



H & H 和合
生物工程

PROBIOTICS

FROM STRAIN

TO SOLUTION

Probioway Co., Ltd

Zhengzhou H&H Bioengineering Co., Ltd



About Us

H&H is a National High-Tech Enterprise, specializing in the research of gastrointestinal microbiome and manufacturing of functional probiotics. H&H's probiotic-only facility is GMP-compliant, with an annual capacity of 300 tons of high-potency probiotic powder and 1500 tons of probiotic derivatives. As a leading intelligent manufacturing enterprise, H&H provides strain-to-solution services to customers and continues the work to expand probiotic applications in preventive medicine, functional food, dietary supplement, pet nutrition, agriculture, and environmental protection.

Core Technologies to Advance Strain Value

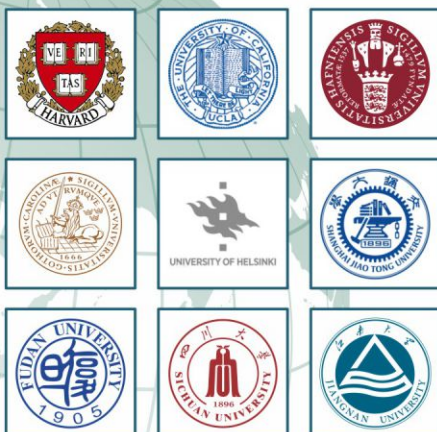
H&H has developed core technologies in manufacturing probiotics, including probiotic strain screening and evaluation technology, probiotic strain characteristics and efficacy verification technology, probiotic high-density fermentation technology, probiotic microencapsulation technology, and lyophilization technology. Through stringent quality control system and multi-level scientific study (in vitro, animal trial, clinical trial), H&H ensures:

- ✔ High potency
- ✔ High tolerance
- ✔ Long-term colonization
- ✔ High stability
- ✔ Enhanced functionality
- ✔ Targeted nutritional intervention
- ✔ Antibiotic susceptibility



Innovation Drives Development

H&H has been specialized in probiotics for 25 years. Our R&D team is led by experts and professors from United States and Europe, as well as domestic experts and consultants, consisting of more than 30 researchers. We have established long-term collaboration with many famous universities and scientific institutions for the development of live biotherapeutics, functional probiotic strains, and animal or clinical trials.



- ✔ Collaborate with top universities in the world
- ✔ Patent portfolio encompasses around 30 patents
- ✔ The first-ever company to produce patented *L.johnsonii* LBJ 456® on a commercial scale
- ✔ The first-ever company to produce patented *L.plantarum* N-1 on a commercial scale





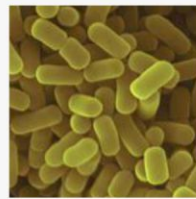

✓ Precise Screening of Functional Probiotic Strain

H&H is committed to expand our strain library by isolating new strains from the valuable microbial resources, such as traditional or natural-fermented food, feces of both healthy adults and breast-fed infants, as well as human breast milk.

✓ Culture Collection

H&H has expanded our probiotic strain collection to more than 7000 deposits. Among them, 72 strains have been developed for production at industrial scale. The safety of probiotic strains is in compliance with EFSA's Qualified Presumption of Safety and relevant Chinese laws and regulations.

Patented Probiotic Strains

					
<i>L. casei</i> PB-LC39	<i>L. rhamnosus</i> PB-LR76	<i>L. reuteri</i> PB-LR09	<i>W. coagulans</i> PB-BC02	<i>L. plantarum</i> N-1	<i>L. johnsonii</i> LBJ 456 [®]
Liver health, immune stimulating, blood pressure and blood fat control	Vaginal health, Immune stimulating, allergy relief	Vaginal health, balance gut microbiota, allergy relief	Oral health, IBS relief, high tolerance	Urogenital health, cholesterol control, SCFAs production	Anti-inflammatory, anti-cancer, radiation protection
ZL202010306925.4	ZL201910895017.0	ZL201910895017.0	ZL201910314598.4	ZL202011503896.7	CN202010414747.7
CCTCC M2018886	CCTCC M2018887	CCTCC M2018888	CCTCC M2018889	CGMCC NO.15463	CCTCC M20191013

List of Functional Probiotic Strains

Species	Code	Potency(CFU/g)	Species	Code	Potency(CFU/g)
<i>L. casei</i>	PB-LC39	500 Billion	<i>B. infantis</i>	HH-BI27	50 Billion
<i>L. rhamnosus</i>	PB-LR76	500 Billion	<i>B. lactis</i>	HH-BA68	500 Billion
<i>L. reuteri</i>	PB-LR09	200 Billion	<i>B. animalis</i>	HH-BAA68	500 Billion
<i>L. plantarum</i>	HH-LP56/N-1	500 Billion	<i>B. breve</i>	HH-BR26	200 Billion
<i>L. johnsonii</i>	LBJ 456 [®]	500 Billion	<i>B. adolescentis</i>	HH-BA07	50 Billion
<i>L. paracasei</i>	HH-LP58	500 Billion	<i>S. thermophilus</i>	HH-ST08	200 Billion
<i>L. acidophilus</i>	HH-LA26	200 Billion	<i>P. acidilactici</i>	HH-PA29	500 Billion
<i>L. bulgaricus</i>	HH-LB57	50 Billion	<i>P. pentosaceus</i>	HH-PP57	500 Billion
<i>L. salivarius</i>	HH-LS17	200 Billion	<i>W. coagulans</i>	PB-BC02	200 Billion
<i>L. fermentum</i>	HH-LF392	200 Billion	<i>L. lactis subsp. lactis</i>	HH-LLL39	100 Billion
<i>L. gasseri</i>	HH-LG07	200 Billion	<i>L. cremoris</i>	HH-LLC36	50 Billion
<i>L. helveticus</i>	HH-LPH17	100 Billion	<i>L. lactis subsp. lactis bv. diacetylactis</i>	HH-LLD37	50 Billion
<i>L. crispatus</i>	HH-LC323	100 Billion	<i>L. kefirifaciens subsp. kefirifaciens</i>	HH-LK08	50 Billion
<i>B. longum</i>	HH-BL18	100 Billion			
<i>B. bifidum</i>	HH-BB27	100 Billion			
<i>L. sakei</i>	LSS858	50 Billion			

Research Direction of Probiotic Strain






Functional Probiotic Formulas

Functionality	Ingredients	Format	Mechanism of Action
Liver Health Hangover Prevention	Stachyose, Ampelopsis grossedentata leaves powder, amomi fructus extract, corn oligopeptides powder, apple cider vinegar powder, inulin, <i>L. casei</i> PB-LC39, <i>L. helveticus</i> HH-LPH17, <i>L. plantarum</i> HH-LP56, <i>L. acidophilus</i> HH-LA26, multi-vitamins, taurine.	powder capsules tablets	Aid liver detoxification, improve alcohol metabolism
Women's Health	Inulin, <i>L. reuteri</i> PB-LR09, <i>L. rhamnosus</i> PB-LR76, <i>L. johnsonii</i> LBJ 456 [®] , mulberry powder, galactooligosaccharide, stachyose, dandelion extract, roselle extract, lablab semen album.	powder capsules tablets	Inhibit the growth of vaginal pathogens
Urogenital Health	Fructus mume, lemon, <i>L. plantarum</i> N-1, <i>L. johnsonii</i> LBJ456 [®] , fructooligosaccharide, isomaltooligosaccharide, <i>L. acidophilus</i> HH-LA26, <i>B. longum</i> HH-BL18, dandelion, herba lophatheri.	powder capsules tablets	Reduce kidney stones, prevent bladder outlet obstruction
Anti- Inflammatory	Fucoidin, citrus extract, <i>L. johnsonii</i> LBJ456 [®] , <i>L. acidophilus</i> HH-LA26, <i>B. lactis</i> HH-BA68, <i>L. reuteri</i> PB-LR09, <i>B. longum</i> HH-BL18, <i>L. casei</i> PB-LC39.	powder capsules tablets	Regulate secretion of inflammatory cytokines towards the reduced body inflammation
Allergy Relief	<i>B. longum</i> HH-BL18, <i>B. lactis</i> HH-BA68, <i>L. paracasei</i> HH-LP58, <i>L. reuteri</i> PB-LR09, <i>L. rhamnosus</i> PB-LR76, maltodextrin, compound fruit powder, inulin, fructooligosaccharide, xylitol, citric acid	powder capsules tablets	Maintain epithelial barrier function and Th1/Th2 balance
Cardiovascular Health	Fructooligosaccharide, lablab semen album, rapeseed pollen, stachyose, <i>L. plantarum</i> N-1, <i>L. johnsonii</i> LBJ456 [®] , inulin, <i>B. longum</i> HH-BL18, <i>L. casei</i> PB-LC39, <i>L. acidophilus</i> HH-LA26.	powder capsules tablets	Reduce cholesterol level, produce SCFAs
Oral Health	<i>W. coagulans</i> PB-BC02, <i>L. rhamnosus</i> PB-LR76, <i>L. reuteri</i> PB-LR09, xylitol, mint powder	powder capsules tablets	Inhibit the growth of <i>S. mutans</i> , reduce oral malodor

ODM/OEM and Customization Services

H&H has developed 72* commercial strains and 900* probiotics & postbiotics based formulas to meet customer's demand.

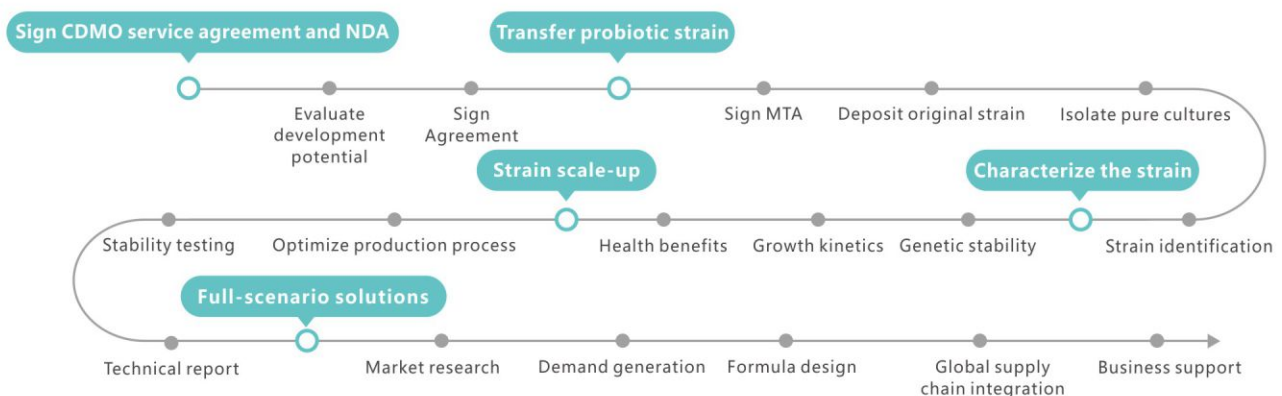
	Format	Specification	Attributes	Packaging
	Sachet	110×27 mm, 1.5-3 g	Tearable	20 sachets/box
	Capsule	00#, 500-700 mg 0#, 500 mg 1#, 320-380 mg	Gelatin Vegetable	60 capsules/bottle 10 capsules/blister pack
	Tablet	0.6-1g	Chewable Effervescent	60 Tablets/bottle

Whole Industrial Chain Probiotic Manufacturing



- Six core technologies of probiotics production
- Eight aspects of stringent quality control
- GMP standard workshop
- 24/7 real-time monitoring and hierarchical management
- In-process inspection throughout production cycle
- Digital manufacturing to improve traceability

End to End CDMO Services for Functional Probiotics



Quality Certificate

H&H has been granted National High-Tech Enterprise, FDA registration, ISO9001, HACCP, HALAL, KOSHER, FSSC22000, ISO22000, and cGMP certifications. H&H has brought products to customers in 45 countries and regions.



25 Years of expertise in probiotics

The Service Creates Value

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