



PROBIOTICS
Know Your Species

REVODERM PHARMA

INTRODUCTION

When it comes to probiotics, there are hundreds of different species used both commercially and in medicine. Within the category of probiotics specifically used for health, there are certain species that are used much more commonly than others. Below is a list of the most common probiotic species used, along with their primary indication(s). Although each species provides specific benefits, probiotics are usually best used in a combination formula.

Although expansive, this list only covers the most *critical* and *unique* activities of each species, and therefore, **does not** cover *general* indications shared by most probiotics. It should be noted that the **majority of probiotic species outlined below do support general digestive function, promote healthy bowel activity, and boost overall immune system parameters.**

GENUS, SPECIES + STRAIN

Bacteria are categorized by scientists with genus, species and strain names. Each named species of living things is always referred to by its genus and species name, never the species name alone.

The *genus* is the first word in a bacterium's name; it's the large group to which the bacteria belongs. The *species* is the type of individual bacteria. Some bacteria have several *strains* or differentiations of the species, and is identified by the last part of the name.

Here are some examples:

- For **Lactobacillus rhamnosus GG**, the genus is Lactobacillus, the species is Rhamnosus and the strain is GG. Sometimes companies also develop a marketing name for probiotic strains. For this probiotic strain, the commercial name is "LGG."
- For **Lactobacillus acidophilus DDS-1**, the genus is Lactobacillus, the species is Acidophilus and the strain is DDS-1.



LACTOBACILLUS



BIFIDOBACTERIUM

LACTOBACILLUS SPECIES

Lactobacillus acidophilus

- Used to treat antibiotic associated diarrhea, C. difficile associated diarrhea, P. acnes, hepatic encephalopathy, ulcerative colitis, yeast infections, H. pylori, vaginitis, allergies, fights viruses with targeted antibodies, prevents respiratory infections, counters E. coli, and has cholesterol lowering potential.

Lactobacillus brevis

- Provides anti-inflammatory benefits to the digestive system, may combat digestive ulcers, is used to help treat inflammatory bowel disease, H. pylori, and increases natural killer cells.

Lactobacillus bulgaricus

- Beneficial in suppressing inflammatory immune reactions in IBS and leaky gut.
- Treats indigestion, heartburn, GERD, hepatic encephalopathy, antibiotic and C. difficile associated diarrhea, nonalcoholic fatty liver disease, H. pylori, is anti-viral, and decreases triglycerides, LDL and total cholesterol.

Lactobacillus casei

- Beneficial in antibiotic, viral induced and C. difficile diarrhea, inhibits E. coli, treats candida, helps treat UTIs, H. pylori, hepatic encephalopathy, IBS, maintains remission of diverticular disease, and has shown benefit in improving brain function, anticancer activity, pathogen resistance, gut barrier function and obesity.
- Has been shown to reduce pollen allergies and allergies in newborn asthma, helps reduce incidence of bladder cancer, inhibits vaginosis, and lowers cholesterol.

Lactobacillus fermentum

- Beneficial in reducing cholesterol, adheres to the vaginal and bladder cells to help displace and prevent urogenital pathogens, is highly fungistatic against C. albicans and C. glabrata (both common yeast species associated with candida), and inhibits E. faecalis, Faecium, N. gonorrhoea, E. coli and K. pneumonia.
- May help in the treatment of certain cancers, fights ulcerative colitis and IBS, reduces respiratory and intestinal infections in infants, produces anti-inflammatory mediators, and has been shown to help treat bacterial vaginosis.

Lactobacillus gasseri

- A number of clinical trials and animal based studies suggest benefit in helping to reduce abdominal fat, increase metabolism, and support overall weight loss.
- Shown to be helpful in the treatment of H. pylori and IBS.
- Beneficial in supporting vaginal health by rebalancing vaginal microbiota.

Lactobacillus helveticus

- This species confers anti-mutagenic, anti-tumorigenic, and anti-hypertensive activity.
- It helps prevent GI infections, enhances the bioavailability of nutrients, aids in the removal of allergens and other undesired molecules from food, significantly effects bone density and prevents bone loss, and can help to reduce cholesterol levels.

Lactobacillus paracasei

- This species helps improve absorption of nutrients and lipids, antagonizes pathogens such as rotavirus, staphylococcus aureus and C. difficile, treats hepatic encephalopathy, ulcerative colitis, and has been safely used to treat diarrhea in infants.

Lactobacillus plantarum

- Antagonizes E. coli adherence to the intestinal tract, helps to maintain gut permeability and intestinal transit, may be beneficial in those suffering from IBS and leaky gut, antibiotic and C. difficile associated diarrhea, beneficial in cases of hepatic encephalopathy, inflammation, and constipation, fights cold and flu, fungal infections, reduces pneumonia risk, and may play a role in the treatment of depression.

Lactobacillus reuteri

- It is well known for its ability to fight pathogenic microbes due to its broad spectrum antimicrobial substance, reuterin.
- Shown to be effective in infantile colic, acute antibiotic associated diarrhea, treating rotavirus and G. vaginalis, in H. pylori, eczema, cholesterol, inflammatory conditions, UTIs, oral health, dyspepsia, IBS, candida, and H. pylori.
- L. reuteri also plays a role in producing vitamins such as B12 and folate, and has been implicated as neuromodulatory by reducing visceral pain responses and as a producer of GABA.

Lactobacillus rhamnosus

- Produces mucin, a mucous coating that prevents invasion of harmful microorganisms and toxins from reaching the blood, improves cases of diarrhea, and inhibits E. coli.
- Specifically helpful in IBD, antibiotic, C. difficile, and chemotherapy associated diarrhea, H. pylori, food allergies, vaginal, urinary, respiratory tract infections, and nonalcoholic fatty liver disease.
- Reduces intestinal inflammation in infants, improves atopic dermatitis and eczema in infants, promotes healthy bifidobacteria diversity in infants, stimulates anti-cancer tumour killing activity, decreases colon cancer risk, decreases leaky gut, and IBS.
- Antihypertensive, can assist in lowering blood lipid parameters.
- Studies to support inclusion of L. rhamnosus to improve outcome measures in autism and ADHD.
- Shown to improve overall oral health, helps prevent dental caries, and inhibits S. mutans.

Lactobacillus salivarius

- Shown to improve bleeding gums, tooth decay, halitosis, oral thrush, and canker sores.
- It produces B vitamins and other enzymes, has strong antimicrobial effects, and is useful in H. pylori and Salmonella.
- Shown to have an infinity for the skin, and improves atopic dermatitis, inhibits C. acnes, helps prevent strep throat (S. pyogenes), reduces mastitis, ulcerative colitis, IBS, and possesses characteristics of immunomodulation.
- Evidence to show beneficial uses to support vaginal health and the prevention of urogenital infections.

BIFIDOBACTERIUM SPECIES

Bifidobacterium bifidum

- This is the most prevalent species in breastfed infants and plays an important function in immunomodulation and gut barrier function in both infants and adults.
- Research supports benefits in URTIs, obesity, infant diarrhea, IBD, IBS, yeast infections, decreases inflammation, fights E. coli, decreases allergies, reduces ulcers, fights candida, and has cholesterol lowering effects.

Bifidobacterium breve

- B. breve has been shown to repress the growth of ulcer-inducing bacteria, can inhibit E. coli, colonizes the immature bowel of infants, improves colic, can improve weight gain in low birth weight infants, improves cognitive impairment in Alzheimer's disease, and is used in treating adult obesity.

- Supportive in conditions associated with intestinal transit impairment, antibiotic and *C. difficile* associated diarrhea, celiac disease, leaky gut, *H. pylori*, hepatic encephalopathy, ulcerative colitis, IBS, and intestinal discomfort.

Bifidobacterium infantis

- *B. infantis* is well known as being essential for microflora balance and good health in babies and adults.
- It is used to help treat acute diarrhea, is effective against Clostridia, Salmonella and Shigella, is a potent immunomodulating agent, atopic dermatitis, has shown promise in supporting growth in antibiotic treated infants, *C. difficile* associated diarrhea, hepatic encephalopathy, ulcerative colitis, IBS, allergy, reduces urinary oxalate, and is implicated for its ability to lower cholesterol.

Bifidobacterium lactis

- *B. lactis* has been found to decrease *H. pylori*, increases NK and T lymphocyte cells, treats hepatic encephalopathy, protects against gliadin exposure, and is very important for people with celiac disease.
- Helps treat constipation, antibiotic and *C. difficile* associated diarrhea, intestinal transit, leaky gut, ulcerative colitis, IBS, *H. pylori*, reduces intestinal discomfort, is supportive in oral health, dermatitis, improves blood glucose, is anti-inflammatory, and reduces respiratory infections.
- Helps to lower cholesterol, and is necessary in the production of folic acid and overall rebalancing of intestinal microbiota.

Bifidobacterium longum

- Researched in the realm of psychobiotics and used to treat anxiety and depression.
- Also indicated for IBS, ulcerative colitis, vaginitis, yeast infections, bone loss, neurogenic skin inflammation, acne rosacea, acne vulgaris, allergies, infections, antibiotic and *C. difficile* associated diarrhea, and hypercholesterolemia.

Lactobacillus salivarius

- Shown to improve bleeding gums, tooth decay, halitosis, oral thrush, and canker sores.
- It produces B vitamins and other enzymes, has strong antimicrobial effects, and is useful in *H. pylori* and Salmonella.
- Shown to have an affinity for the skin, and improves atopic dermatitis, inhibits *C. acnes*, helps prevent strep throat (*S. pyogenes*), reduces mastitis, ulcerative colitis, IBS, and possesses characteristics of immunomodulation.
- Evidence to show beneficial uses to support vaginal health and the prevention of urogenital infections.

BACILLUS SPECIES

Bacillus coagulans

- Useful in IBS, neonatal diarrhea, antibiotic induced diarrhea, vaginitis, significantly reduces LDL cholesterol and increases HDL.
- Previously known as *Lactobacillus sporogenes*.

Bacillus clausii

- Used during antibiotic treatment to help resist antibiotic induced damage and diarrhea (including SIBO irradiation and *H. pylori* treatment), and used for a multitude of respiratory infections.

Bacillus subtilis

- Produces over 12 types of antibiotics, fermented into vitamin K in the gut, and has a positive impact on inflammatory and autoimmune markers.
- Induces beta-defensin, which has been shown to improve overall innate gut immunity.

- Decreases the duration of respiratory infections in children, helps treat UTIs, IBS and diarrhea.

SACCHAROMYCES SPECIES

Saccharomyces boulardii

- The only transient probiotic non-pathogenic yeast.
- Produces B vitamins, treats and prevents diarrhea, used in H. pylori, IBS, IBD, Crohn's and UC, Lyme disease, relapsing C. difficile colitis, bacterial overgrowth, lactose intolerance, UTIs, viral gastroenteritis, vaginal and candida related yeast infections.

STREPTOCOCCUS SPECIES

Streptococcus thermophilus

- Used in combination with L. bulgaricus to help in the prevention and treatment of diarrhea (Pseudomonas, C. difficile, E. coli, S. aureus, Salmonella, and Shigella), as well as on its own to treat H. pylori, ulcerative colitis, IBS, URTIs, atopic dermatitis, bacterial vaginosis, cholesterol, and infant colic.
- Shown to have antioxidant and anti-tumour activities.
- Can aid in recovery from malnutrition, due to short term fasting and help reduce associated intestinal atrophy.
- Aids in the production of exopolysaccharides in the gut and in the restoration of the physiological intestinal barrier.

CONDITIONS AND SPECIES

ALLERGIES	ALZHEIMER'S DISEASE	AUTISM + ADHD
<ul style="list-style-type: none"> <i>Lactobacillus acidophilus</i> <i>Lactobacillus casei</i> <i>Bifidobacterium bifidum</i> <i>Bifidobacterium longum</i> <i>Bifidobacterium infantis</i> 	<ul style="list-style-type: none"> <i>Bifidobacterium breve</i> 	<ul style="list-style-type: none"> <i>Lactobacillus plantarum</i>
CANDIDA	CELIAC DISEASE	CHOLESTEROL LOWERING
<ul style="list-style-type: none"> <i>Lactobacillus casei</i> <i>Lactobacillus fermentum</i> <i>Lactobacillus reuteri</i> <i>Lactobacillus salivarius</i> <i>Bifidobacterium bifidum</i> <i>Saccharomyces boulardii</i> 	<ul style="list-style-type: none"> <i>Bifidobacterium lactis</i> <i>Bifidobacterium breve</i> 	<ul style="list-style-type: none"> <i>Lactobacillus acidophilus</i> <i>Lactobacillus bulgaricus</i> <i>Lactobacillus fermentum</i> <i>Lactobacillus helveticus</i> <i>Lactobacillus reuteri</i> <i>Lactobacillus rhamnosus</i> <i>Bifidobacterium bifidum</i> <i>Bifidobacterium infantis</i> <i>Bifidobacterium lactis</i> <i>Bifidobacterium longum</i> <i>Bacillus coagulans</i> <i>Streptococcus thermophilus</i>
CONSTIPATION	DEPRESSION + ANXIETY	DERMATITIS + ECZEMA
<ul style="list-style-type: none"> <i>Lactobacillus plantarum</i> <i>Bifidobacterium breve</i> <i>Bifidobacterium lactis</i> 	<ul style="list-style-type: none"> <i>Lactobacillus plantarum</i> <i>Bifidobacterium longum</i> 	<ul style="list-style-type: none"> <i>Lactobacillus rhamnosus</i> <i>Lactobacillus salivarius</i> <i>Bifidobacterium infantis (infant)</i> <i>Bacillus subtilis</i> <i>Streptococcus thermophilus</i>

CONDITIONS AND SPECIES

DIARRHEA	GAS + BLOATING	IBS/IBD/UC
<ul style="list-style-type: none"> • <i>Lactobacillus acidophilus</i> • <i>Lactobacillus bulgaricus</i> • <i>Lactobacillus casei</i> • <i>Lactobacillus gasseri</i> • <i>Lactobacillus paracasei</i> (infant and antibiotics associated diarrhea) • <i>Lactobacillus rhamnosus</i> • <i>Lactobacillus plantarum</i> • <i>Lactobacillus reuteri</i> • <i>Bifidobacterium bifidum</i> (infant) • <i>Bifidobacterium breve</i> • <i>Bifidobacterium infantis</i> (infant) • <i>Bifidobacterium lactis</i> • <i>Bifidobacterium longum</i> • <i>Bacillus coagulans</i> • <i>Bacillus clausii</i> • <i>Saccharomyces boulardii</i> • <i>Streptococcus thermophilus</i> 	<ul style="list-style-type: none"> • <i>Lactobacillus acidophilus</i> • <i>Lactobacillus plantarum</i> • <i>Bifidobacterium breve</i> • <i>Bifidobacterium lactis</i> • <i>Bifidobacterium infantis</i> • <i>Bifidobacterium longum</i> • <i>Bacillus coagulans</i> 	<ul style="list-style-type: none"> • <i>Lactobacillus acidophilus</i> • <i>Lactobacillus brevis</i> • <i>Lactobacillus bulgaricus</i> • <i>Lactobacillus casei</i> • <i>Lactobacillus fermentum</i> • <i>Lactobacillus gasseri</i> • <i>Lactobacillus paracasei</i> • <i>Lactobacillus plantarum</i> • <i>Lactobacillus reuteri</i> • <i>Lactobacillus rhamnosus</i> • <i>Lactobacillus salivarius</i> • <i>Bifidobacterium bifidum</i> • <i>Bifidobacterium longum</i> • <i>Bifidobacterium infantis</i> • <i>Bifidobacterium lactis</i> • <i>Bifidobacterium breve</i> • <i>Bacillus coagulans</i> • <i>Saccharomyces boulardii</i> • <i>Streptococcus thermophilus</i>
H-PYLORI	GERD	INFLAMMATION
<ul style="list-style-type: none"> • <i>Lactobacillus brevis</i> • <i>Lactobacillus reuteri</i> • <i>Lactobacillus salivarius</i> • <i>Bifidobacterium breve</i> • <i>Bifidobacterium lactis</i> • <i>Bacillus clausii</i> • <i>Saccharomyces boulardii</i> • <i>Bacillus subtilis</i> 	<ul style="list-style-type: none"> • <i>Lactobacillus bulgarians</i> 	<ul style="list-style-type: none"> • <i>Lactobacillus reuteri</i> • <i>Lactobacillus bulgaricus</i> • <i>Lactobacillus plantarum</i> • <i>Lactobacillus rhamnosus</i> • <i>Lactobacillus fermentum</i> • <i>Bifidobacterium lactis</i> • <i>Bifidobacterium bifidum</i> • <i>Bifidobacterium longum</i> • <i>Streptococcus thermophilus</i>

CONDITIONS AND SPECIES

OBESITY	ORAL HEALTH	RESPIRATORY TRACT INFECTIONS
<ul style="list-style-type: none"> <i>Lactobacillus gasseri</i> <i>Lactobacillus casei</i> <i>Bifidobacterium bifidum</i> <i>Bifidobacterium breve</i> <i>Lactobacillus rhamnosus</i> 	<ul style="list-style-type: none"> <i>Lactobacillus bulgaricus</i> <i>Lactobacillus reuteri</i> <i>Lactobacillus salivarius</i> <i>Bifidobacterium lactis</i> 	<ul style="list-style-type: none"> <i>Lactobacillus acidophilus</i> <i>Lactobacillus casei</i> <i>Lactobacillus rhamnosus</i> <i>Lactobacillus fermentum</i> <i>Lactobacillus plantarum</i> <i>Bifidobacterium lactis</i> <i>Bacillus clausii</i> <i>Bacillus subtilis</i>
SIBO	UTIS	VAGINAL HEALTH
<ul style="list-style-type: none"> <i>Bacillus clausii</i> <i>Bifidobacterium bifidum</i> <i>Bifidobacterium infantis</i> <i>Bifidobacterium lactis</i> <i>Bifidobacterium longum</i> <i>Bifidobacterium breve</i> <i>Lactobacillus helveticus</i> 	<ul style="list-style-type: none"> <i>Lactobacillus casei</i> <i>Lactobacillus reuteri</i> <i>Lactobacillus rhamnosus</i> <i>Saccharomyces boulardii</i> <i>Streptococcus thermophilus</i> <i>Bacillus subtilis</i> 	<ul style="list-style-type: none"> <i>Lactobacillus acidophilus</i> <i>Lactobacillus casei</i> <i>Lactobacillus salivarius</i> <i>Lactobacillus fermentum</i> <i>Lactobacillus gasseri</i> <i>Lactobacillus reuteri</i> <i>Lactobacillus rhamnosus</i> <i>Saccharomyces boulardii</i> <i>Streptococcus thermophilus</i>
VIRAL INFECTIONS		
<ul style="list-style-type: none"> <i>Lactobacillus acidophilus</i> <i>Lactobacillus bulgaricus</i> <i>Lactobacillus plantarum</i> <i>Lactobacillus casei</i> <i>Bifidobacterium longum</i> 		

*This resource does not replace professional medical recommendations or treatment from an experienced health care professional.