 7;6:170.
52. Smelt MJ, et al. Probiotics can generate FoxP3 T-cell responses in the small intestine and simultaneously inducing CD4 and CD8 T cell activation in the large intestine. PLoS One. 2013 Jul 4;8(7):e68952.
53. Ghoneum M, Felo N, Agrawal S, Agrawal A. A novel kefir product (PFT) activates dendritic cells to induce CD4+T and CD8+T cell responses in vitro. Int J Immunopathol Pharmacol. 2015 Dec;28(4):488-96.
54. Lukic J, et al. Probiotics or pro-healers: the role of beneficial bacteria in tissue repair. Wound Repair Regen. 2017 Nov;25(6):912-922.
55. Oryan A, Alemzadeh E, Eskandari MH. Kefir Accelerates Burn Wound Healing Through Inducing Fibroblast Cell Migration In Vitro and Modulating the Expression of IL-1ß, TGF-ß1, and bFGF Genes In Vivo. Probiotics Antimicrob Proteins. 2018 Jun 8. doi: 10.1007/s12602-018-9435-6. [Epub ahead of print]
56. Athiyyah AF, et al. Lactobacillus plantarum IS-10506 activates intestinal stem cells in a rodent model. Benef Microbes. 2018 Sep 18;9(5):755-60.
57. Liu J, et al. Antibiotic-Induced Dysbiosis of Gut Microbiota Impairs Corneal Nerve Regeneration by Affecting CCR2-Negative Macrophage Distribution. Am J Pathol. 2018 Dec;188(12):2786-99.
58. See - The Regeneration Effect: A Professional Treatise on Self-Healing by Dr. John Apsley è https://www.amazon.com/Regeneration-Effect-Professional-Treatise-Healing/dp/B0029ZN6LY/ref=sr_1_5?keywords=John+Apsley&qid=1553438206&s=hpc&sr=8-5
59. See – Integrative Regenerative Medicine: Colloidal Regenerative Factors (cRFs) and The Regeneration Effect è https://www.amazon.com/Integrative-Regenerative-Medicine-Colloidal-Regeneration-ebook/dp/B01EEPYJRQ/ref=sr_1_1?keywords=John+Apsley&qid=1553438206&s=hpc&sr=8-1
60. Tyagi AM, et al.The Microbial Metabolite Butyrate Stimulates Bone Formation via T Regulatory Cell-Mediated Regulation of WNT10B Expression. Immunity. 2018 Dec 18;49(6):1116-1131.e7.
61. Gu RX, Yang ZQ, Li ZH, Chen SL, Luo ZL. Probiotic properties of lactic acid bacteria isolated from stool samples of longevous people in regions of Hotan, Xinjiang and Bama, Guangxi, China. Anaerobe. 2008 Dec;14(6):313-7.
62. Biagi E, et al. Gut microbiota and extreme longevity. Curr Biol. 2016;26:1480-5.
63. Kong F, Deng F, Li Y, Zhao J. Identification of gut microbiome signatures associated with longevity provides a promising modulation target for healthy aging. Gut Microbes. 2018 Aug 24:1-6.
64. Santoro A, et al. Gut microbiota changes in the extreme decades of human life: a focus on centenarians. Cell Mol Life Sci. 2018 Jan;75(1):129-148.
65. Deng F, Li Y, Zhao J. The gut microbiome of healthy long-living people. Aging (Albany NY). 2019 Jan 15;11(2):289-290.
66. Allen SJ, et al. A high-dose preparation of lactobacilli and bifidobacteria in the prevention of antibiotic-associated and Clostridium difficile diarrhoea in older people admitted to hospital: a multicentre, randomised, double-blind, placebo-controlled, parallel arm trial (PLACIDE). Health Technol Assess. 2013 Dec;17(57):1-140.
67. Allen SJ, et al. A high-dose preparation of lactobacilli and bifidobacteria in the prevention of antibiotic-associated and Clostridium difficile diarrhoea in older people admitted to hospital: a multicentre, randomised, double-blind, placebo-controlled, parallel arm trial (PLACIDE). Health Technol Assess. 2013 Dec;17(57):1-140.
68. Roussel C, Sivignon A, de Wiele TV, Blanquet-Diot S. Foodborne enterotoxigenic Escherichia coli: from gut pathogenesis to new preventive strategies involving probiotics. Future Microbiol. 2017 Jan;12:73-93.
69. Ruiz MJ, Colello R, Padola NL, Etcheverría AI. [Inhibitory capacity of Lactobacillus spp. against pathogens involved in foodborne diseases]. Rev Argent Microbiol. 2017 Apr - Jun;49(2):174-177.
70. Plaza-Diaz J, Ruiz-Ojeda FJ, Gil-Campos M, Gil A. Mechanisms of Action of Probiotics. Adv Nutr. 2019 Jan 1;10(suppl_1):S49-S66.
71. Im AR, Lee B, Kang DJ, Chae S. Skin Moisturizing and Antiphotodamage Effects of Tyndallized Lactobacillus acidophilus IDCC 3302. J Med Food. 2018 Oct;21(10):1016-1023.
72. Slattery J, MacFabe DF, Frye RE. The Significance of the Enteric Microbiome on the Development of Childhood Disease: A Review of Prebiotic and Probiotic Therapies in Disorders of

Childhood. Clin Med Insights Pediatr. 2016; 10: 91–107.
73. Mallappa RH, et al. Management of metabolic syndrome through probiotic and prebiotic interventions. Indian J Endocrinol Metab. 2012 Jan-Feb; 16(1): 20–27.
74. Panebianco C, Andriulli A, Pazienza V. Pharmacomicrobiomics: exploiting the drug-microbiota interactions in anticancer therapies. Microbiome. 2018; 6: 92. Published online 2018 May 22.
75. Yao K, Zeng L, He Q, Wang W, Lei J, Zou X. Medical Science Monitor: International Medical Journal of Experimental and Clinical Research. 2017 Jun 22; 23: 3044-3053.
76. Nazir Y, Hussain SA, Hamid AA, Song Y. Probiotics and Their Potential Preventive and Therapeutic Role for Cancer, High Serum Cholesterol, and Allergic and HIV Diseases. Biomed Res Int. 2018; 2018: 3428437.
77. Liu Y, Alookaran JJ, Rhoads JM. Probiotics in Autoimmune and Inflammatory Disorders. Nutrients. 2018 Oct; 10(10): 1537.
78. Crabtree DPE, Herrera BJ, Kang S. The Response of Human Bacteria to Static Magnetic Field and Radiofrequency Electromagnetic Field. J Microbiol. 2017 Oct;55(10):809-15.
79. Vasistha S, Garg A. Effect of Electromagnetic Radiation on Lactobacillus Species. J Chem Pharmaceut Res. 2016;8(7):123-6. See: http://www.jocpr.com/articles/effect-of-electromagnetic-radiation-on-lactobacillus-species.pdf
80. Gray JM, Rasanayagam S, Engel C, Rizzo J. State of the Evidence 2017: An Update on the Connection Between Breast Cancer and the Environment Environ Health. 2017;16:94.