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KŌKIRI - TE HA O TE KAI

Patent Insights Digestive Health

Report dated 10 June 2020

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1. INTRODUCTION



1.1. Executive Summary

1 We identify 387 new patents since our last report in March 2019 that we consider as relevant to HVN's interest in food for digestive health. This summates to very strong growth over the past two years compared to historically. This reflects the scientific research push globally on the gut microbiome, as well as consumer awareness and demand for digestive health solutions.

8 We will be hosting webinars through Tranche 2 to dig deeper into areas of interest in this patent landscape, so keep an eye out for the advertisements!

7 [In our Spotlight section](#), we delve briefly into 30 patents that we think are of particular interest to the HVN community, and to help guide approaches to our NZ based projects.

2 We see a huge dominance of Chinese filers. A surprising number of these patents refer to gut flora and microbiome as key themes. We also see a significant numbers of novel probiotics from China with wide ranging health outcomes of interest to HVN.



6 We provide [three Case Studies](#). One relating to Arista Cereal Technologies's high amylose wheat journey and the commercial story thus far. The second relates to a global launch of GOS prebiotic based on patented tech. The third relates to University of Minnesota's novel approach to digestive health using low-value lactose from dairy industry and converting to "polylactose" as a high value potent prebiotic.

3 We highlight differences and commonalities in both the primary actives and health targets when comparing traditional herbal medicine (THM) approaches to Western food approaches. For instance THM patents focus much more on constipation relief, whereas patents based on Western foods relate more to IBS, inflammation and the gut microbiome.

4 Dairy, berries, honey and kumara feature quite prominently in THM style and Chinese patents, which is positive news for our NZ Inc approach. [As described in this article](#), THM patent approaches can include multiple food/herbs types known as fufang (we sometimes see NZ foods feature in these). This is in contrast to danfang, where the THM approach is based on a single food / herb.

5 We see a strong focus on the microbiome, both for digestive comfort outcomes (e.g. preventing cramping, constipation) and also to other outcomes including immunity and metabolic disease.



1.2. Purpose and Outputs of this Report

Provided by [HVN's Science of Food Platform](#), the purpose of this report is to provide HVN members with an update outlining patent insights and trends in food based approaches to immune health since the March 2019 report. The outputs of this report are:

- an executive summary;
- patent trends and insights over the past year, and in comparison to the landscape over the past 20 years;
- spotlight on key patents and case studies with take-home messages for HVN; and
- details and access (through web-links) to each new patent in this review period.

This report should not be taken as specific advice relating to your intellectual property strategy, freedom to operate, commercial or legal matters. You should always seek your own independent advice relating to your situation. IPSynergy is happy to help.

1.3. Subject Matter Focus

Relevant patents included in this report are those published after 13 March 2019, providing digestive health outcomes through any food/beverage interventions. We excluded patents if they were focused on pharmaceutical drugs, therapeutic treatments of disease states (opposed to preventative approaches of interest), synthetic compounds / molecules, recombinant technology or genetically engineered material, non-human animal treatments, non-oral routes of intervention, and diagnostics.

Bull's Eye patents related to healthy digestion and wellbeing through positive action within the gut microbiome, digestive comfort (e.g. reduction in bloating, constipation or diarrhoea) and/or digestive health linked to secondary health outcomes particularly immunity or metabolic health. Bull's Eye patents will typically use foods, nutrients or bioactives that have links to New Zealand's food industry.

Halo patents are similar to Bull's Eye, but for one reason or another are not deemed of key relevance, for instance there may be poor scientific data, or the patent is not focused primarily on digestive health.

Background patents refer generally to digestive health but not aligned on HVN focus. Many traditional herbal medicines (THM) approaches we found are classed as background patents because they utilise food components which are not relevant to HVN and often not solely focused on digestive health.

2. PATENT TRENDS IN DIGESTIVE HEALTH



Quick tip: We can interrogate the data generated for this report to answer any specific questions for HVN members beyond the insights shown here. Please get in touch with Peter at IPSynergy (peter.brown@ipsynergy.co.nz) to discuss any burning questions.

IPSynergy has generated the analytics in this report using its access to:

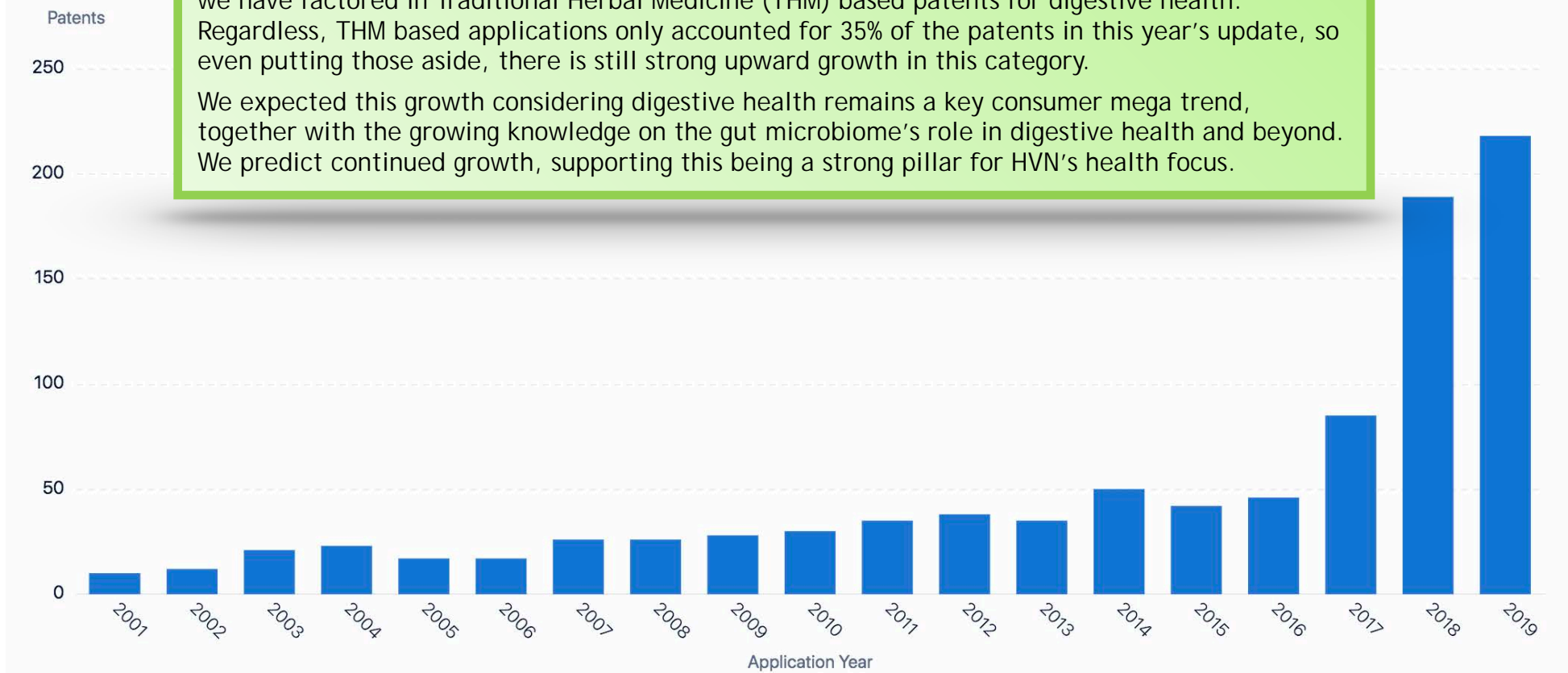
patSnap

 **discovery**

2.1. Overall Patent Application Trend in Digestive Health Landscape (past 20 years)

Over the past two years, we have seen a huge step up in the number of relevant patent applications focused on digestive health via foods. Part of this, is because unlike previous reports, we have factored in Traditional Herbal Medicine (THM) based patents for digestive health. Regardless, THM based applications only accounted for 35% of the patents in this year's update, so even putting those aside, there is still strong upward growth in this category.

We expected this growth considering digestive health remains a key consumer mega trend, together with the growing knowledge on the gut microbiome's role in digestive health and beyond. We predict continued growth, supporting this being a strong pillar for HVN's health focus.

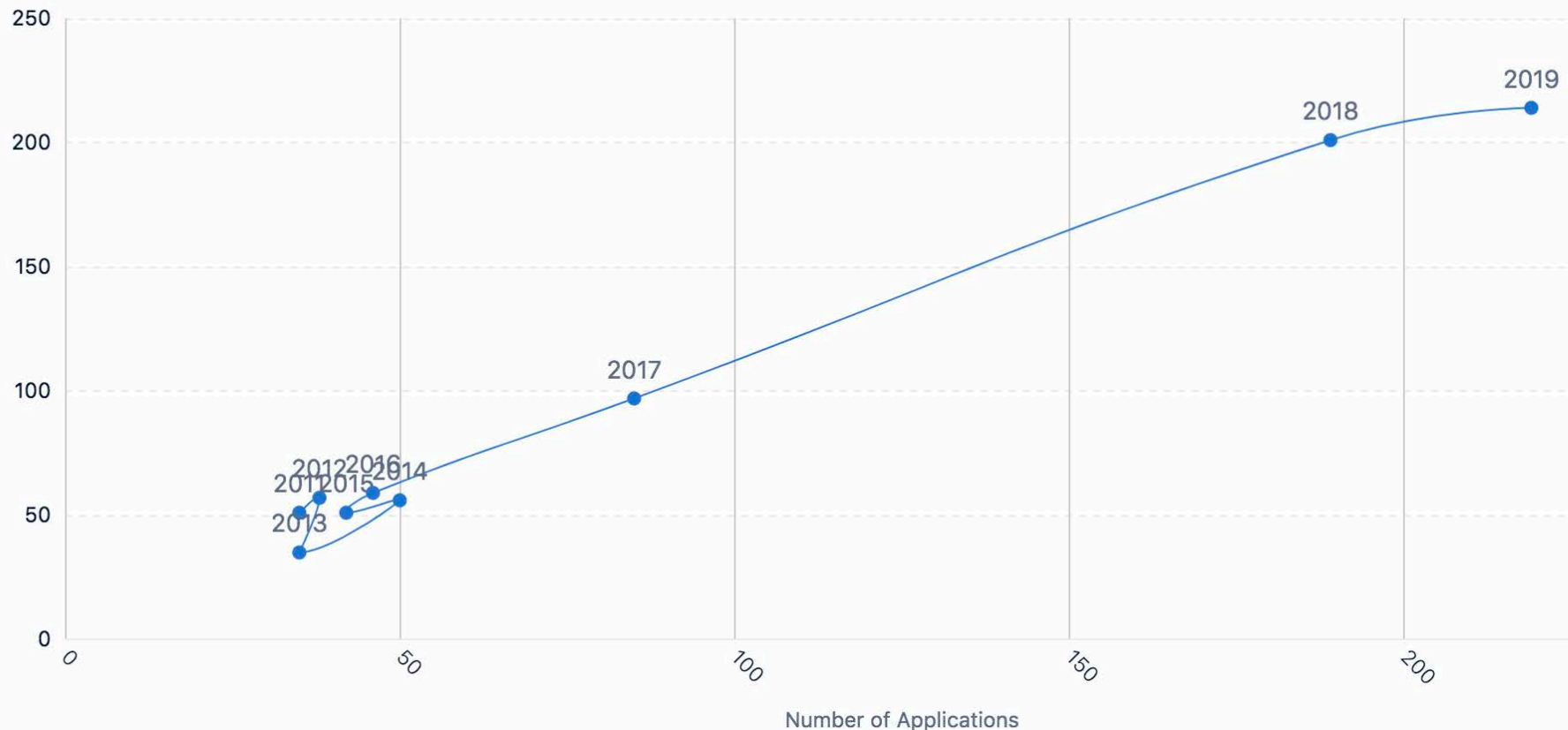


2.2. Technology Lifecycle Analysis (past 10 years)

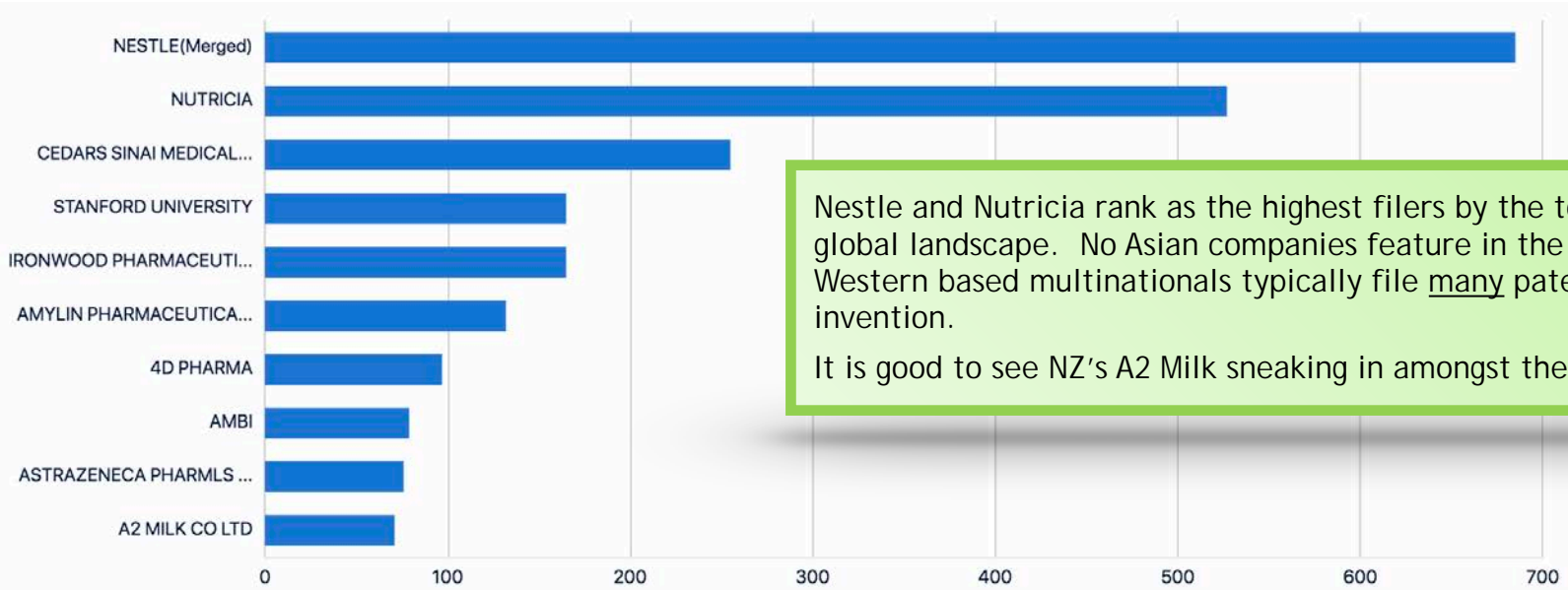
This graph lets us appreciate that the digestive health patent landscape for functional foods has a growing number of players. Compared to just 2017, we see about twice the number of companies with patent filings (100 to about 200).

One one hand, this warns of increased competition. But it also gives us confidence that there is significant commercial opportunity for NZ groups to enter this field, especially if we can carve out a NZInc niche on foods that we have expertise and provenance.

Number of Assignees

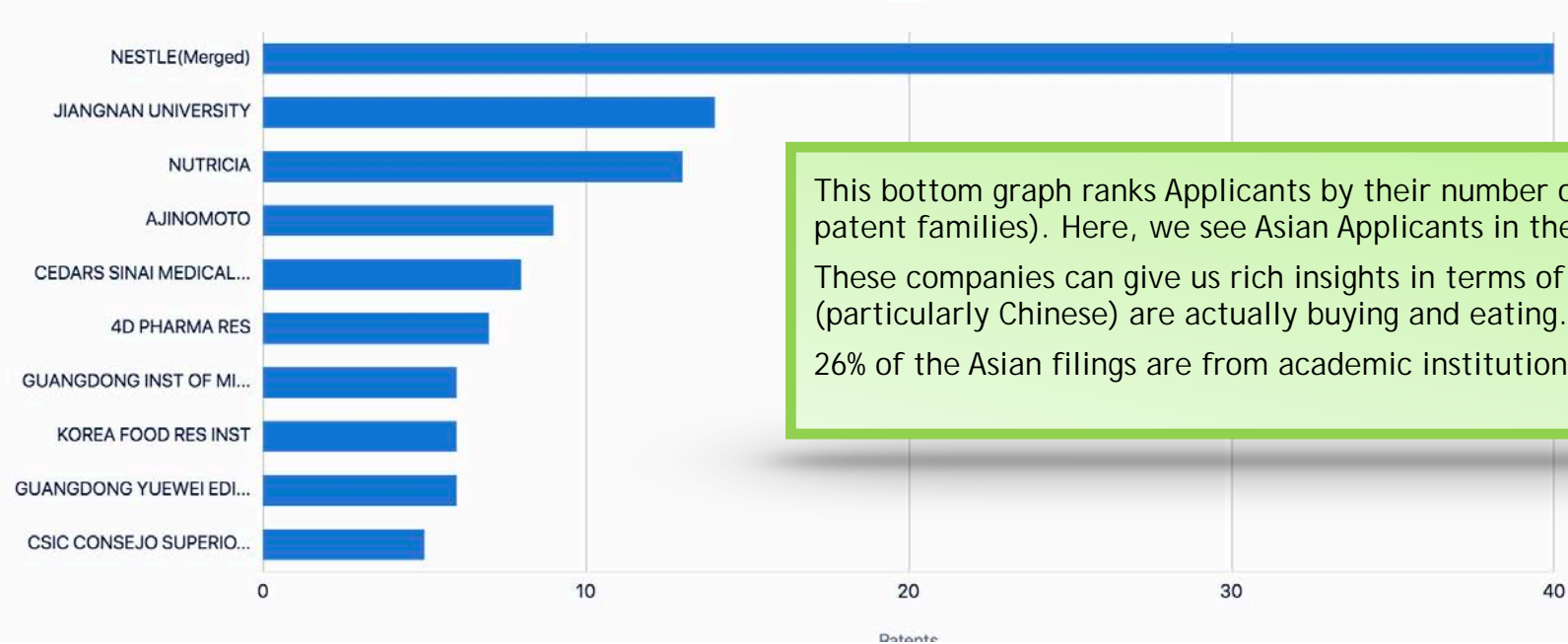


2.3. Ranking of Applicants in Digestive Health Patent Landscape (past 20 years)



Nestle and Nutricia rank as the highest filers by the total number of patents in our global landscape. No Asian companies feature in the top 10. This is primarily because Western based multinationals typically file many patents around the world for a given invention.

It is good to see NZ's A2 Milk sneaking in amongst the top 10 filers globally.

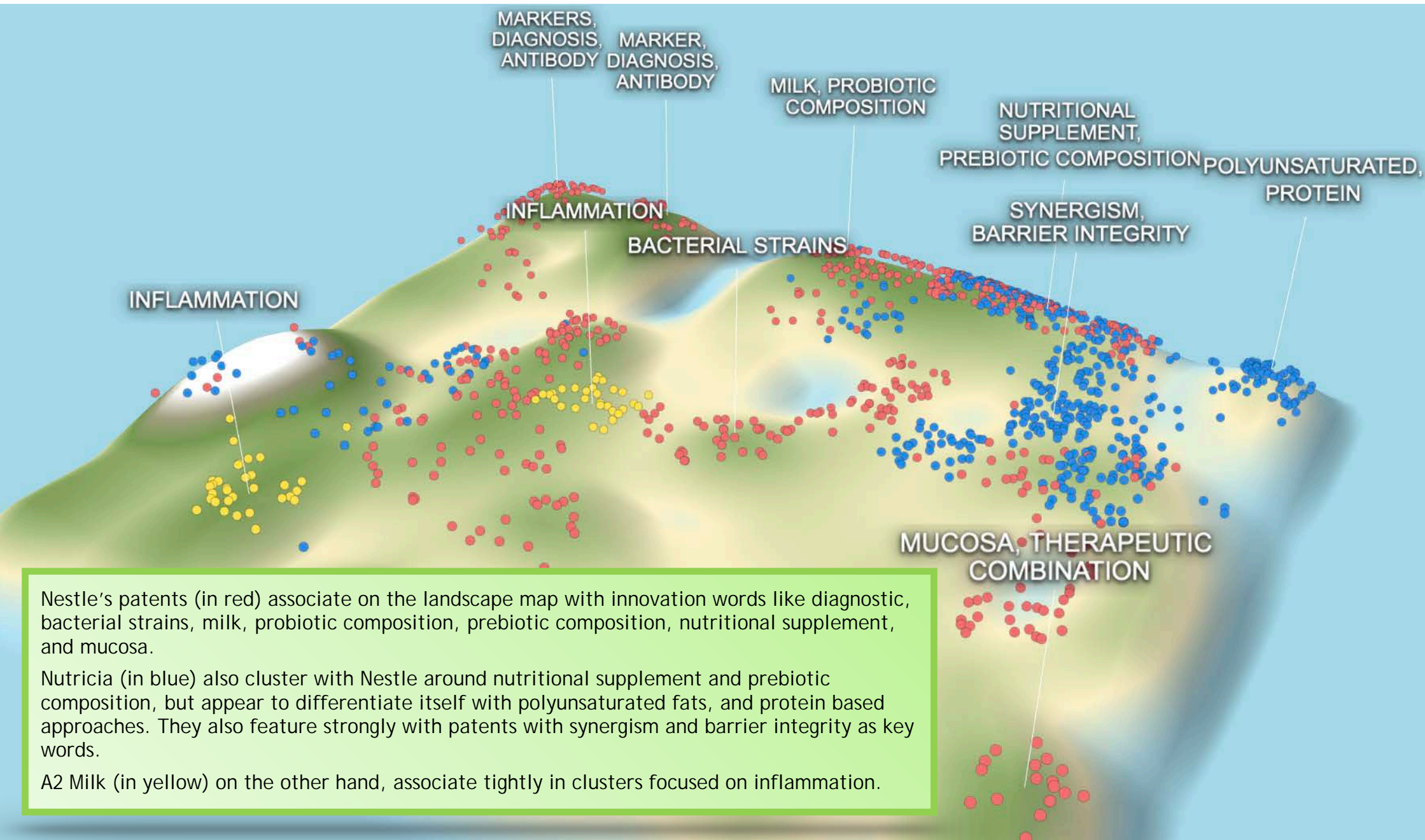


This bottom graph ranks Applicants by their number of unique patented inventions (i.e patent families). Here, we see Asian Applicants in the top 10.

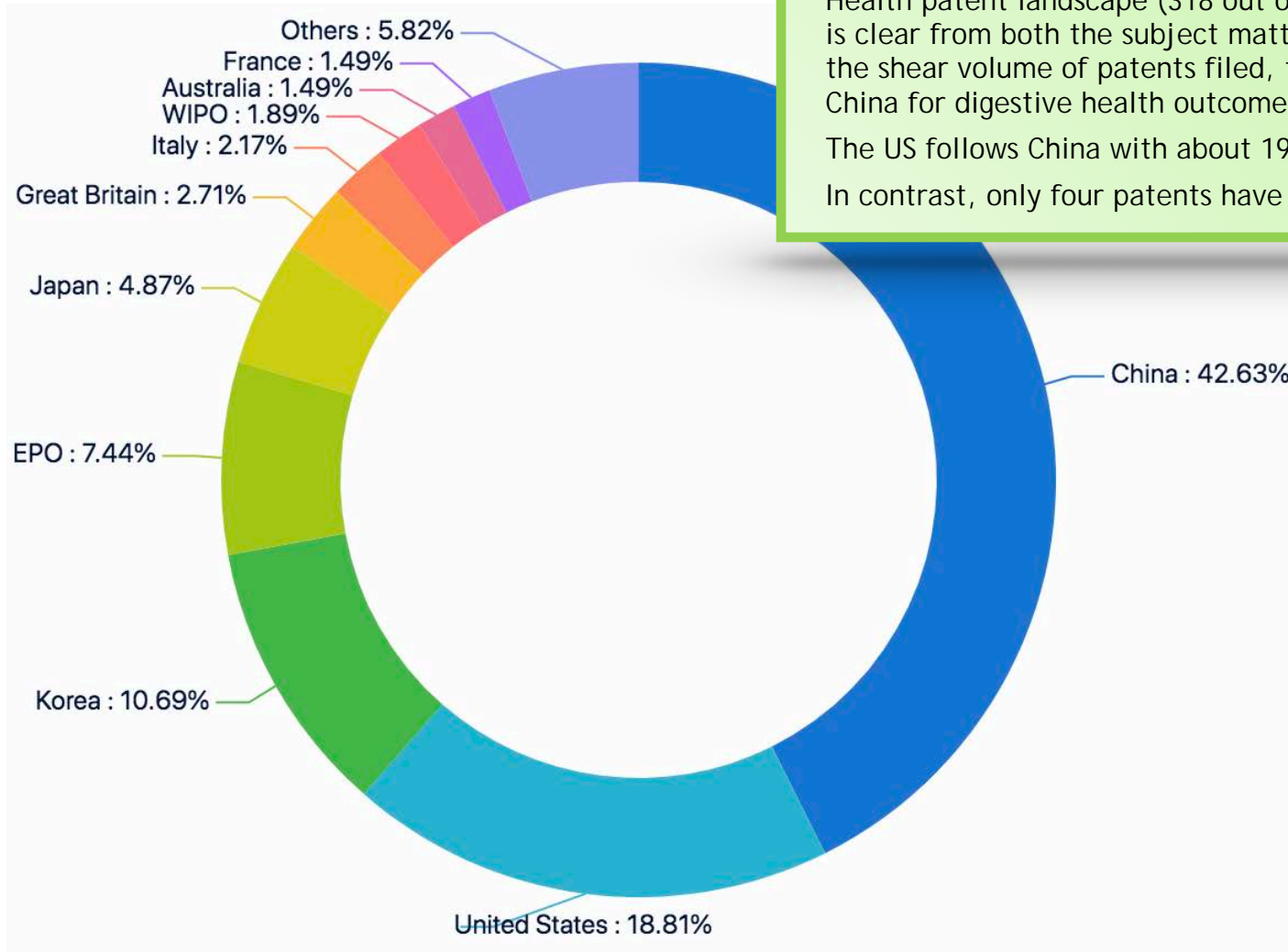
These companies can give us rich insights in terms of what our target Asian consumers (particularly Chinese) are actually buying and eating.

26% of the Asian filings are from academic institutions which is an impressive statistic.

2.4. Comparison of Nestle, Nutricia and A2 Milk's Digestive Health Patents (past 20 years)



2.5. Countries Generating the Most Innovation (past 10 years)



Over the last 10 years, Chinese filers have dominated our Digestive Health patent landscape (318 out of 769 unique patents, or about 42%). It is clear from both the subject matter of the patents (see later) and also the sheer volume of patents filed, that there is significant demand in China for digestive health outcomes through food. The US follows China with about 19% of the total filings. In contrast, only four patents have arisen from New Zealand (not shown).

2.6. Patent Word Clouds - Chinese Patents (past 10 years)

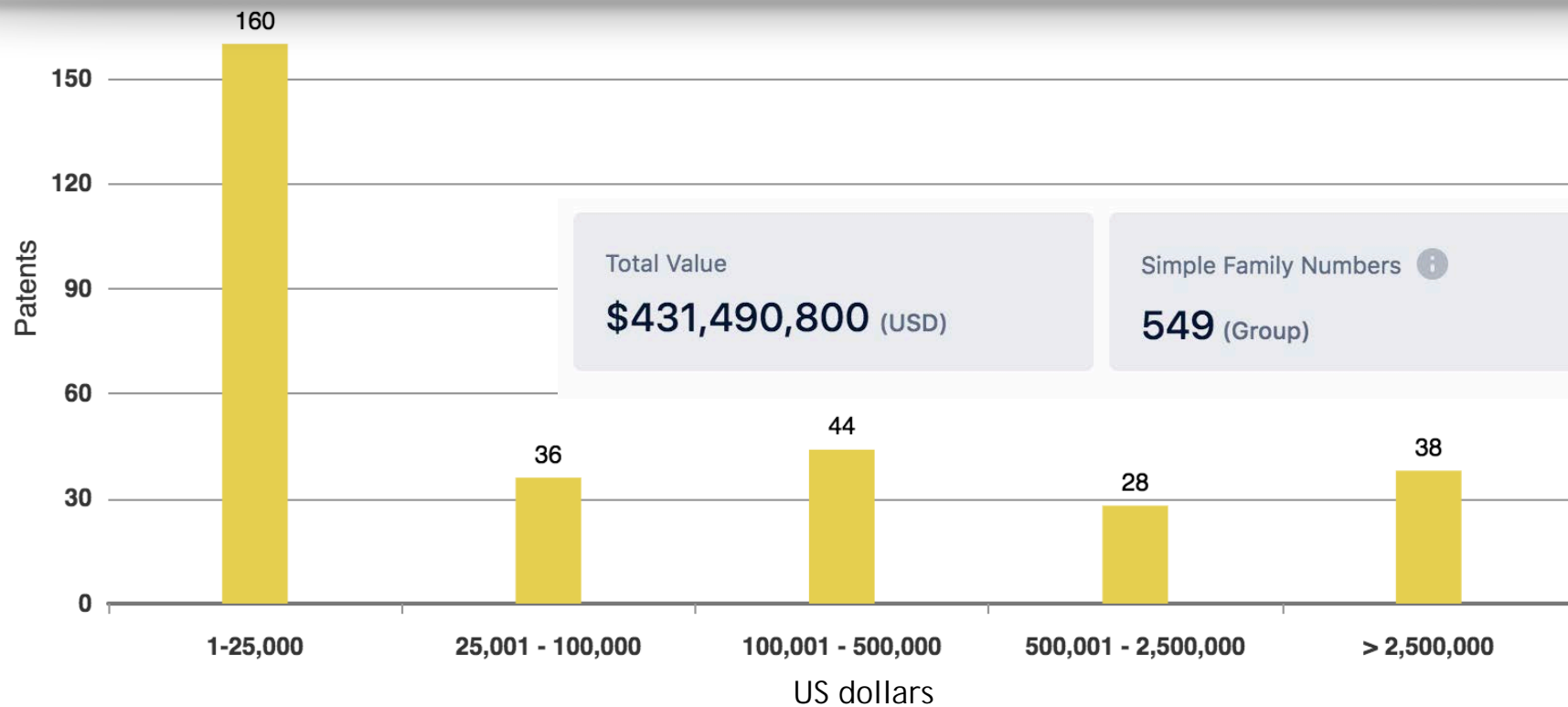
When we filter to just patents arising from China (NZ's main export focus), we can see some of the key ingredients / foods used as well as the health outcomes. For example, intestinal flora and numerous digestive comfort terms all feature relatively strongly in the word cloud supporting our HVN strategy is on track with this focus. When we filtered to non-Chinese patents (not shown), we saw a slightly different focus for example IBS/IBD featured more strongly. It is important we understand these hot topics so we can tailor our commercialisation accordingly.



2.7. Patent Values of Digestive Health Patents (past 20 years)

About half of the patents in our Digestive Health landscape over the past 20 years (currently just over 1000) have sufficient data to assign a patent value to them. This value is based on PatSnap's algorithm that takes into account each patent family's market coverage, market attractiveness, technology quality, company score and legal score of the patent.

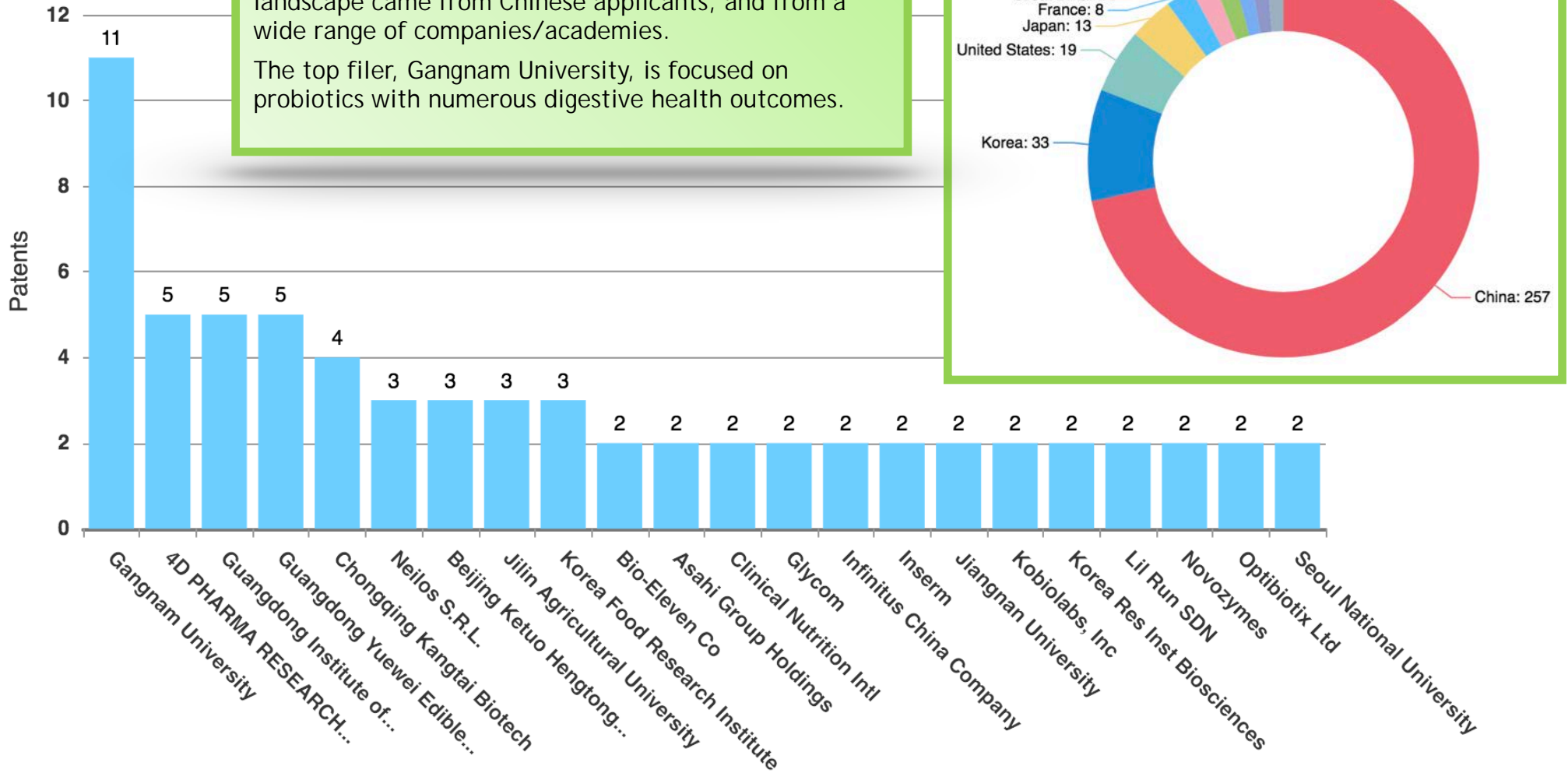
We can see here that 110 of the 549 patents (or about 20%) have a value above US\$100K. By digging down deeper into these numbers we can get rich (excuse the pun) insights into which clusters of patents, and/or subject matter, tend to be most valued.



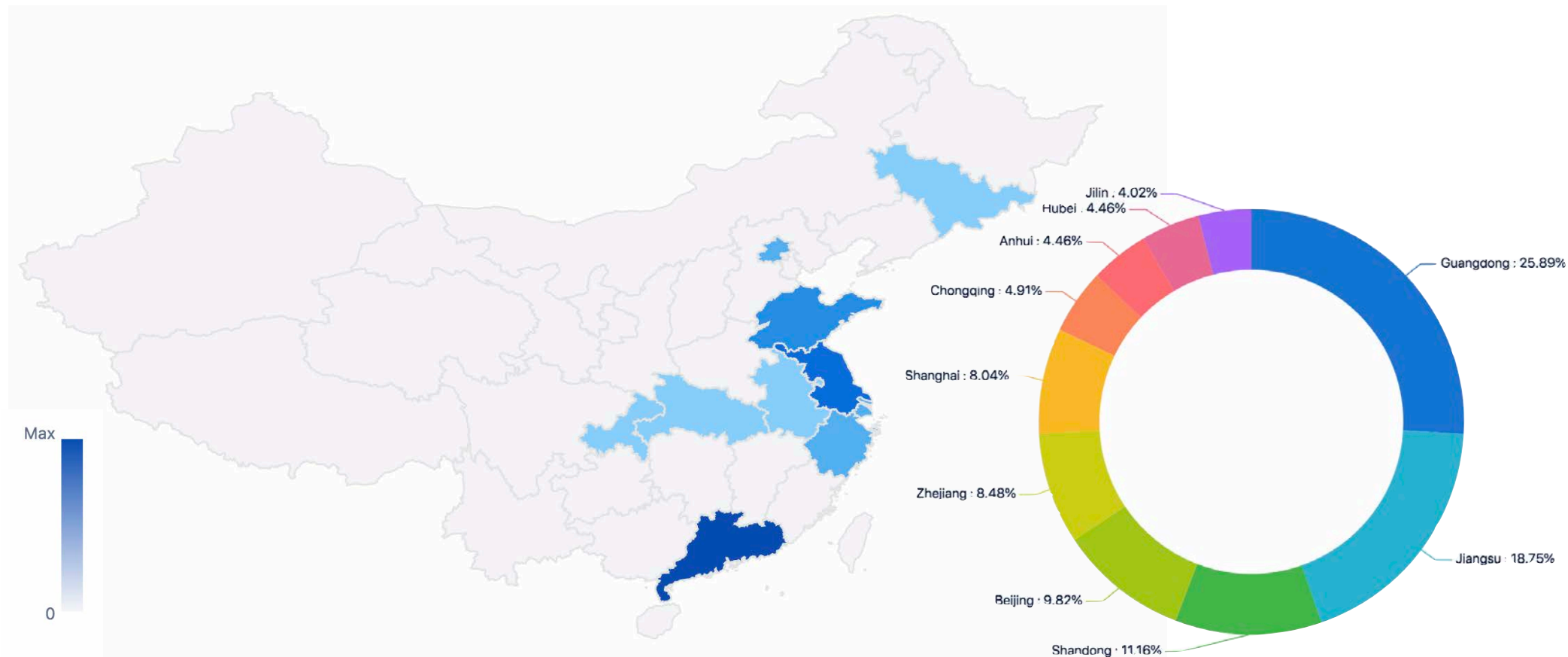
2.8. Top Applicants and Regions (past 12 months)

In this review period, a staggering amount (almost 75%) of the new digestive health inventions in the patent landscape came from Chinese applicants, and from a wide range of companies/academies.

The top filer, Gangnam University, is focused on probiotics with numerous digestive health outcomes.



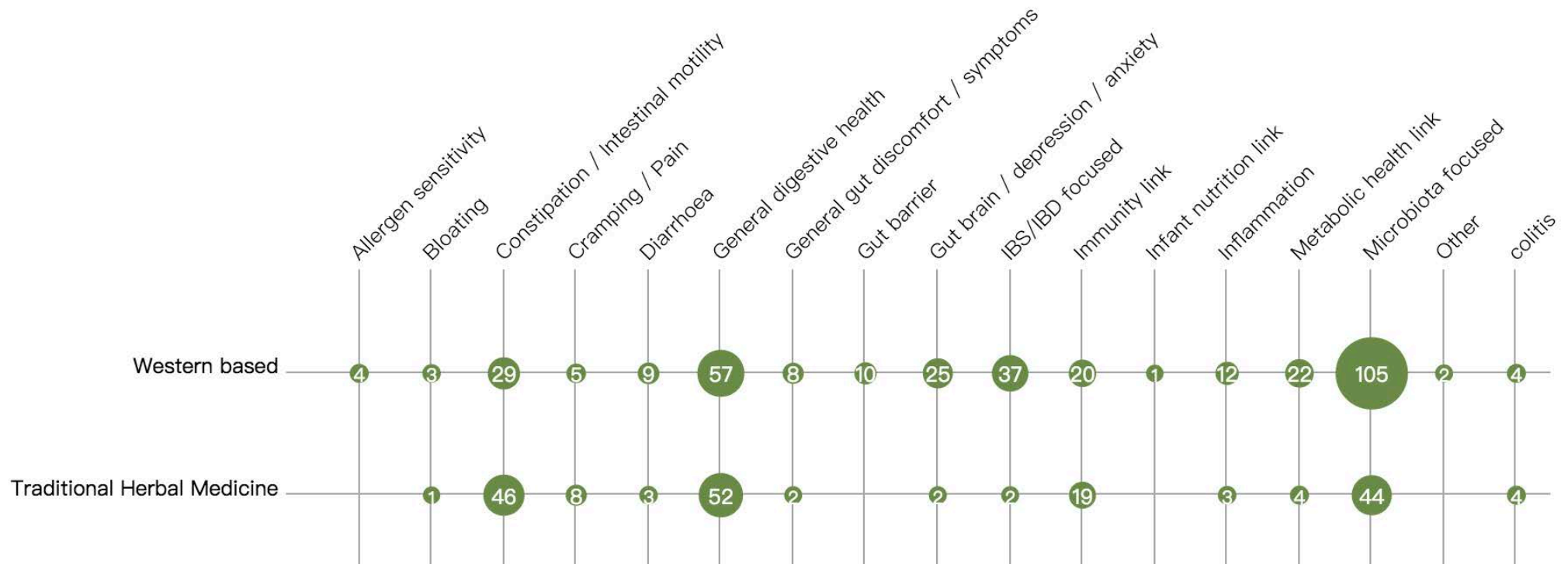
2.9.Chinese Patent Applicants by Province (past 12 months)



This gives us an indication of not only which Chinese provinces generate the IP in the past 12 months, but also where consumers are most interested in digestive health functional foods.

The Guangdong province (shown in darkest blue) generated most of the patents from China. It is the most populated province in China, is the tech hub of China, and includes important megacities Guangzhou and Shenzhen.

2.10.Key Health Outcomes within Digestive Health Patents (past 12 months)

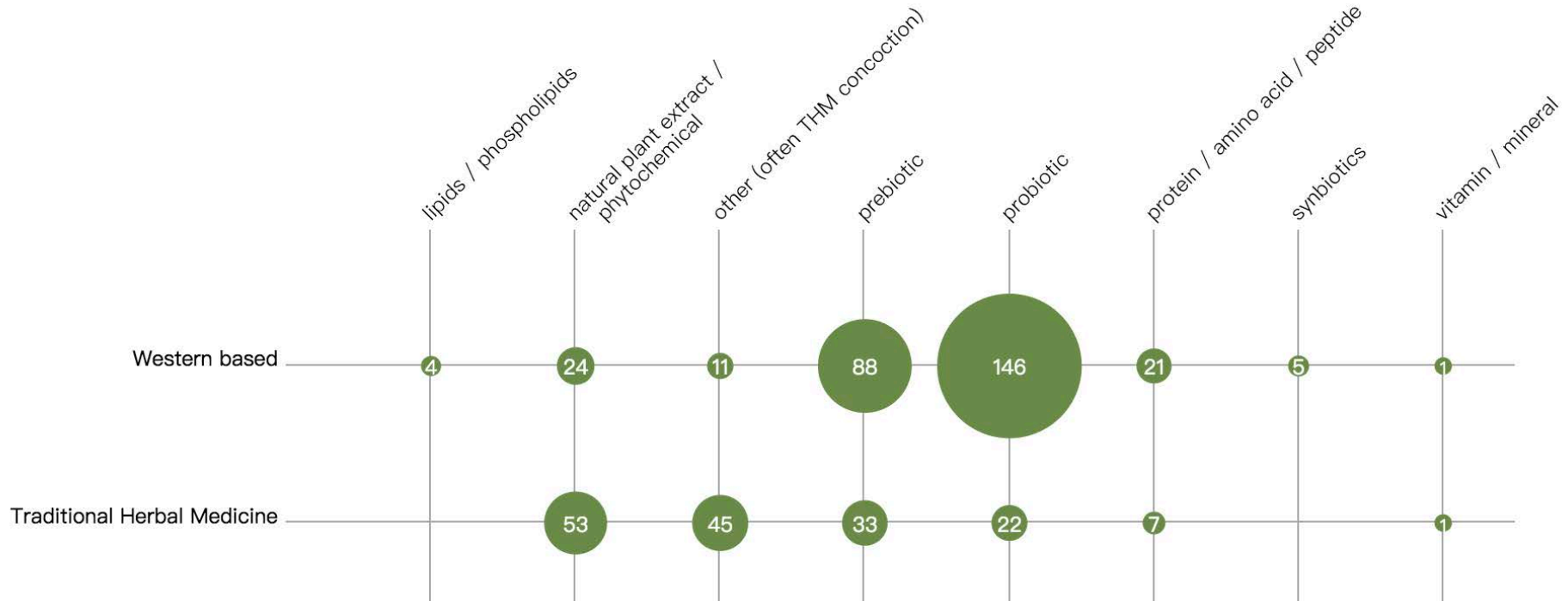


When we split apart the patents between THM based and Western based foods / nutrients (which include Asian filers), we see a few interesting trends which is important when NZ companies set out to validate a health target and associated marketing.

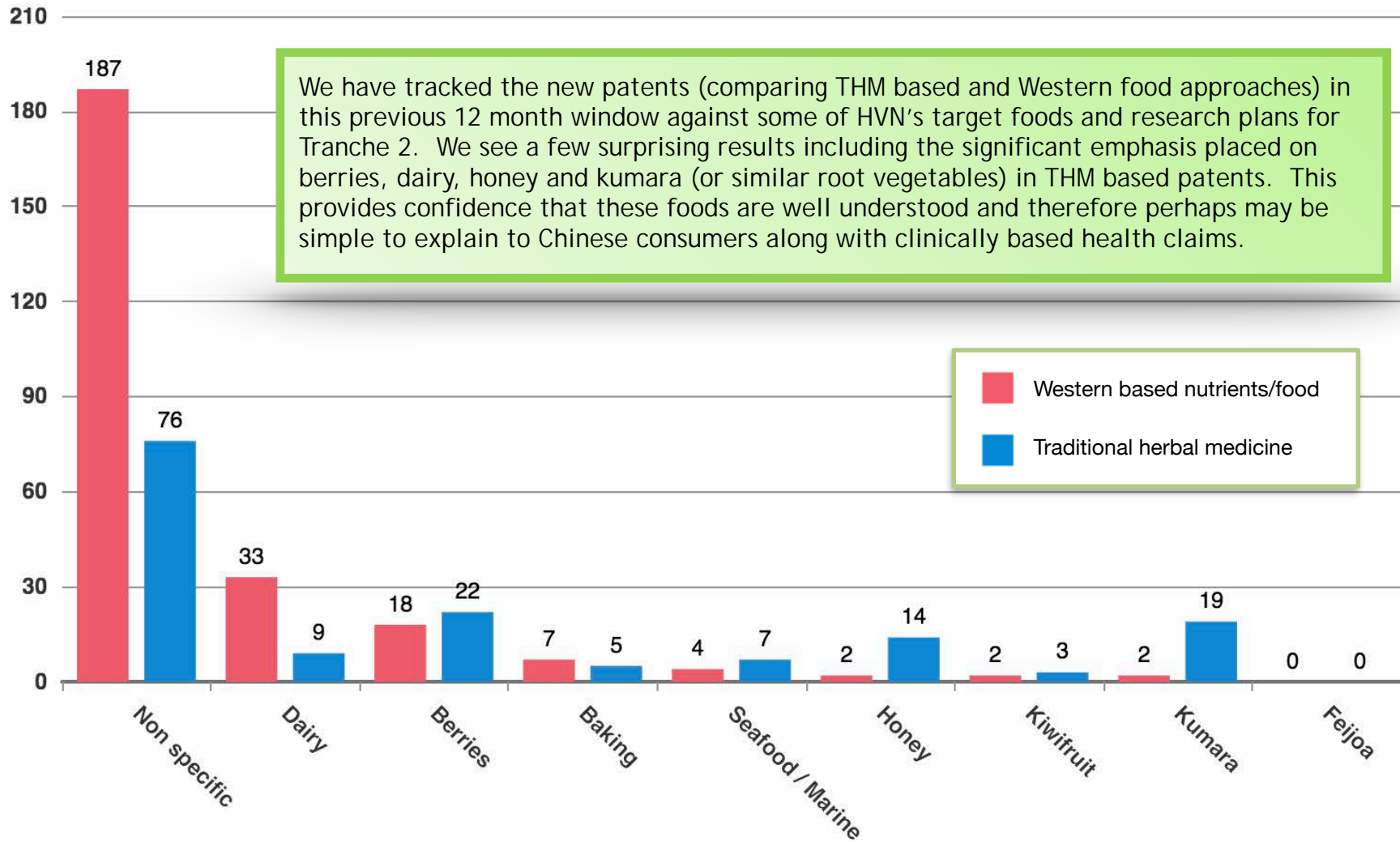
- 1) THM based patents focus much more on constipation outcomes compared to Western style patents.
- 2) Western style patents are more closely associated with the microbiome, gut barrier, the gut-brain axis, IBS, inflammation and metabolic health links compared to THM based patents.
- 3) Both types of patents are on equal par regarding general digestive health and immunity outcomes.
- 4) It is pleasing to see that THM based patents are notably referring to modulation of the gut microbiome, and we expect this to continue.

2.11.Primary Functional Actives (past 12 months)

As expected, THM based patents rely heavily on natural extracts or other (typically large mixtures of different herbs/foods) depending on the type of THM approach (i.e. [fufang or dunfang](#)). Western based approaches to immunity foods continue to heavily focus on probiotics and prebiotics. In the past two reports, the ratio of prebiotic to probiotic based innovation was approximately 1:2 for Western based food patents (with a growing focus on prebiotics compared to previous years).



2.12. Relevance of HVN Target Foods in the Patent Landscape (past 12 months)



3.SPOTLIGHT ON SELECTED PATENTS

Title	IPSYNERGY ® INSIGHTS	Owner	Link
Extraction method of dietary fiber from sweet potato dregs as well as application thereof in adjusting intestinal flora	This is a fascinating patent because it has relevance to NZ's kumara industry, and strong links to digestive health. In this case, the Chinese university is proposing use of the sweet potato "dregs"(by-product) to stimulate the gut microbiome. However we found a total of 21 patents (the vast majority being Chinese patents) that utilise sweet potato or similar starchy root vegetables. This supports kumara as a high value food base for Chinese high value food products.	Jiangsu Normal University	CN110025015A
Functional food additive for promoting intestinal tract to generate short-chain fatty acids and beneficial bacteria	In a similar light to the kumara example above, this Chinese patent focuses on the pomace by-products of the blueberry industry to increase <i>Lactobacillus</i> in the microbiome. Again, this offers insights into similar approaches we could take with our NZ berry by-products.	Huazhong Agricultural University	CN110089756A
Use of short-chain fatty acids for the treatment of bacterial superinfections post-influenza	Reported also in this March 2020 ScienceDaily news brief , France's National Institute for Health and Medical Research (INSERM) has filed a patent seeking to protect the use of short-chain fatty acids (SCFA) to modulate the gut microbiome to prevent bacterial superinfection (post influenza). INSERM has recently completed and published the results of its clinical study in mice . This is very interesting because, as we see with COVID-19, it can often be the resulting bacterial lung infection that does the most serious damage and increases chances of death. It supports the notion that we can use food / food nutrients to selectively target the gut microbiome to protect against the clinical effects of COVID-19.	Inserm And Others	WO2019149727A1
Preparation for the treatment of inflammatory bowel disease using a whole plant fibre extract from sugarcane	Across the ditch, the University of Tasmania has filed a new patent towards its technology using a whole plant fibre from sugarcane to target IBS. The patented product is Kfibre , owned by Health Food Symmetry Pty Ltd. It is interesting from the website it is also certified as low FODMAP, and beyond IBS is linked to improvements in immunity, indigestion, constipation and weight management / appetite control. The website also notes Kfibre can be used in a wide variety of food applications.	University Of Tasmania	WO2019237152A1
Gluten-related disorders	This is a very unique approach to reducing gluten sensitivity using probiotics, only a few others seen in the patent landscape.	H.J. Heinz Company Brands Llc	AU2018203543B2
Composition & Methods of Screening	US based start up developing nutraceuticals targeting the gut microbiome with prebiotics for cholesterol lowering outcomes.	Optibiotix Limited	AU2018208701B2



Title	IPSYNERGY [®] INSIGHTS	Owner	Link
Microbial lysozyme for use in the treatment of irritable bowel syndrome or inflammatory bowel disease	The patent describes that the lysozyme helps promote good bacteria growth, and suppresses pathogens, reduces inflammation in the gut, and alleviates IBS. This is one of the rare examples found of using specific enzymes in the gut to promote digestive health.	Novozymes A/S	EP3565582A1
Alcoholic beverage composition containing bacillus coagulans	Sami Labs is based in India. This is one of many patents relating to <i>Bacillus coagulans</i> in food products, although the only one we found focused on alcoholic beverages with digestive health benefits!	Sami Labs Limited	US20190085277A1
Isomalto-oligosaccharide prebiotic formulations	The owner, Jamieson Laboratories , is a vitamin/supplement company in Canada. It is interesting to see their planned expansion of prebiotics into gummies / capsules to treat digestive discomfort, although we could not yet see the product listed on its website.	Bodybuilding Laboratory Co., Ltd.	CN110167362A
Composition for preventing or improving functional gastrointestinal disorders...	This probiotic based technology targets constipation and bloating, and general gut discomfort, as well as distinctly anxiety outcomes. Morinaga commercialise a number of probiotics so this may be their next innovation, although we can so far see no mention on its website.	Morinaga Milk Industry Co., Ltd.	US20190297909A1
Compositions of hydrolyzed collagen peptides and commensal microorganisms and methods thereof	The patent notes the surprising discovery " <i>that hydrolyzed collagen peptides have effects on the gut microbiome, which are associated with positive effects in OA, joint health, skin health and bone health</i> ". This university group has been activity studying the microbiome's link to osteoarthritis for some time.	University Of Rochester	US20200069762A1
Composition containing alpha-humulene as active ingredient for prevention or treatment of digestive system mucosa-associated diseases	Humulene is a molecule found in hops, cannabis, sage and ginseng. This is one of the few examples of targeting the gut barrier to improve digestive health.	Inje University Foundation	WO2019135569A1
A composition and uses thereof	This is one of a select few patents we see in the landscape over the past few years focused in on colostrum prebiotics targeting IBS.	Agriculture And Food Development Authority	WO2019086613A1





Title	IPSYNERGY [®] INSIGHTS	Owner	Link
Human milk oligosaccharides and synthetic compositions thereof for microbiota modulation	Glycom is a world leader in human milk oligosaccharides, developing synthetic versions for digestive health outcomes for all ages. One product, Hologos, is targeted towards IBS and gut discomfort issues. This new patent is directed towards metabolic health, food intolerances and gut inflammation. In this article , Glycom is said to be working on HMOs to treat headaches and mental performance in adults. Recently acquired for 840 million US dollars, and with already 4 HMOs on the market, they have plans to launch two new synthetic HMOs in 2020, and another two in 2021.	Glycom A/S	WO2019106620A1
Human milk oligosaccharides for treating migraine	As referenced directly above, Glycom has this new patent towards using synthetic human milk oligosaccharides to treat migraines through the gut microbiome. It is fascinating to see HMOs moving beyond application in infant formula into high value application for the general public, and for health outcomes not previously explored through the gut microbiome.	GLYCOM A/S	WO201911115A2
Probiotics for cognitive and mental health	This new patent continues DuPont's focus on actively targeting the gut-brain axis through probiotics.	Dupont Nutrition Biosciences Aps	WO2019121666A1
Starter culture containing mixture of lactic acid bacteria strains...	This fascinating patent describes a novel mix of probiotics that modifies the gut microbiome to improve exercise performance and reduce fatigue. Synbio Tech is already selling a product targeting exercise performance using a single probiotic strain isolated from Kimchi, so this patent appears to be their latest improvement to their technology.	Synbio Tech Inc.	US20200008437A1
Human dietary supplement and method for treating digestive system and immune-related disorders	Freedom Health LLC is a veterinary company , so it is interesting to see this patent having focus towards human digestive health outcomes.	Freedom Health, Llc	US20200113858A1
Galactooligosaccharide prebiotic composition for treating or preventing gastrointestinal tract diseases	This patent, targeted at treating constipation and improving the digestive tract flora is owned by New Fransico Biotechnology Company, based in Taiwan that specialises in oligosaccharide R&D for many different food applications.	Yunfu Xinjinshan Biotechnology Co., Ltd.	CN109718289A
Use of russule extract in preparing preparation for treating and/or preventing intestinal flora disorder and related diseases	A great example of Western science being used to prove digestive health benefits of THM foods (in this case a red mushroom extract). The patent is co-owned by two companies, one of which is Guangdong Yuewei Edible Fungi Tech with a staggering 251 patents to its name!	Guangdong Institute of Microbiology	CN109758485A

Title	IPSYNERGY [®] INSIGHTS	Owner	Link
Oligo-saccharide enhanced milk products having the functions of modulating blood lipid, improving intestinal flora and promoting immunity...	We also reported this patent in this year's Immunity Patent Landscape. It is interesting because it uses enzyme technology to convert lactose (an allergen) into a prebiotic for overall digestive health, metabolic and immunity health outcomes, helping dairy companies to differentiate with added digestive benefits. It is unclear if related, but Novozymes has recently launched a commercial product based on the same approach.	A.G.V. Products Corp.	US20190090500A1
Probiotic composition for relieving lactose intolerance...	In a different approach to A.G.V. Product Corps patent (directly above), this Chinese company has developed a probiotic that relieves lactose intolerance.	Guangzhou Puwei Junjian Pharmaceutical Co., Ltd.	CN109757731A
Composition for improving intestinal microbial flora containing radish extract as an active ingredient	This patent, which describes the use of a radish extract, is one of many examples in the patent landscape where the extract targets the gut microbiome with metabolic health outcomes such as weight, blood cholesterol & triglyceride reduction.	Korea (Director of Rural Development Administration)	KR1020190052972A
Functional beverage containing bamboo leaf flavonoid and capable of adjusting intestinal microecology...	An interesting example from China using bamboo leaf extracts containing oligosaccharides for beneficial modifications to the gut microbiota.	Anji Eggersi Biotechnology Co., Ltd.	CN110050925A
Blueberry fruit beverage	An example of both blueberry and sweet potatoes used together to target digestive health, perhaps an opportunity for NZ to explore.	Guangdong Aichen Biological Technology Co., Ltd.	CN110236056A
Noni fruit polysaccharide, preparation method and applications thereof	This patent describes the use of Noni extracted polysaccharides to prevent or treat IBS. Noni is a fruit well known in Pacific Islands and associated with digestive health. Asian visitors often bring Noni beverages home with them after vacation, given the strong health links. It is great to see companies investing in R&D to further develop technology based on the Noni fruit.	Guangdong Pharmaceutical University	CN110256587A



Title	IPSYNERGY [®] INSIGHTS	Owner	Link
Bifidobacterium lactis and application thereof	This is a fascinating approach to digestive comfort, using a novel <i>Bifidobacterium</i> strain isolated from a remote Chinese community in Bama county which many believe hold the secrets to health & wellness, and life longevity.	Guangdong Yikewei Health Technology Co., Ltd.	CN110317761A
Seaweed dietary fiber beverage with function of improving intestinal tract, and preparation method thereof	An interesting example of a THM approach to relieving constipation using seaweed derived fibre.	Tangshan Caofeidian Hengrui Marine Biotechnology Industry Co., Ltd.	CN110326730A
Fish protein hydrolysate powder and a composition comprising said powder for use as a medicament	This patent uses fish protein hydrolysates to prevent oxidative damage of the gastro-intestinal tract, and highlights IBS as a key target. Norway's Hofseth Biocare marine company develops high value ingredients for health, although we are yet to see commercialisation of this patented food-health relationship.	Hofseth Biocare Asa	WO2019245380A1
Bovine milk oligosaccharides	This patent is focused on isolated bovine milk oligosaccharides to use to beneficially alter the gut microbiome, as a distinct alternative to human milk oligosaccharides. As of yet, there does not appear to be any move to commercialise this technology. Regardless, we should keep a close eye on this, and even consider potential partnerships with this university group to accelerate R&D with perhaps a NZ dairy twist.	The Regents Of The University Of California	HK1260295A
Composition for improving intestinal environment and method for improving intestinal flora	Suntory has taken a unique approach of using extracts from hops , namely isoxanthohumol and / or xanthohumol flavanoids as prebiotics to target the gut microbiome, leading to beneficial suppression of insulin resistance.	Suntory Holdings Limited	WO2020031957A1
Composition comprising oil palm phenolics for use in the treatment and prevention of colon diseases and for promoting and maintaining gut and general health	The Malaysian Palm Oil Board has filed a patent describing the use of oil palm fruit extracts that promotes digestive health through positive changes in the gut microbiome and SCFA production, as well as reduction in inhibition occurrence of colorectal cancer. They have also published a recent paper relating to animal study in rats .	Malaysian Palm Oil Board (Mpob)	WO2020036483A1



4. CASE STUDIES





4.1. Case Study 1: An Australian Approach to Gut Health ([WO2019136518](#))

WHAT IS THE PATENT ABOUT?

With a [total patent portfolio valuation of US\\$12.8M](#), Arista Cereal Technology's latest [patent](#) aims to protect a wheat grain from its new wheat species with genetic variants that provides increased content of B-glucan, arabinoxylan and cellulose, and reduced levels of amylopectin compared wild-type wheat grain.

The health benefits are described as being towards bowel health (e.g. increased SCFA amount, improved microbiome diversity, and reduced bowel inflammation) as well as linkages to metabolic health including reduced glucose fluctuation, lowered glycemic response, reduced blood lipid profile, and lowered plasma LDL cholesterol.

WHAT ELSE DO WE KNOW ABOUT THE COMMERCIAL LANDSCAPE?

Arista Cereal Technologies was spun out of CSIRO and relates to a high amylose wheat with significant patent and plant variety rights to protect its valuable IP filed since 2010. [A CSIRO press release on 7 May 2020 outlined](#) that the company is set for global market opportunities after successful launches in the USA, in tortillas, pasta and pizza bases. This follows [dismissal of a patent challenge from Arcadia](#) against Arista's US patent, then followed by a [collaboration announcement](#) with Arcadia for global commercialisation outside of the USA (licensed to Bay State Milling).

WHAT CLINICAL TRIALS HAVE BEEN PERFORMED?

CSIRO has [published the results](#) of Arista Cereal Technologies's human clinical trial on glycemic response, showing dampened glycemic in the test group compared to control.

HVN LEARNINGS & OPPORTUNITIES

This is a great example where two areas of HVN specialities (Digestive health and Metabolic Health) can merge together. We should similarly be focusing to leverage foods that target multiple outcomes such as this.

Developing this type of competitive difference will take a long time, so in order to be competitive, it is critical to secure defensible IP through patents and plant variety rights.



4.2. Case Study 2: FrieslandCampina's Global Commercialisation of a Patented Prebiotic



[FrieslandCampina announced in late May 2020](#) that its ingredients business is launching Biotis GOS (its published prototypes are shown above), based on its galacto-oligosaccharide prebiotic. Its focus will be on digestive health claims based on clinical evidence to support benefits on bloating, constipation, and IBS. However, the company says it will subsequently branch out into immunity, sleep maternal care as the clinical evidence and applications are developed.

We found two patents relating to the company's IP surrounding GOS. [This patent family](#) filed in 2012 relates to methods of producing sialylated oligosaccharides which seems most directed towards infant health, with 24 patent rights globally including New Zealand. We found a [second relevant patent family](#) filed in 2014 which has been extended into about 10 countries, also including New Zealand. It relates to the enzymatic conversion of lactose from dairy into GOS, which we have already highlighted in the corresponding immune health patient insight report this year. We suspect the company relies on this manufacturing approach to product the GOS ingredient.



4.3. Case study 3: Polylactose as a Functional Prebiotic ([WO2020006443](#))

WHAT IS THE PATENT ABOUT?

University of Minnesota has filed a [patent application](#) directed towards a molecule they term “polylactose”. It is a prebiotic dietary fibre converted from lactose through a non-enzymatic extrusion process. They show convincing evidence of positive microbiome effects and preventative effects towards inflammation and metabolic diseases.

The patent suggests that their polylactose is a significantly more effective prebiotic compared to polydextrose and FOS, currently considered as being the best prebiotics known.

Another described advantage is that the resulting polydextrose powder is tasteless, and can be used to fortify a wide range of food products.



WHAT IS HAPPENING COMMERCIALY?

In June 2019, the group’s clinical trial results were published in [Current Developments in Nutrition](#).

In September 2019 a [press release](#) issued, highlighting the group’s research and potential for human nutrition. In it they highlight the commercial benefit of using lower-value dairy whey streams containing lactose to develop a high value nutritional ingredient.

The technology is being advertised for commercial development on [Leading Edge Only](#), an Innovation marketplace platform.

We find it very insightful seeing this new technology alongside [A.G.V. Products Corp’s enzyme patented approach](#) to achieving the same outcome, and perhaps linked to [Novozyme’s commercial product](#).

HVN LEARNINGS & OPPORTUNITIES

- We should not forget to consider leveraging off other technology such as this to boost our already world-renowned dairy industry to develop new, beneficial functional outcomes.
- This is also a great example of using science and by-products to heighten the innate, natural goodness of dairy.

5. BULL'S EYE PATENTS

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Microbial lysozyme for use in the treatment of irritable bowel syndrome or inflammatory bowel disease	EP3565582A1	2019-11-13	Novozymes a/s	IBS/IBD focused	protein / amino acid / peptide	Non specific	Western based
Oligo-saccharide enhanced milk products having the functions of modulating blood lipid, improving intestinal flora and promoting immunity, and process for preparing the same	US2019009050 0A1	2019-03-28	A.G.V. products corp.	Immunity link General digestive health Metabolic health link Microbiota focused	protein / amino acid / peptide	Dairy	Western based
Isomalto-oligosaccharide prebiotic formulations	CN110167362 A	2019-08-23	Bodybuilding Laboratory Co., Ltd.	General gut discomfort / symptoms Bloating	prebiotic probiotic	Non specific	Western based
Human milk oligosaccharides and synthetic compositions thereof for microbiota modulation	WO201910662 0A1	2019-06-06	Glycom a/s	IBS/IBD focused Gut brain / depression / anxiety General digestive health Metabolic health link	prebiotic	Dairy	Western based
Probiotics for cognitive and mental health	WO201912166 6A1	2019-06-27	Dupont Nutrition Biosciences Aps	Gut brain / depression / anxiety	probiotic	Non specific	Western based
A combination product for prophylaxis and treatment of irritable bowel syndrome	WO201914557 0A1	2019-08-01	Alimentary Health Limited	IBS/IBD focused Gut brain / depression / anxiety	probiotic	Non specific	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Methods for improving the microbiome and its systemic effect involving administration of carotenoids, specifically lycopene	WO2019207316A1	2019-10-31	IP Science Limited	Microbiota focused	prebiotic	Non specific	Western based
Liquid dairy product containing galactooligosaccharide	CN109479967A	2019-03-19	Xuzhou Huierkang Food Co., Ltd.	General digestive health	prebiotic	Dairy	Western based
Diet therapy formula for treating constipation by utilizing mulberries	CN109511912A	2019-03-26	Wang Fangping	Constipation / Intestinal motility	natural plant extract / phytochemical	Berries	Western based
Diet therapy formula for treating insomnia and forgetfulness by utilizing mulberries	CN109511963A	2019-03-26	Wang Fangping	Gut brain / depression / anxiety	natural plant extract / phytochemical	Berries	Western based
Product rich in whey proteins and polypeptides and preparation method and applications thereof	CN109527595A	2019-03-29	Zhejiang University of Traditional Chinese Medicine	Microbiota focused	protein / amino acid / peptide	Dairy	Western based
Galactooligosaccharide prebiotic composition for treating or preventing gastrointestinal tract diseases	CN109718289A	2019-05-07	Yunfu Xinjinshan Biotechnology Co., Ltd.	Immunity link Microbiota focused Constipation / Intestinal motility	prebiotic probiotic natural plant extract / phytochemical	Non specific	Traditional Herbal Medicine

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Use of russule extract in preparing preparation for treating and/or preventing intestinal flora disorder and related diseases	CN109758485 A	2019-05-17	Guangdong Institute of Microbiology (Guangdong Microbiological Analysis and Testing Center) Guangdong Yuewei Edible Fungi Technology Co., Ltd.	Immunity link Microbiota focused Inflammation	natural plant extract / phytochemical	Non specific	Traditional Herbal Medicine
Composition for improving intestinal microbial flora containing radish extract as an active ingredient	KR1020190052972A	2019-05-17	Korea (Director of Rural Development Administration)	Metabolic health link Microbiota focused	prebiotic	Non specific	Western based
Grain-powder probiotic brewing drinking formula	CN109998011 A	2019-07-12	Weilidao (Shanghai) Enterprise Management Co., Ltd.	Microbiota focused	prebiotic probiotic protein / amino acid / peptide	Non specific	Western based
High amylose wheat - iv	WO2019136518A1	2019-07-18	Arista Cereal Technologies Pty Ltd	General digestive health Metabolic health link	prebiotic	Baking	Western based
Extraction method of dietary fiber from sweet potato dregs as well as application thereof in adjusting intestinal flora	CN110025015 A	2019-07-19	Jiangsu Normal University	General digestive health Microbiota focused	prebiotic	Kumara	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Fresh cow milk beverage containing fructooligosaccharide	CN110050838 A	2019-07-26	Chongqing Xiuxian Biological Technology Co., Ltd.	Microbiota focused Allergen sensitivity	prebiotic	Dairy	Western based
Honey pomelo composite enzyme and processing technology thereof	CN110089743 A	2019-08-06	Chongqing Kangtai Biotechnology Co., Ltd.	Constipation / Intestinal motility	prebiotic probiotic natural plant extract / phytochemical	Honey Berries	Western based
Functional food additive for promoting intestinal tract to generate short-chain fatty acids and beneficial bacteria	CN110089756 A	2019-08-06	Huazhong Agricultural University	General digestive health Microbiota focused	prebiotic	Berries	Western based
Use of short-chain fatty acids for the treatment of bacterial superinfections post-influenza	WO201914972 7A1	2019-08-08	Inserm (National Institute Of Health And Medical Research) Institut Pasteur De Lille National Center For Scientific Research (Cnrs) Federal Universidade Of Minas Gerais - Ufmg, University Of Lille	Immunity link Microbiota focused	prebiotic	Non specific	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Formulation and method of use	WO2019153046A1	2019-08-15	Atp Institute Pty Ltd	General digestive health Microbiota focused	natural plant extract / phytochemical	Berries	Western based
Dietary fiber yoghurt milk beverage and preparation method thereof	CN110200073A	2019-09-06	Sichuan Agricultural University	Microbiota focused Constipation / Intestinal motility	probiotic	Dairy	Western based
Seaweed dietary fiber beverage with function of improving intestinal tract, and preparation method thereof	CN110326730A	2019-10-15	Tangshan Caofeidian Hengrui Marine Biotechnology Industry Co., Ltd.	Constipation / Intestinal motility	natural plant extract / phytochemical	Seafood / Marine	Traditional Herbal Medicine
Formula and preparing method of kelp dietary fiber bread	CN110353010A	2019-10-22	Sun Yang	General digestive health Constipation / Intestinal motility	prebiotic	Seafood / Marine Baking	Traditional Herbal Medicine
Gastrointestinal nutrition digestion and absorption regulator	CN110558564A	2019-12-13	Zhejiang University	General digestive health	prebiotic natural plant extract / phytochemical	Kiwifruit	Western based
Lactobacillus fermenti beverage juice and preparation method thereof	CN110558465A	2019-12-13	Shanghai Yingku Business Consulting Co., Ltd.	Microbiota focused Constipation / Intestinal motility Gut barrier	probiotic	Non specific	Western based
Preparation for the treatment of inflammatory bowel disease using a whole plant fibre extract from sugarcane	WO2019237152A1	2019-12-19	University Of Tasmania	IBS/IBD focused	probiotic natural plant extract / phytochemical	Non specific	Western based
Polylactose, a prebiotic dietary fiber	WO2020006443A1	2020-01-02	Regents Of The University Of Minnesota	Metabolic health link Microbiota focused	prebiotic	Dairy	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Preparation method of fermented prebiotic yoghurt beverage	CN110637881 A	2020-01-03	Zhejiang Liziyuan Food Co., Ltd.	Microbiota focused	prebiotic	Dairy	Western based
Bovine milk oligosaccharides	HK1260295A	2019-12-13	The Regents Of The University Of California	Microbiota focused	prebiotic	Dairy	Western based
Prebiotic composition for rapidly multiplying intestinal beneficial bacteria	CN110710690 A	2020-01-21	Shanghai Laiyi Biopharmaceutical Research and Development Center Co., Ltd.	Microbiota focused	prebiotic	Non specific	Western based
Composition for improving intestinal environment and method for improving intestinal flora	WO202003195 7A1	2020-02-13	Suntory Holdings Limited	Microbiota focused	prebiotic	Non specific	Western based
Microbial lysozyme for use in the treatment of irritable bowel syndrome or inflammatory bowel disease	IN2019470313 75A	2020-02-21	Novozymes A/S	IBS/IBD focused	protein / amino acid / peptide	Non specific	Western based

6. HALO PATENTS

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Gluten-related disorders	AU2018203543 B2	2020-02-27	H.J. Heinz Company Brands Llc	Allergen sensitivity	probiotic	Baking	Western based
Composition & Methods of Screening	AU2018208701 B2	2020-05-14	Optibiotix Limited	General digestive health	prebiotic	Non specific	Western based
Treatment of intestinal dysbiosis with immunoglobulin	US2020010918 5A1	2020-04-09	Simon, Michael R.	General digestive health	protein / amino acid / peptide	Dairy	Western based
Alcoholic beverage composition containing bacillus coagulans	US2019008527 7A1	2019-03-21	Sami Labs Limited	IBS/IBD focused General digestive health	probiotic	Non specific	Western based
Composition for preventing or improving functional gastrointestinal disorders, and, pharmaceutical composition, food/ beverage composition, and method of preventing or improving functional gastrointestinal disorders using the composition for preventing or improving functional gastrointestinal disorders	US2019029790 9A1	2019-10-03	Morinaga Milk Industry Co., Ltd.	General gut discomfort / symptoms Gut brain / depression / anxiety Bloating Constipation / Intestinal motility	probiotic	Dairy	Western based
Compositions of hydrolyzed collagen peptides and commensal microorganisms and methods thereof	US2020006976 2A1	2020-03-05	University Of Rochester Rousselot B.V.	Other Microbiota focused	probiotic protein / amino acid / peptide	Non specific	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Lactobacillus fermentum kbl 375 strain and use thereof	WO2019103198 A1	2019-05-31	Kobiolabs, Inc.	Gut barrier	probiotic	Non specific	Western based
Composition containing alpha-humulene as active ingredient for prevention or treatment of digestive system mucosa-associated diseases	WO2019135569 A1	2019-07-11	Inje University Industry-Academic Cooperation Foundation	Gut barrier	natural plant extract / phytochemical	Non specific	Western based
Extract obtained from several plants for use in the prevention and/or treatment of chronic inflammatory bowel diseases	WO2019141802 A1	2019-07-25	Valbiotis Universite Clermont Auvergne	IBS/IBD focused	natural plant extract / phytochemical	Non specific	Western based
Lactobacillus mixed with xylooligosaccharides, cellobiose and/or gentiooligosaccharides	WO2019102218 A3	2019-08-01	Optibiotix Limited	General digestive health	synbiotics	Non specific	Western based
Actinidia chinensis planch. fermented extracts and the use thereof in a composition for increasing the antioxidant activity, increasing the Anti-glycation activity, increasing the activity of proteolytic enzymes, improving the gastrointestinal dyspepsia, and increasing the gastrointestinal flora diversity	TW202011976A	2020-04-01	Tci Co., Ltd	Microbiota focused	natural plant extract / phytochemical	Non specific	Traditional Herbal Medicine

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Composition for the treatment of constipation	WO2019063671 A1	2019-04-04	Neilos S.R.L.	Constipation / Intestinal motility	prebiotic	Non specific	Western based
Composition for the treatment of constipation	WO2019063666 A1	2019-04-04	Neilos S.R.L.	Constipation / Intestinal motility	prebiotic	Non specific	Western based
Food for improving intestinal environment	WO2019070061 A1	2019-04-11	Ajinomoto Co., Inc.	Microbiota focused	prebiotic	Non specific	Western based
A composition and uses thereof	WO2019086613 A1	2019-05-09	Agriculture And Food Development Authority (Teagasc)	IBS/IBD focused Immunity link	protein / amino acid / peptide	Dairy	Western based
Fermentation method of lactic acid bacteria using fruit of Prunus sp. and its use	KR1020190051 275A	2019-05-15	Shin Hong Sik	Microbiota focused Constipation / Intestinal motility	natural plant extract / phytochemical	Non specific	Traditional Herbal Medicine
Composition comprising agathobaculum sp. strain as effective ingredient for prevention, alleviation, or treatment of autism spectrum disorder	WO2019117616 A1	2019-06-20	Korea Research Institute Of Bioscience And Biotechnology	Gut brain / depression / anxiety	probiotic	Non specific	Western based
Dietary supplement and uses thereof	EP3513665A1	2019-07-24	Omega Pharma Innovation And Development Nv	Metabolic health link	prebiotic probiotic	Non specific	Western based
Lactobacillus plantarum DP189 and application thereof	CN110066753A	2019-07-30	Jilin Academy of Agricultural Sciences	Gut brain / depression / anxiety	probiotic	Non specific	Western based
Probiotic composition	WO2019166985 A1	2019-09-06	Propharma Simplified Limited Liability Company	IBS/IBD focused Diarrhoea	prebiotic probiotic	Non specific	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Composition for improving intestinal environment, suppressing weight gain by suppressing high fat diet or suppressing H. pylori	JP6596135B2	2019-10-23	Max Pro Bio Inc.	General digestive health	prebiotic probiotic	Baking	Western based
Novel bacteroides vulgatus strain and composition, for preventing, relieving or treating immune and metabolic diseases, having same as active ingredient	WO2019203625 A1	2019-10-24	Seoul National University R&Db Foundation Kobiolabs, Inc.	Metabolic health link Microbiota focused	probiotic	Non specific	Western based
A composition as a prebiotic for improving intestinal microflora containing corchorous olitorius	KR102036860B 1	2019-10-25	Korea Food Research Institute	Microbiota focused	natural plant extract / phytochemical	Non specific	Traditional Herbal Medicine
Application of the alcohol extract of Pleurotus oleracea in preparation of medicine for treating inflammatory bowel disease	CN107582574B	2019-12-24	Guilin Medical College	IBS/IBD focused colitis	natural plant extract / phytochemical	Non specific	Traditional Herbal Medicine
Starter culture containing mixture of lactic acid bacteria strains, and fermented product prepared using such starter culture and use of this fermented product	US2020000843 7A1	2020-01-09	Synbio Tech Inc.	Gut brain / depression / anxiety Microbiota focused	probiotic	Non specific	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Human dietary supplement and method for treating digestive system and immune-related disorders	US20200113858A1	2020-04-16	Freedom Health, Llc	Microbiota focused Gut barrier	natural plant extract / phytochemical	Non specific	Western based
Liquid healthy beverage containing chitosan oligosaccharide and preparation method and application of liquid healthy beverage containing chitosan oligosaccharide	CN109480132A	2019-03-19	Hubei Mingtai Health Science Co., Ltd.	Metabolic health link Microbiota focused	prebiotic	Non specific	Western based
Low-sugar soybean oat powder with intestinal barrier protection function, and preparation method of low-sugar soybean and oat powder	CN109497556A	2019-03-22	Zhejiang Huakang Pharmaceutical Co., Ltd.	Gut barrier	prebiotic	Non specific	Western based
Radix sophorae flavescens residue polysaccharide synbiotics and preparation method and application thereof	CN109497558A	2019-03-22	Nanjing University of Chinese Medicine	Microbiota focused	probiotic natural plant extract / phytochemical	Non specific	Traditional Herbal Medicine
Cruciferous plant beverage rich in sulforaphane and preparation method thereof	CN109527283A	2019-03-29	Qiqihar University	Microbiota focused	prebiotic	Non specific	Western based
Pure natural green health-care food	CN109527536A	2019-03-29	Yan Guohua	General digestive health Microbiota focused	other (often THM concoction)	Kiwifruit Kumara Berries	Traditional Herbal Medicine

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Mouth odor refreshing solid drink containing dendrobium officinale prebiotics and probiotics	CN109527318A	2019-03-29	Wenling Jinhua Dendrobium officinale Co., Ltd.	Microbiota focused	prebiotic probiotic	Non specific	Western based
Probiotic formula goat milk powder and preparation method thereof	CN109527096A	2019-03-29	Shaanxi University of Science and Technology Shaanxi Yatai Dairy Co., Ltd.	Microbiota focused	probiotic protein / amino acid / peptide	Dairy	Western based
Lactic acid bacteria formula goat milk powder and preparation method thereof	CN109527098A	2019-03-29	Shaanxi University of Science and Technology Shaanxi Yatai Dairy Co., Ltd.	Microbiota focused	probiotic protein / amino acid / peptide	Dairy	Western based
Chinese yam and rice porridge for treating postnatal constipation	CN109566976A	2019-04-05	Wang Youchun	Constipation / Intestinal motility	prebiotic	Kumara	Traditional Herbal Medicine
Bifidobacterium longum YH295 and application thereof in preparation of product for reducing abdominal obesity risk	CN109593678A	2019-04-09	Jiaying Yinuokang Biological Technology Co., Ltd. Haibiyou Group Company	Metabolic health link Microbiota focused Inflammation	probiotic	Non specific	Western based
Compound probiotic with rapid improvement of gastrointestinal function	CN109602018A	2019-04-12	Beijing Oriental Beili Nutrition Technology Co., Ltd.	Gut brain / depression / anxiety General digestive health Microbiota focused	prebiotic probiotic	Non specific	Western based
Multigrain flour and preparation process thereof	CN109601832A	2019-04-12	Juancheng Jianfa Noodle Industry Co., Ltd.	General digestive health	prebiotic	Baking	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Composition capable of adjusting intestinal flora and preparation method of composition	CN109601859A	2019-04-12	Jiangsu Tianfu Biotechnology Co., Ltd.	Microbiota focused	prebiotic probiotic	Non specific	Western based
Preparation method of nutritious meal	CN109619486A	2019-04-16	Wang Guihua	Constipation / Intestinal motility	prebiotic	Kumara	Traditional Herbal Medicine
Fig-flavored enzyme rich in dietary fiber and preparation method thereof	CN109619568A	2019-04-16	Sichuan Jiurentai Technology Co., Ltd.	General digestive health	prebiotic probiotic natural plant extract / phytochemical	Berries	Western based
Probiotic composition with laxative effect and preparation method and application thereof	CN109619540A	2019-04-16	Shandong Tanker Biotechnology Co., Ltd.	Microbiota focused Constipation / Intestinal motility	prebiotic probiotic	Non specific	Traditional Herbal Medicine
Biological functional soybean peptide for improving intestinal microorganisms and preparation method thereof	CN109619263A	2019-04-16	Jiangsu Quanying Biotechnology Co., Ltd. Jiangnan University	Microbiota focused	prebiotic	Non specific	Western based
Functional beverage for regulating intestinal flora	CN109619185A	2019-04-16	Shanghai Lanming Food Technology Co., Ltd.	Microbiota focused	prebiotic probiotic natural plant extract / phytochemical	Dairy Honey	Traditional Herbal Medicine
Ready-to-eat instant powder for regulating intestinal flora and preparation method	CN109619407A	2019-04-16	Anhui Yanzhifang Food Co., Ltd.	Immunity link General digestive health Metabolic health link Microbiota focused	prebiotic	Non specific	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Solid functional beverage based on soybean peptide protein powder and preparation method of beverage	CN109619358A	2019-04-16	Zhongci Health Products Technology Development Co., Ltd.	Constipation / Intestinal motility	prebiotic protein / amino acid / peptide	Non specific	Western based
Composition containing probiotic bacteria and prebiotics and application thereof	CN109619595A	2019-04-16	Tianjin Vigor Biotech Co., Ltd.	Microbiota focused	synbiotics	Non specific	Western based
Hotpot condiment containing medium chain triglyceride and preparation method thereof	CN109645424A	2019-04-19	Yihai (Shanghai) Food Co., Ltd.	Microbiota focused	natural plant extract / phytochemical lipids / phospholipids	Non specific	Western based
Pycnoporus sanguineus extract and extracting method and application thereof	CN109646464A	2019-04-19	Guangdong Institute of Microbiology (Guangdong Microbiological Analysis and Testing Center) Guangdong Yuewei Edible Fungus Technology Co., Ltd. Infinitus (China) Co., Ltd.	IBS/IBD focused	natural plant extract / phytochemical	Non specific	Traditional Herbal Medicine
Probiotic solid beverage having health-care function and preparation method thereof	CN109662228A	2019-04-23	Guangzhou Jinye Health Technology Co., Ltd.	Immunity link General digestive health	prebiotic probiotic	Non specific	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Ferment with function of loosening bowel to relieve constipation and preparation method and application thereof	CN109662311A	2019-04-23	Wuhan Senlan Biological Technology Co., Ltd.	Microbiota focused Constipation / Intestinal motility	prebiotic probiotic natural plant extract / phytochemical	Berries	Traditional Herbal Medicine
Solid beverage with function of losing weight and preparation method thereof	CN109662152A	2019-04-23	Xi'an Yuansen Biological Technology Co., Ltd.	Microbiota focused Constipation / Intestinal motility	prebiotic	Dairy Berries	Traditional Herbal Medicine
Method for manufacturing a composition for enhancing intestinal environment and composition manufactured by the method	KR101945207B1	2019-04-17	Im Soon-taek	Microbiota focused	prebiotic	Berries	Western based
Peony ferment for improving digestive function of intestinal tracts and production method of peony ferment	CN109700017A	2019-05-03	Zhongkang Hengtong (Beijing) Pharmaceutical Technology Co., Ltd.	Constipation / Intestinal motility	other (often THM concoction)	Kumara Berries	Traditional Herbal Medicine
Nutrient composition for cleaning intestines and expelling toxin of intestines	CN109700031A	2019-05-03	Zhongen (Tianjin) Pharmaceutical Technology Co., Ltd.	Constipation / Intestinal motility	prebiotic	Honey	Western based
Honey containing Chinese globe flower component and obtained from Chinese globe flower source, and preparing method and use of the honey	CN109699979A	2019-05-03	Guangdong Dapeng Pharmaceutical Technology Co., Ltd.	Constipation / Intestinal motility	other (often THM concoction)	Honey	Traditional Herbal Medicine

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Probiotic composition for regulating intestines and preventing constipation and preparation method of probiotic composition	CN109700033A	2019-05-03	Shandong Huanyi Biotechnology Co., Ltd.	Microbiota focused Constipation / Intestinal motility	probiotic	Non specific	Western based
Application of L-tryptophan in alleviating intestinal inflammatory response and intestinal barrier dysfunction	CN109718234A	2019-05-07	China Agricultural University	Inflammation	protein / amino acid / peptide	Non specific	Western based
One or more hmos for reducing or preventing fatigue and/or improving focus or concentration	WO2019087140 A1	2019-05-09	Glycom A/S	Gut brain / depression / anxiety	prebiotic	Non specific	Western based
Application of codonopsis pilosula polysaccharide as medicine for regulating intestinal flora of human body	CN109745336A	2019-05-14	Lanzhou University	IBS/IBD focused	prebiotic	Non specific	Western based
Probiotic composition for relieving lactose intolerance and preparation method and application thereof	CN109757731A	2019-05-17	Guangzhou Puwei Junjian Pharmaceutical Co., Ltd.	Allergen sensitivity	probiotic	Dairy	Western based
Durian yogurt pudding	CN109770227A	2019-05-21	Sun Xiaofei	General digestive health	natural plant extract / phytochemical	Dairy	Western based
High-dietary-fiber composition and preparation method thereof	CN109793242A	2019-05-24	Hangzhou Saineng Pharmaceutical Technology Co., Ltd.	General gut discomfort / symptoms Microbiota focused Constipation / Intestinal motility Diarrhoea	prebiotic	Non specific	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Composition for preventing and/or curing gastrointestinal disorders	WO2019102437 A1	2019-05-31	Neilos S.R.L.	IBS/IBD focused Diarrhoea	synbiotics	Berries	Western based
Highly nutritious synbiotic dairy drinks based on grain amylopectin material with efficient antimicrobial properties and a process preparation thereof.	IN20192101522 1A	2019-05-10	Bharathwaj Sathyamoorthy Abhishek Cukkemane	General digestive health Microbiota focused	synbiotics	Dairy	Western based
Composition for preventing or treating inflammatory bowel disease (IBD) comprising dehydrocostus lactone as an active ingredient	KR1020190060 331A	2019-06-03	Korea Kolmar Corporation	colitis	natural plant extract / phytochemical	Non specific	Traditional Herbal Medicine
Yak lactic acid milk powder and preparation method thereof	CN109874869A	2019-06-14	Hezheng Hualong Dairy Products Co., Ltd.	Microbiota focused	prebiotic protein / amino acid / peptide	Dairy	Western based
Laoyou beef paste and preparation method thereof	CN109892635A	2019-06-18	Su Tingting	General digestive health Constipation / Intestinal motility Cramping / Pain	natural plant extract / phytochemical	Non specific	Traditional Herbal Medicine
Formula for maintaining activity of intestinal flora and having functions of expelling toxin and relaxing bowels and preparation method of prescription	CN109907314A	2019-06-21	Changchun Health Future Pharmaceutical Technology Co., Ltd.	Microbiota focused Cramping / Pain	prebiotic	Non specific	Western based
Novel compound probiotic food	CN109924505A	2019-06-25	Shanghai Ocean University	General digestive health	probiotic protein / amino acid / peptide	Non specific	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Use of donkey milk in preparation of food or medicines, and food and medicines for treating ulcerative colitis	CN109954000A	2019-07-02	China Agricultural University	colitis	other (often THM concoction)	Dairy	Western based
Composition having functions of loosening the bowels and relieving constipation as well as preparation method thereof	CN110013009A	2019-07-16	Dongfang Yaolin Pharmaceutical Co., Ltd.	Constipation / Intestinal motility	prebiotic natural plant extract / phytochemical	Berries	Traditional Herbal Medicine
Black fungus extract solid beverage formula for reducing weight, improving diarrhea and regulating flora and preparation method thereof	CN110024932A	2019-07-19	Harbin Qiuzhen Biological Technology Co., Ltd.	Microbiota focused Diarrhoea	prebiotic probiotic	Non specific	Western based
Formula for regulating immunity and enhancing physical strength and preparation method thereof	CN110037257A	2019-07-23	Guangdong Ausiriya Health & Beauty Biotechnology Co., Ltd.	Microbiota focused	prebiotic	Dairy	Traditional Herbal Medicine
Mucin generation promoter and fucosylation promoter, and food product composition containing same	WO2019142846 A1	2019-07-25	Asahi Group Holdings, Ltd.	General digestive health	natural plant extract / phytochemical	Baking	Western based
Functional beverage containing bamboo leaf flavonoid and capable of adjusting intestinal microecology and preparation method thereof	CN110050925A	2019-07-26	Anji Eggarsi Biotechnology Co., Ltd.	Microbiota focused	natural plant extract / phytochemical	Non specific	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Formula for nutritious compound flour	CN110050945A	2019-07-26	Gu Mingyou	General digestive health	prebiotic	Baking	Western based
Preparation method of fermented apple juice for relieving intestinal flora imbalance	CN110050926A	2019-07-26	Shanxi Agricultural University	Microbiota focused	natural plant extract / phytochemical	Non specific	Western based
Eggshell membrane-containing powder and/or hydrolyzed eggshell membrane component-containing jelly food product	JP2019118321A	2019-07-22	Almade Co., Ltd.	Microbiota focused	other (often THM concoction)	Non specific	Western based
New use of ilexaponin A1	CN110123824A	2019-08-16	Capital Medical University	General digestive health Microbiota focused	natural plant extract / phytochemical	Non specific	Traditional Herbal Medicine
Artichoke enzyme, and preparation method and application thereof	CN110122859A	2019-08-16	Li Xianzhen	Metabolic health link Microbiota focused	prebiotic	Non specific	Western based
Water-soluble dietary fiber	CN110140971A	2019-08-20	Shandong Gold Bioengineering Co., Ltd.	Microbiota focused Constipation / Intestinal motility	prebiotic	Seafood / Marine	Western based
Polydextrose for the treatment of inflammatory diseases	WO2019158546 A1	2019-08-22	Inserm (National Institute Of Health And Medical Research) Paul Sabatier Toulouse Iii University	Inflammation	prebiotic	Dairy	Western based
Preparation method of soymilk product containing radix puerariae powder	CN110150386A	2019-08-23	Jiangxi University of Traditional Chinese Medicine	Constipation / Intestinal motility	prebiotic protein / amino acid / peptide	Dairy	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Health-care product for improving immunity and regulating intestinal functions and preparation method thereof	CN110150667A	2019-08-23	Ning Ling Technology Co., Ltd.	Immunity link General digestive health	prebiotic probiotic protein / amino acid / peptide	Seafood / Marine	Western based
Fructus lycii compound enzyme liquid and preparation method thereof	CN110169570A	2019-08-27	Gansu Gonghe Food Co., Ltd.	General digestive health	natural plant extract / phytochemical	Seafood / Marine Berries	Western based
Plant beverage and preparation method thereof	CN110200181A	2019-09-06	Jieyang Vocational and Technical College	General gut discomfort / symptoms	natural plant extract / phytochemical	Non specific	Traditional Herbal Medicine
Enzyme complex and preparation method and application thereof in intestinal tract function regulation	CN110226740A	2019-09-13	Xiao Qi	Microbiota focused	prebiotic	Non specific	Traditional Herbal Medicine
Blueberry fruit beverage	CN110236056A	2019-09-17	Guangdong Aichen Biological Technology Co., Ltd.	Metabolic health link Microbiota focused	prebiotic	Berries	Western based
Seabuckthorn fructo-oligosaccharide oral liquid and preparation method thereof	CN110250508A	2019-09-20	Wudi Zhenkang Biological Technology Co., Ltd.	Microbiota focused	prebiotic	Non specific	Traditional Herbal Medicine
Noni fruit polysaccharide, preparation method and applications thereof	CN110256587A	2019-09-20	Guangdong Pharmaceutical University	Gut barrier	prebiotic	Non specific	Western based
Preparation method of fermented milk with effects of relieving anxiety and improving sleep	CN110269098A	2019-09-24	Gangnam University	Gut brain / depression / anxiety Microbiota focused	probiotic	Dairy	Traditional Herbal Medicine

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Purple sweet potato nutritional noodles and preparation method thereof	CN110269187A	2019-09-24	Minle Fengyuan Potato Industry Co., Ltd.	Immunity link General digestive health Metabolic health link	prebiotic	Kumara	Traditional Herbal Medicine
Functional food for chronic constipation of middle-aged and elderly people	CN110279814A	2019-09-27	Hubei Hongwei Agricultural Co., Ltd.	Constipation / Intestinal motility	prebiotic	Kiwifruit Honey Kumara	Traditional Herbal Medicine
Fruit and vegetable enzyme beverage for clearing intestinal detoxification and preparation method thereof	CN110279050A	2019-09-27	Lu Shanling	Constipation / Intestinal motility	natural plant extract / phytochemical	Kiwifruit Honey Kumara	Traditional Herbal Medicine
Lactobacillus paracasei having anti-inflammatory effects on intestinal epithelial cells, and compositions for treating and preventing inflammatory bowel disease comprising thereof	KR1020190111582A	2019-10-02	Bio-Eleven Co., Ltd.	IBS/IBD focused	probiotic	Non specific	Western based
Lactobacillus fermentum having anti-inflammatory effects on intestinal epithelial cells, and compositions for treating and preventing inflammatory bowel disease comprising thereof	KR1020190111584A	2019-10-02	Bio-Eleven Co., Ltd.	IBS/IBD focused	probiotic	Non specific	Western based
Preparation method of Chinese yam ginger juice yogurt	CN110313519A	2019-10-11	Henan University of Technology	Immunity link General digestive health Diarrhoea	natural plant extract / phytochemical	Kumara	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Bifidobacterium lactis and application thereof	CN110317761A	2019-10-11	Guangdong Yikewei Health Technology Co., Ltd.	Cramping / Pain	probiotic	Non specific	Western based
Probiotic beverages containing a cannabinoid	WO2019199708 A1	2019-10-17	Hydro One Llc	Microbiota focused	prebiotic probiotic natural plant extract / phytochemical	Non specific	Western based
Complex synbiotic for establishing healthy intestinal flora	EP3556226A1	2019-10-23	Raab Vitalfood Gmbh	Microbiota focused	prebiotic probiotic	Non specific	Western based
Synbiotic compositions	WO2019206820 A1	2019-10-31	Evonik Degussa Gmbh	General gut discomfort / symptoms IBS/IBD focused	synbiotics protein / amino acid / peptide	Non specific	Western based
Carrot and chicory composite nutrient beverage and preparation method thereof	CN110393243A	2019-11-01	Bo Hai university	Immunity link Microbiota focused	prebiotic	Non specific	Western based
Composition of prebiotics with β -L-fucopyranosyl-(1 \rightarrow 3)-O-D-galactopyranose	KR102029263B 1	2019-11-08	Bifido Corporation	Microbiota focused	prebiotic	Non specific	Western based
A composition as a prebiotic for improving intestinal microflora containing extract from pepper leaves	KR102042151B 1	2019-11-07	Korea Food Research Institute	Microbiota focused	prebiotic natural plant extract / phytochemical	Non specific	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Composite solid plant beverage for improving intestinal bacterial flora and preparation method thereof	CN110447799A	2019-11-15	Beijing Beifeiruide Health Technology Co., Ltd.	Microbiota focused	prebiotic	Berries	Western based
A composition as a prebiotic for improving intestinal microflora containing High-molecular fraction from radish leave	KR102048434B1	2019-11-25	Korea Food Research Institute	General digestive health Microbiota focused	prebiotic	Non specific	Western based
Solid beverage with functions of improving intestinal environment and alleviating constipation	CN110583944A	2019-12-20	Murray New (Tianjin) Biotechnology Co., Ltd.	Constipation / Intestinal motility	probiotic natural plant extract / phytochemical	Non specific	Traditional Herbal Medicine
Fish protein hydrolysate powder and a composition comprising said powder for use as a medicament	WO2019245380A1	2019-12-26	Hofseth Biocare Asa	IBS/IBD focused	protein / amino acid / peptide	Seafood / Marine	Western based
Food Supplement Comprising Prebiotic Fibers, Glutamine And Curcumin	FR3082424A1	2019-12-20	Copmed Laboratories	Immunity link Microbiota focused Cramping / Pain	prebiotic	Non specific	Western based
Dietary Supplement As A Syrup Comprising Prebiotic Fibers And An Agave Syrup	FR3082423A1	2019-12-20	Ineldea Laboratories	General digestive health	prebiotic	Non specific	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Probiotic fermented honey and grapefruit composite drink and production technology thereof	CN110637958A	2020-01-03	Suzhou Industrial Park Fandao Food Technology Development Co., Ltd.	Immunity link General digestive health Microbiota focused	natural plant extract / phytochemical	Honey	Traditional Herbal Medicine
Active peptide compound wine and preparation method thereof	CN110664983A	2020-01-10	Wang Liangjun	Immunity link General digestive health Metabolic health link	protein / amino acid / peptide	Seafood / Marine	Traditional Herbal Medicine
Giant salamander active peptide nutrient composition capable of improving intestinal functions	CN110679955A	2020-01-14	Chengdu High-tech Zone Jiuzhou Huayun Medical Aesthetic Clinic Co., Ltd.	General digestive health Microbiota focused Constipation / Intestinal motility	natural plant extract / phytochemical protein / amino acid / peptide	Honey Berries	Traditional Herbal Medicine
Making method of health-care food capable of improving intestinal tract digestive functions	CN110679920A	2020-01-14	Foshan Sanshui District Minjun Food Co., Ltd.	General digestive health Constipation / Intestinal motility	natural plant extract / phytochemical protein / amino acid / peptide	Honey Seafood / Marine	Traditional Herbal Medicine
Preparation method of milk beverage	CN110679664A	2020-01-14	Gaozhou Hongxin Technology Co., Ltd.	Microbiota focused	prebiotic	Dairy Kumara Berries	Traditional Herbal Medicine
Soybean protein tofu with stomach invigorating and digestion promoting functions, and preparation method thereof	CN110692740A	2020-01-17	Shandong Yuwang Ecological Food Co., Ltd.	General digestive health	natural plant extract / phytochemical	Non specific	Western based
Probiotic health drink for relieving constipation	CN110692885A	2020-01-17	Shanghai Yingku Business Consulting Co., Ltd.	Immunity link Microbiota focused Constipation / Intestinal motility	probiotic lipids / phospholipids	Non specific	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Bacillus coagulans JY69 and method using Bacillus coagulans JY69 to produce active probiotics type mixed-berry pulp	CN110692719A	2020-01-17	Nanjing Shennongyuan Food Industry Co., Ltd.	Immunity link Microbiota focused Constipation / Intestinal motility	prebiotic probiotic	Berries	Western based
Composition with bowel relaxing function and preparation method thereof	CN110693946A	2020-01-17	Luan Yunpeng	Microbiota focused Constipation / Intestinal motility	natural plant extract / phytochemical	Non specific	Traditional Herbal Medicine
Functional yogurt and preparation method thereof	CN110710571A	2020-01-21	Shanghai Haoyue Food Technology Co., Ltd.	General digestive health Constipation / Intestinal motility Diarrhoea	probiotic protein / amino acid / peptide	Dairy	Western based
Composition comprising oil palm phenolics for use in the treatment and prevention of colon diseases and for promoting and maintaining gut and general health	WO2020036483 A1	2020-02-20	Malaysian Palm Oil Board (MPOB)	General digestive health Microbiota focused	prebiotic	Non specific	Western based
Probiotic combination for treatment of inflammatory-related gastrointestinal disorders	WO2020070087 A1	2020-04-09	Nestlé Products Company S.A.	IBS/IBD focused	probiotic	Non specific	Western based
Composition for improving intestinal flora	WO2020071541 A1	2020-04-09	Hosoda Shc Co., Ltd.	Microbiota focused	prebiotic	Berries	Western based
Dietary fiber compositions	US2020013807 7A1	2020-05-07	G&S Laboratories, Inc.	IBS/IBD focused	prebiotic	Baking	Western based

7. BACKGROUND PATENTS

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Pharmaceutical compositions containing pediococcus and methods for reducing the symptoms of gastroenterological syndromes	US20200121740 A1	2020-04-23	Prothera, Inc.	IBS/IBD focused	probiotic	Non specific	Western based
Mixed allergen compositions and methods for using the same	US10525125	2020-01-07	The Board Of Trustees Of The Leland Stanford Junior University	Immunity link General digestive health	other (often THM concoction)	Non specific	Western based
Probiotics for use in the treatment of diverticulosis and diverticular disease.	MX2019006948A	2019-08-14	Sofar S.P.A.	Other	probiotic	Non specific	Western based
Compositions comprising bacterial strains	WO2019030411 A1	2019-02-14	4D Pharma Research Limited	IBS/IBD focused	probiotic	Non specific	Western based
Compositions and methods for promoting a healthy microbial flora in a mammal	US20190381119 A1	2019-12-19	Biohm Health Llc	Microbiota focused	probiotic	Non specific	Western based
Composition for preventing and treating gastrointestinal disorders including lactobacillus plantarum	WO2019054641 A2	2019-03-21	Amorepacific Corporation Handong Global Univercity Industry-Academic Cooperation Foundation	General digestive health	probiotic	Non specific	Western based
Use of coriobacteriia to promote gut health	EP3501526A1	2019-06-26	Erber Aktiengesellschaft	General digestive health	probiotic	Non specific	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Composition comprising lactobacillus plantarum for preventing and/or treating mental illness	WO2019119592 A1	2019-06-27	Mao, Yuejian	Gut brain / depression / anxiety	probiotic	Non specific	Western based
Highly active probiotic solid beverage having resistance to helicobacter pylori	WO2020007276 A1	2020-01-09	Zhongke Yikang (Beijing) Biotechnology Co., Ltd	General gut discomfort / symptoms	probiotic	Non specific	Western based
Fermented dairy product that is a source of fibre and probiotics with vegetable jam	WO2020058544 A1	2020-03-26	Consejo Superior De Investigaciones Cientificas (Csic) Pronat Sc	General digestive health	prebiotic probiotic	Dairy	Western based
Lactobacillus reuteri and use thereof	US20190112675 A1	2019-04-18	Infinitus (China) Company Ltd.	IBS/IBD focused Gut brain / depression / anxiety	probiotic	Non specific	Western based
Bifidobacterium adolescentis and use thereof	US20190112674 A1	2019-04-18	Infinitus (China) Company Ltd.	IBS/IBD focused Gut brain / depression / anxiety	probiotic	Non specific	Western based
Sorghum and red bean fermentation product having efficacy of bowel health and bowel improvement and method for producing same	WO2019083289 A1	2019-05-02	Danjoungbio Co., Ltd	General digestive health	probiotic other (often THM concoction)	Non specific	Western based
Intestinal immunoenhancing agent, food, and medicine	JP2019077652A	2019-05-23	Daicel Corporation Riken	General digestive health	natural plant extract / phytochemical	Non specific	Western based
Method for preparing xyloglucan-oligosaccharides	EP3488854A1	2019-05-29	Technical University Of Munich	Microbiota focused	prebiotic	Non specific	Western based
Complexes of high isoelectric point proteins with casein	WO2019115507 A1	2019-06-20	Nestec S.A.	General gut discomfort / symptoms Microbiota focused	protein / amino acid / peptide	Dairy	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Intestinal fb ratio reducing agent and food composition containing same	WO2019142844 A1	2019-07-25	Asahi Group Holdings, Ltd.	Microbiota focused	probiotic	Non specific	Western based
Composition for induced bowel movement and diet and preparation method thereof	WO2019160277 A1	2019-08-22	Rg Bio Co., Ltd	Constipation / Intestinal motility	prebiotic	Non specific	Traditional Herbal Medicine
Composition for Improving Digestive Disorder and Gastrointestinal Motility comprising Rhus verniciflura Extract and its Manufacture Method	KR10201900986 20A	2019-08-22	Daehan Bio Farm Co., Ltd.	Constipation / Intestinal motility	natural plant extract / phytochemical	Non specific	Traditional Herbal Medicine
Food composition for activating faecalibacterium prausnitzii and faecalibacterium prausnitzii activator	JP2019141014A	2019-08-29	Euglena Co., Ltd.	Microbiota focused	probiotic	Non specific	Western based
Applications of Akkermansia Muciniphila in preparation of antidepressants or health products	CN110227085A	2019-09-13	Jiangsu Provincial Hospital of Traditional Chinese Medicine	Gut brain / depression / anxiety	probiotic	Non specific	Western based
COMPOSITION OF SPECIAL PROBIOTICS AND USE FOR REDUCING DIGESTIVE INFLAMMATORY SYMPTOMS	FR3078610A1	2019-09-13	ABCD Nutrition	General gut discomfort / symptoms	probiotic	Non specific	Western based
Compound bacterial agent with immune regulation function, preparation method and application thereof	CN109161494B	2019-10-01	Beijing Physical and Chemical Analysis and Testing Center	Immunity link Microbiota focused	prebiotic probiotic	Non specific	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Bifidobacterium longum and its application	CN107893044B	2019-11-08	Gangnam University	Constipation / Intestinal motility	probiotic	Non specific	Western based
Lactobacillus paracasei strain and use thereof	WO2019216662 A1	2019-11-14	Ko Biolabs, Inc. Seoul National University R&Db Foundation	Immunity link General digestive health Gut barrier	probiotic	Non specific	Western based
Bacterial strain of Lactobacillus reuteri GMNL-263 capable of improving hypertension and composition thereof for lowering blood pressure by inhibiting pro-inflammatory cytokines IL-1 and improving growth of Bifidobacterium	TW201943852A	2019-11-16	Genmont Biotech Incorporation	Metabolic health link	probiotic	Non specific	Western based
Probiotic strain lactobacillus kefir sgl 13 and use thereof for the prevention and treatment of intestinal inflammation and in the prevention of intestinal neoplasms	WO2019220329 A1	2019-11-21	Sintal Dietetics S.R.L.	Inflammation	probiotic	Non specific	Western based
Composition for improving intestinal function comprising leuconostoc sp. strain	WO2019245225 A1	2019-12-26	Coenbio Co., Ltd.	General digestive health	probiotic	Non specific	Western based
Traditional chinese medicine composition and uses thereof in regulating intestinal microorganisms	WO2019242560 A1	2019-12-26	Zhuhai Qiwei Bio-Technology Ltd.	Microbiota focused	natural plant extract / phytochemical	Non specific	Traditional Herbal Medicine

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
COMPOSITION FOR IMPROVING INTESTINAL MICROFLORA AND PREVENTING, TREATING OBESITY COMPRISING POLYSACCHARIDES FROM FERMENTED <i>Aureobasidium pullulans</i> AS AN EFFECTIVE INGREDIENT	KR1020190141349A	2019-12-24	Glucan Corporation	Microbiota focused	natural plant extract / phytochemical	Non specific	Traditional Herbal Medicine
USE OF A ROSEBURIA INTESTINALIS STRAIN FOR THE PREVENTION AND TREATMENT OF INTESTINAL INFLAMMATION	FR3083545A1	2020-01-10	National Institute Of Agronomic Research Agroparistech (Institute Of Life And Environmental Sciences And Industries) Sorbonne Universite Public Assistance	IBS/IBD focused	probiotic	Non specific	Western based
<i>Streptococcus thermophilus</i> cnrz160 strain for the treatment and prevention of intestinal inflammation and associated disorders in an individual	WO2020020540A1	2020-01-30	National Institute Of Agronomic Research (Inra) University Of Lorraine Clermont Auvergne University	Inflammation	probiotic	Non specific	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Probiotic strain for upper respiratory tract infection, stress, anxiety, memory and cognitive dysfunctions, and ageing	WO2020050553 A1	2020-03-12	Clinical Nutrition Intl (M) Sdn Bhd Lii Run Sdn Bhd	Gut brain / depression / anxiety Microbiota focused	probiotic	Non specific	Western based
Pharmaceutical composition for preventing or treating inflammatory bowel diseases	WO2020050460 A1	2020-03-12	Genofocus, Inc.	IBS/IBD focused	probiotic	Non specific	Western based
Lactobacillus rhamnosus having anti-inflammatory activity and enhancing gut microbiota	KR10202000278 55A	2020-03-13	Seoul National University Industry-Academic Cooperation Foundation	IBS/IBD focused	probiotic	Non specific	Western based
Novel application of lactobacillus paracasei k56 capable of regulating balance of gastrointestinal flora	WO2020063515 A1	2020-04-02	Inner Mongolia Yili Industrial Group Co., Ltd.	Microbiota focused	probiotic	Non specific	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Strain of bifidobacterium longum sub. infantis and use of same	WO2020070369 A1	2020-04-09	Superior Council Of Scientific Investigations Foundation Of The Valencian Community For The Management Of The Institute Of Biological And Sanitary Research Of Alicante (Foundation For The Management Of Isabial) Miguel Hernandez De Elche University Network Biomedical Research Center Consortium (Ciber)	IBS/IBD focused	probiotic	Non specific	Western based
Gut microbiota having prophylactic or therapeutic effect on depression and use thereof	WO2020076043 A1	2020-04-16	Korea Research Institute Of Bioscience And Biotechnology Korea Basic Science Institute	Gut brain / depression / anxiety	probiotic	Non specific	Western based
Probiotic strain for ageing, muscle and bone, gut, hyperlipidemia, skin and brain	WO2020080736 A1	2020-04-23	Clinical Nutrition Intl (M) Sdn Bhd Lii Run Sdn Bhd	Gut brain / depression / anxiety Microbiota focused	probiotic	Non specific	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Formula and preparation technology of polysaccharide body capable of strengthening immunity of human bodies	CN109463742A	2019-03-15	Anhui Malai Health Industry Co., Ltd.	Immunity link Constipation / Intestinal motility	natural plant extract / phytochemical	Kumara Berries	Traditional Herbal Medicine
Chinese prickly ash health-care yoghurt and preparation method thereof	CN109463443A	2019-03-15	Hancheng Han Ma Ma Technology Co., Ltd.	Microbiota focused	probiotic	Dairy	Traditional Herbal Medicine
Edible and medicinal dual-purpose solid beverage product capable of promoting digestion, invigorating stomach, promoting the circulation of qi and easing constipation and preparation method of edible and medicinal dual-purpose solid beverage product	CN109463607A	2019-03-15	Zhuhai Yihenghui Health Technology Co., Ltd.	General digestive health	other (often THM concoction)	Non specific	Traditional Herbal Medicine
Food formula capable of improving metabolism and regulating physiological functions	CN109480277A	2019-03-19	Xuzhou Digang Trading Company	General digestive health	prebiotic	Berries	Traditional Herbal Medicine
Application of lactobacillus fermentum CQPC04 in preparing food or drugs for improving ulcerative colitis	CN109481476A	2019-03-19	Chongqing Second Normal University	colitis	probiotic	Non specific	Western based
Brown ginseng goat milk fermented milk and preparation method thereof	CN109479959A	2019-03-19	Jilin University	General digestive health	prebiotic probiotic	Dairy	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Plant ferment probiotic powder	CN109480283A	2019-03-19	Yizheng Jiazhong Electronic Components Co., Ltd.	General digestive health Microbiota focused	prebiotic probiotic	Non specific	Western based
Yoghurt whipping technology	CN109497602A	2019-03-22	Jinan Henghui Keji Food Ingredients Co., Ltd.	General digestive health	other (often THM concoction)	Dairy	Western based
Plant solid beverage combination for improving intestinal digestion	CN109497386A	2019-03-22	Xiamen Taihao Health Food Co., Ltd.	Constipation / Intestinal motility	natural plant extract / phytochemical	Non specific	Traditional Herbal Medicine
Pediococcus pentosaceus and application thereof	CN109504637A	2019-03-22	Institute of Agricultural Engineering Technology, Fujian Academy of Agricultural Sciences	Constipation / Intestinal motility	probiotic	Non specific	Western based
Means and methods to modulate probiotic potency of the yeast saccharomyces boulardii	WO2019053218 A1	2019-03-21	Vib Vzw Catholic University Of Leuven, K.U.Leuven R&D	General gut discomfort / symptoms	probiotic	Non specific	Western based
Honey-roxburgh rose can and processing method thereof	CN109511923A	2019-03-26	Guizhou Hengliyuan Natural Biotechnology Co., Ltd.	Immunity link General digestive health	natural plant extract / phytochemical	Honey	Traditional Herbal Medicine
Preparation method of sea grape nutritional noodle rich in dietary fibers	CN109527381A	2019-03-29	Li Yuanmei	General digestive health	prebiotic	Non specific	Traditional Herbal Medicine

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Clinical nutritional composition special for gastrointestinal malabsorption and preparation method thereof	CN109527541A	2019-03-29	Shanghai Austrian Doctor Medicine Medical Technology Co., Ltd.	General digestive health Microbiota focused	prebiotic probiotic	Non specific	Traditional Herbal Medicine
Nutritional coarse food grain flour slice and making method thereof	CN109527357A	2019-03-29	Anhui Ransheng Food Co., Ltd.	General digestive health	prebiotic protein / amino acid / peptide vitamin / mineral	Baking	Traditional Herbal Medicine
Probiotic fresh milk and preparation method thereof	CN109527089A	2019-03-29	Yangzhou Yangda Kangyuan Dairy Co., Ltd.	Metabolic health link	probiotic	Dairy	Western based
Pine pollen milk tea and preparation method thereof	CN109548925A	2019-04-02	Pan Li'e	General digestive health	protein / amino acid / peptide	Dairy	Traditional Herbal Medicine
Probiotic beverage and preparation method thereof	CN109549044A	2019-04-02	Shenzhen Hemin Biological Technology Co., Ltd.	General digestive health	probiotic	Honey	Traditional Herbal Medicine
Grape seed powder product with intestine lubrication and defecation promotion effects and preparation method thereof	CN109568451A	2019-04-05	Wang Yibo Ling Hu Enqiang Yan Tao Zhang Qiusheng	Constipation / Intestinal motility	natural plant extract / phytochemical	Honey	Traditional Herbal Medicine
Saccharomyces bayanus and application thereof	CN109576165A	2019-04-05	Tan Ying	Microbiota focused	probiotic	Non specific	Western based
Composition to improve microbiome	WO2019065038 A1	2019-04-04	Ikeda Food Research Co., Ltd. Hiroshima University	colitis	probiotic	Non specific	Western based
Drink with effects of moistening intestines and expelling toxins and preparation method of drink	CN109588588A	2019-04-09	Guangzhou Zeli Pharmaceutical Technology Co., Ltd.	Constipation / Intestinal motility	prebiotic	Non specific	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Functional beverage for relaxing bowels, reducing blood fat and losing weight and preparation method thereof	CN109601788A	2019-04-12	Wei Jian	Cramping / Pain Diarrhoea	natural plant extract / phytochemical	Non specific	Traditional Herbal Medicine
Fermented milk containing lactobacillus plantarum N3117 and preparation method of fermented milk	CN109601620A	2019-04-12	Shijiazhuang Junlebao Dairy Co., Ltd.	Gut barrier	probiotic	Dairy	Western based
Chenopodium quinoa willd and hippophae rhamnoides fruit fried flour and preparation method thereof	CN109601835A	2019-04-12	Gansu Nonferrous Metallurgy Vocational Technical College	General gut discomfort / symptoms	natural plant extract / phytochemical	Baking	Traditional Herbal Medicine
Dietary fiber powder and preparation method thereof	CN109601869A	2019-04-12	Shandong Jiuxin Food Co., Ltd. Zaozhuang College	Immunity link General digestive health	other (often THM concoction)	Non specific	Traditional Herbal Medicine
'Wujiashen' functional beverage and preparing method thereof	CN109645278A	2019-04-19	Wang Guangmin	Constipation / Intestinal motility	other (often THM concoction)	Non specific	Traditional Herbal Medicine
Stomach-strengthening pharmaceutical composition, preparation process thereof and use thereof	CN109646632A	2019-04-19	Zibo Mingtong Environmental Technology R & D Co., Ltd.	Constipation / Intestinal motility Cramping / Pain	other (often THM concoction)	Berries	Traditional Herbal Medicine
Galactooligosaccharide composition capable of relaxing bowels and reducing flatulence and application of galactooligosaccharide composition	CN109645501A	2019-04-19	Yunfu Xinjinshan Biotechnology Co., Ltd.	Bloating Constipation / Intestinal motility	prebiotic	Non specific	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Fructus cannabis steamed stuffed bun and preparation method thereof	CN109645330A	2019-04-19	Beijing Hamai Food Technology Co., Ltd.	Constipation / Intestinal motility	other (often THM concoction)	Non specific	Traditional Herbal Medicine
Composition for relaxing bowel	CN109663131A	2019-04-23	Xi'an Libang Pharmaceutical Co., Ltd.	Constipation / Intestinal motility	other (often THM concoction)	Non specific	Traditional Herbal Medicine
Application of lactobacillus rhamnosus in preparing health-care food and medicine for preventing ulcerative colitis	CN109662976A	2019-04-23	Southwest University	colitis	probiotic	Non specific	Western based
Composition for maintaing immunological homeostasis by settling immunological imbalance due to fine dust containing Lactobacillus casei HY2782 as effective component	KR101969906B1	2019-04-17	Korea Yakult Co., Ltd.	Immunity link	probiotic	Non specific	Western based
Diarrhea-predominant irritable bowel syndrome inhibitor and food composition	JP2019064985A	2019-04-25	Kagome Co., Ltd.	IBS/IBD focused	probiotic	Non specific	Western based
Novel Lactobacillus sakei KR18 with probiotic activities	KR101970148B1	2019-04-18	Seoul F & B Co., Ltd.	Microbiota focused	probiotic	Dairy	Western based
Trehalose complex prebiotics solid beverage and preparation method thereof	CN109673879A	2019-04-26	Hefei Minzhen Health Technology Co., Ltd.	General digestive health	prebiotic	Non specific	Traditional Herbal Medicine
Compound dietary fiber powder and preparation method thereof	CN109673906A	2019-04-26	Shenzhen Yishengyuan Biological Technology Co., Ltd.	Microbiota focused	prebiotic	Non specific	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
A probiotic composition for slimming use	CN109700037A	2019-05-03	Tianjin Keruiheng Biological Technology Co., Ltd.	Microbiota focused	prebiotic probiotic	Non specific	Western based
Preparation method of edible burdock root-leaf compound fermented beverage	CN109699863A	2019-05-03	Xuzhou Conway 100 Years Food Co., Ltd.	Immunity link General digestive health	other (often THM concoction)	Non specific	Traditional Herbal Medicine
Composition for relieving intestinal flora imbalance and preparation method and application thereof	CN109718256A	2019-05-07	Zhejiang Jiurutang Biological Technology Co., Ltd.	Microbiota focused	probiotic other (often THM concoction)	Non specific	Western based
Making method for chicken breasts containing activated lactobacillus	CN109717399A	2019-05-07	Nanjing Agricultural College	General digestive health Microbiota focused	probiotic	Non specific	Western based
Preparation method of health-care honey pulp suitable for teenagers to drink	CN109717439A	2019-05-07	Ningxia Bifengyuan Bee Industry Co., Ltd.	Gut brain / depression / anxiety Immunity link General digestive health	other (often THM concoction)	Berries	Traditional Herbal Medicine
Fermented puree vegetables composition for enhancing intestinal beneficial bacteria	KR1020190043222A	2019-04-26	Pulmuone Co., Ltd.	Microbiota focused	probiotic other (often THM concoction)	Non specific	Western based
Compound beverage containing armeniaca mume sieb., semen hoveniae and black tea fungi and preparing method thereof	CN109757573A	2019-05-17	Tianshui Normal University	General digestive health Metabolic health link	other (often THM concoction)	Non specific	Traditional Herbal Medicine

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Application of trametes extract in preparing preparation for treating and/ or preventing intestinal flora disorder and related diseases	CN109771456A	2019-05-21	Guangdong Institute of Microbiology (Guangdong Microbiological Analysis and Testing Center) Guangdong Yuewei Edible Fungi Technology Co., Ltd.	Microbiota focused	natural plant extract / phytochemical	Non specific	Traditional Herbal Medicine
Immediately-edible probiotics solid beverage and preparation method thereof	CN109770148A	2019-05-21	Shanghai Haoyue Food Technology Co., Ltd.	General digestive health	probiotic	Non specific	Western based
Grosvener siraitia and inulin health care food with functions of clearing away lung-heat and toxic smoke and loosening bowel to relieve constipation	CN109770360A	2019-05-21	Ding Qiang	Constipation / Intestinal motility	other (often THM concoction)	Non specific	Traditional Herbal Medicine
Application of cordyceps cicadae ethanol extract in preparation of preparations for treating and/or preventing alteration of intestinal flora and related diseases	CN109771451A	2019-05-21	Guangdong Institute of Microbiology (Guangdong Microbiological Analysis and Testing Center) Guangdong Yuewei Edible Fungi Technology Co., Ltd.	Microbiota focused	natural plant extract / phytochemical	Non specific	Traditional Herbal Medicine

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Instant food with function of constipation symptom improvement	CN109793209A	2019-05-24	Nanshanxiyuan Tea Professional Cooperative of Dantu District, Zhenjiang City	Cramping / Pain	prebiotic	Non specific	Traditional Herbal Medicine
Traditional Chinese medicine for treating ulcerative colitis	CN109806309A	2019-05-28	Cao Xiaoqing	colitis	other (often THM concoction)	Non specific	Traditional Herbal Medicine
Traditional Chinese medicine composition for preventing and treating digestive system diseases	CN109806377A	2019-05-28	Guangdong Xianfanggu Health Technology Co., Ltd.	General digestive health	other (often THM concoction)	Non specific	Traditional Herbal Medicine
Oral liquid taking traditional Chinese medicines as main drugs for improving gastrointestinal function and regulating immune	CN109805381A	2019-05-28	Jiangxi Kangbao Pharmaceutical Biotechnology Co., Ltd.	Immunity link General digestive health	other (often THM concoction)	Non specific	Traditional Herbal Medicine
Roxburgh rose carbonated beverage and preparation method thereof	CN109820119A	2019-05-31	Guizhou Hongcaiju Agriculture Investment Co., Ltd.	Immunity link General digestive health	other (often THM concoction)	Non specific	Traditional Herbal Medicine
Health care product with functions of adjusting intestinal flora, replenishing blood and improving human immune function	CN109820194A	2019-05-31	Jiangxi Anshuntang Biotechnology Co., Ltd.	Microbiota focused	prebiotic	Honey	Traditional Herbal Medicine
Preparation for relaxing bowels, removing spots and beautifying skin and preparation process thereof.	CN109820946A	2019-05-31	Jiangxi Anshuntang Biotechnology Co., Ltd.	Constipation / Intestinal motility	other (often THM concoction)	Non specific	Traditional Herbal Medicine

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Functional fruit and vegetable ferment solid beverage and preparation method thereof	CN109832534A	2019-06-04	Beijing Zimeitang Biotechnology Co., Ltd.	Microbiota focused Constipation / Intestinal motility	prebiotic probiotic	Non specific	Traditional Herbal Medicine
Application of chitooligosaccharide in preparation of drugs for regulating human or animal intestinal flora disorders	CN109833323A	2019-06-04	Dalian Institute of Chemical Physics, Chinese Academy of Sciences	Metabolic health link Microbiota focused	prebiotic	Non specific	Western based
Medicinal and edible formula and method capable of adjusting intestinal tract bacterium-host metabolic balance	CN109833467A	2019-06-04	Shanxi Tianzhirun Jujube Industry Co., Ltd.	Microbiota focused	other (often THM concoction)	Non specific	Traditional Herbal Medicine
Low-fat digestible wheat bran black sesame paste and preparation process thereof	CN109846015A	2019-06-07	Wen Maolin	General digestive health	other (often THM concoction)	Non specific	Traditional Herbal Medicine
Intestine-moistening the and health-preserving flour and preparation method thereof	CN109874967A	2019-06-14	Anhui Wanxue Food Co., Ltd.	General digestive health	other (often THM concoction)	Kumara Baking	Traditional Herbal Medicine
Use of cordyceps sobolifera alkaline water extract in preparing preparation for treatment and/or prevention of alteration of intestinal flora and related diseases	CN109876020A	2019-06-14	Guangdong Institute of Microbiology (Guangdong Microbiological Analysis and Testing Center) Guangdong Yuewei Edible Fungi Technology Co., Ltd.	Microbiota focused	natural plant extract / phytochemical	Non specific	Traditional Herbal Medicine

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Phellinus igniarius solid beverage with effect of relaxing bowels and preparation method of solid beverage	CN109892508A	2019-06-18	Yang Shudong Li Zhonglin Wang Yajie	General digestive health Constipation / Intestinal motility	other (often THM concoction)	Non specific	Traditional Herbal Medicine
Probiotic fermented milk for improving micro-environment of female intestinal flora	CN109907312A	2019-06-21	Guangdong Yihe Kejie Technology Co., Ltd.	General digestive health	probiotic	Dairy	Western based
Traditional Chinese medicine composition for treating ulcerative colitis	CN109925443A	2019-06-25	Li Zhaoyu	colitis	natural plant extract / phytochemical	Kumara	Traditional Herbal Medicine
Lactobacillus plantarum BK-022 or anti-inflammatory composition comprising thereof	KR1020190068026A	2019-06-18	Bigger Lactic Acid Bacteria Co., Ltd.	Inflammation	probiotic	Non specific	Western based
Fructus crataegi and malt composition and preparation method thereof	CN109938284A	2019-06-28	Guangzhou Jindian Jingfang Pharmaceutical Technology Co., Ltd.	General digestive health Bloating	other (often THM concoction)	Kumara	Traditional Herbal Medicine
Strain of bacillus lacticus DU-106 with probiotic properties and application thereof	CN109943510A	2019-06-28	South China Agricultural University	General digestive health Metabolic health link Infant nutrition link	probiotic	Non specific	Western based
Solid beverage containing prebiotics and preparing method of solid beverage	CN109938130A	2019-06-28	Guangzhou Pindu Food Supply Chain Management Co., Ltd.	General digestive health	prebiotic	Dairy	Traditional Herbal Medicine

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Wheat germ nutrient powder for conditioning gastrointestinal digestion function	CN109953256A	2019-07-02	Chen Tao	Constipation / Intestinal motility	other (often THM concoction)	Non specific	Traditional Herbal Medicine
Food capable of promoting gastrointestinal digestion and absorption function of children and preparation method thereof	CN109953337A	2019-07-02	Shandong Guzhiteng Business Development Co., Ltd.	Constipation / Intestinal motility	other (often THM concoction)	Dairy Berries	Traditional Herbal Medicine
Nutritive and health-care food for cleaning intestines and invigorating spleen and stomach	CN109953323A	2019-07-02	Jiang Fengying	General digestive health	other (often THM concoction)	Baking	Traditional Herbal Medicine
High-nutrient brown rice ferment fermentation process	CN109953326A	2019-07-02	Anhui Honghu Grain and Oil Co., Ltd.	Immunity link Microbiota focused Constipation / Intestinal motility	other (often THM concoction)	Non specific	Traditional Herbal Medicine
Lactobacillus plantarum and application thereof	CN109957530A	2019-07-02	Hanchen's (Shenyang) Children's Products Co., Ltd.	Cramping / Pain Diarrhoea	probiotic	Non specific	Western based
Intestinal micro-ecological preparation for adjusting constipation of children and adolescents and preparation method of preparation	CN109965280A	2019-07-05	Jilin Pushengtai Biotechnology Co., Ltd.	Constipation / Intestinal motility	probiotic	Berries	Western based
Fructus jujubae and radix astragali mixed fermented traditional Chinese medicine immunomodulator and preparation method thereof	CN109966426A	2019-07-05	Zhengzhou Nuobilong Biotechnology Co., Ltd.	Immunity link Microbiota focused	probiotic other (often THM concoction)	Non specific	Traditional Herbal Medicine

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Application of Apolygus lucorum to promotion of intestinal health	CN109998112A	2019-07-12	Austrian business Alber GmbH	General digestive health	probiotic	Non specific	Western based
Extraction process and application for konjac glucomannan in konjaku flour residues	CN110003357A	2019-07-12	Shantou Jiecheng Biological Technology Co., Ltd.	Microbiota focused Constipation / Intestinal motility	natural plant extract / phytochemical	Non specific	Traditional Herbal Medicine
Compound preparation with effect of relaxing bowels and application of preparation	CN109999088A	2019-07-12	Dongguan East Sunshine Health Products R & D Co., Ltd.	General digestive health Cramping / Pain	prebiotic other (often THM concoction)	Non specific	Traditional Herbal Medicine
Probiotic fermented beverage and production method thereof	CN109998003A	2019-07-12	Zhao Guiyuan	General digestive health	probiotic	Honey	Traditional Herbal Medicine
Medicinal and edible oral thick paste special for children, having effects of nourishing stomach, stimulating appetite and promoting digestion, and preparation method of medicinal and edible oral thick paste	CN110013533A	2019-07-16	Hangzhou Huqing Yutang Natural Food Co., Ltd.	General digestive health	other (often THM concoction)	Kumara	Traditional Herbal Medicine
Formula and production technology of gentle moistening super fruit-flavored yogurt	CN110024856A	2019-07-19	Hangzhou New Hope Shuangfeng Dairy Co., Ltd.	General digestive health	prebiotic	Berries	Western based
Composition for improving intestinal flora function containing lactic acid bacteria complex and Rhodiola extract as active ingredients	KR1020190079734A	2019-07-08	Pulmuone Co., Ltd.	Microbiota focused	probiotic natural plant extract / phytochemical	Non specific	Traditional Herbal Medicine

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Loquat composition fermented by micro-ecological technology and preparation method thereof	CN110038093A	2019-07-23	Shandong University Huangshan Qishang Biological Technology Co., Ltd.	Inflammation	probiotic natural plant extract / phytochemical	Non specific	Traditional Herbal Medicine
Yacon comprehensive enzyme and processing technology thereof	CN110037298A	2019-07-23	Chongqing Kangtai Biotechnology Co., Ltd.	General digestive health	probiotic other (often THM concoction)	Honey Berries	Traditional Herbal Medicine
Food compositions for reducing body fat and improving intestinal function	KR102000170B1	2019-07-16	Geon-hee Jeong	Immunity link Constipation / Intestinal motility	natural plant extract / phytochemical	Seafood / Marine	Traditional Herbal Medicine
Composite probiotic composition and application thereof	CN110051003A	2019-07-26	Guangzhou Nengliang Biotechnology Co., Ltd.	Microbiota focused Cramping / Pain	prebiotic probiotic	Non specific	Western based
Fermenting process of chilli sauce	CN110063486A	2019-07-30	Xia Zhanli	Microbiota focused	other (often THM concoction)	Non specific	Western based
Pediococcus acidilactici CCEM6432 capable of reliving depression, fermentation food thereof and application thereof	CN110079485A	2019-08-02	Gangnam University	IBS/IBD focused Gut brain / depression / anxiety Inflammation	probiotic	Non specific	Western based
Flos dendrobii officinalis enzyme capable of improving intestinal tract digestive function and manufacturing method thereof	CN110074406A	2019-08-02	Wuhan University of Light Industry	Constipation / Intestinal motility	probiotic	Non specific	Traditional Herbal Medicine

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Fresh ginger composite ferment	CN110089746A	2019-08-06	Chongqing Kangtai Biotechnology Co., Ltd.	Constipation / Intestinal motility	other (often THM concoction)	Kumara	Traditional Herbal Medicine
Raspberry composite enzyme and preparation method thereof	CN110089744A	2019-08-06	Chongqing Kangtai Biotechnology Co., Ltd.	General digestive health	natural plant extract / phytochemical	Berries	Traditional Herbal Medicine
Lactobacillus rhamnosus M9 separated from breast milk and application thereof	CN110106119A	2019-08-09	Beijing Ketuo Hengtong Biotechnology Co., Ltd.	Microbiota focused	probiotic	Non specific	Western based
Mixed probiotic for fermenting vegetables, fermented vegetables and preparation method of fermented vegetables	CN110106112A	2019-08-09	Beijing Agricultural College	Microbiota focused	probiotic	Non specific	Western based
High-protein and full-nutrition meal replacement milkshake and preparation method thereof	CN110122570A	2019-08-16	Jinan Yineng Food Technology Co., Ltd.	General digestive health	other (often THM concoction)	Non specific	Western based
Lactobacillus delbrueckii subsp. bulgaricus BSTS6-4 and application thereof	CN110129220A	2019-08-16	Shihezi University	Microbiota focused Diarrhoea	probiotic	Non specific	Western based
Lactic acid bacterium HWN18 and application thereof	CN110129221A	2019-08-16	Fujian Jinjiang Guoshi Cultural Media Co., Ltd. Wuxi McGee Baker Bio-Food Co., Ltd. Jiangnan University	IBS/IBD focused	probiotic	Non specific	Western based

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Codnopsis bulleyana ferment, codnopsis bulleyana ferment drink and preparation method thereof	CN110122868A	2019-08-16	East China University of Science and Technology	Microbiota focused	natural plant extract / phytochemical	Non specific	Traditional Herbal Medicine
Low-temperature instant cereal powder containing probiotics and preparation method of low-temperature instant cereal powder	CN110140870A	2019-08-20	Jilin Agricultural University	Microbiota focused	other (often THM concoction)	Non specific	Traditional Herbal Medicine
Lactobacillus casei strain and application thereof	CN110144304A	2019-08-20	Guangxi University	Microbiota focused	probiotic	Non specific	Western based
Bacillus subtilis having effects of relieving enteritis and promoting development of intestines and application	CN110144310A	2019-08-20	Tianjin University of Science and Technology	Gut barrier Inflammation	probiotic	Non specific	Western based
Auxiliary health care product for improving immunity and adjusting intestinal function and preparation method of auxiliary health care product	CN110150676A	2019-08-23	Ning Ling Technology Co., Ltd.	Immunity link General digestive health	prebiotic	Dairy	Western based
Lactobacillus brevis capable of relieving anxiety and improving sleep and application of lactobacillus brevis	CN110157647A	2019-08-23	Gangnam University	Gut brain / depression / anxiety	probiotic	Non specific	Western based
Application of nostoc flagelliforme powder in regulating intestinal microbial community structure	CN110169984A	2019-08-27	Tianjin University of Science and Technology	Immunity link Microbiota focused	natural plant extract / phytochemical	Non specific	Traditional Herbal Medicine

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Probiotic active essence for private household health care and preparation method thereof	CN110169451A	2019-08-27	Gu Yucong	Microbiota focused	probiotic	Honey Berries	Traditional Herbal Medicine
Quintuplet probiotic composition for improving intestinal tracts, composite solid beverage, preparation method of composite solid beverage and application of quintuplet probiotic composition	CN110179121A	2019-08-30	Hunan Weile Health Industry Co., Ltd.	Microbiota focused	prebiotic probiotic	Non specific	Traditional Herbal Medicine
Anthocyanin dietary fiber beverage for regulating intestinal micro-organism flora and lowering blood lipids, and preparation method thereof	CN110179026A	2019-08-30	Institute of Agricultural Products Processing, Chinese Academy of Agricultural Sciences Jilin Agricultural University	Metabolic health link Microbiota focused	prebiotic	Non specific	Western based
Nutritional composition capable of adjusting intestinal flora structure, and preparation method and application thereof	CN110179108A	2019-08-30	Shanghai Ziwei Health Management Co., Ltd.	Microbiota focused	natural plant extract / phytochemical	Non specific	Western based
Composition with function of relaxing bowel and preparation method of composition	CN110214948A	2019-09-10	Guangzhou Zhengguang Biological Technology Co., Ltd.	Microbiota focused Constipation / Intestinal motility	prebiotic	Non specific	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Formula and production method of fruit and vegetable enzyme collagen fiber drink	CN110214935A	2019-09-10	Nanjing Diyao Biological Technology Co., Ltd.	Microbiota focused	prebiotic	Seafood / Marine	Traditional Herbal Medicine
Combination of lactobacilli for the relief of irritable bowel syndrome and for the relief of other gastrointestinal disorders	WO2019171224 A1	2019-09-12	Bio-K Plus International Inc.	IBS/IBD focused	probiotic	Non specific	Western based
Shiitake mushroom Chinese style pastry and preparation method thereof	CN110226706A	2019-09-13	Luohe Medical College	General digestive health	other (often THM concoction)	Berries	Traditional Herbal Medicine
Multifunctional lactobacillus buchneri CCFM1053 for relieving PFOA toxic action as well as fermented food and application thereof	CN110226630A	2019-09-13	Gangnam University	Microbiota focused	probiotic	Non specific	Western based
Chinese herbal medicine composition for conditioning intestines and stomach	CN110236034A	2019-09-17	Foshan Lukangbao Health Food Co., Ltd.	General digestive health	other (often THM concoction)	Berries	Traditional Herbal Medicine
Compound fruit and vegetable juice beverage and preparing method thereof	CN110236038A	2019-09-17	Shaanxi Guoren Health Pharmaceutical Co., Ltd.	Constipation / Intestinal motility	other (often THM concoction)	Kiwifruit Berries	Western based
Probiotic solid beverage and preparation method thereof	CN110236065A	2019-09-17	Guangdong Gewu Biotechnology Co., Ltd.	Microbiota focused Constipation / Intestinal motility	probiotic	Non specific	Western based
Fasting-mimicking diet (FMD) but not water-only fasting promotes reversal of inflammation and ibd pathology	WO2019178486 A1	2019-09-19	University Of Southern California	IBS/IBD focused	probiotic	Non specific	Western based

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Intestinal flora composition ratio conditioning agent, medicine, food and beverage, and method for regulating composition ratio of intestinal flora	CN110251582A	2019-09-20	Jiaying Juetuo Technology Co., Ltd.	Microbiota focused	natural plant extract / phytochemical	Non specific	Traditional Herbal Medicine
Composition for loosening bowel to relieve constipation, preparation method and application of composition, and beverage for loosening bowel to relieve constipation	CN110269163A	2019-09-24	Guangzhou Zeli Pharmaceutical Technology Co., Ltd.	Constipation / Intestinal motility	natural plant extract / phytochemical protein / amino acid / peptide	Non specific	Traditional Herbal Medicine
Composition for relaxing bowels and promoting defecation and preparation method thereof	CN110269251A	2019-09-24	Tianjin National Health Technology Co., Ltd.	Constipation / Intestinal motility	prebiotic	Non specific	Western based
Formula of nutritious food for nourishing intestines and stomach and preparation method thereof	CN110292170A	2019-10-01	Guoke Runze (Shandong) Special Medicine Diet Technology Co., Ltd.	Cramping / Pain Diarrhoea	other (often THM concoction)	Kumara	Traditional Herbal Medicine
Lactobacillus rhamnosus and application thereof	CN110295130A	2019-10-01	Nobak (Wuhan) Biological Technology Co., Ltd.	Allergen sensitivity	probiotic	Non specific	Western based
Sugarcane vinegar oral liquid for invigorating spleen to promote digestion	CN110301631A	2019-10-08	Guangxi Academy of Agricultural Sciences	General digestive health Microbiota focused	other (often THM concoction)	Berries	Traditional Herbal Medicine
Lactulose complex probiotic powder	CN110301644A	2019-10-08	Guangzhou Ruoyao Special Medical Food Technology Co., Ltd.	Microbiota focused Constipation / Intestinal motility	probiotic	Non specific	Western based

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Lactobacillus rhamnosus CCFM1064 and application thereof	CN110305820A	2019-10-08	Gangnam University	Metabolic health link	probiotic	Non specific	Western based
Application of lactic acid bacteria combined with medium-chain triglyceride in repairing intestinal inflammation	CN110302214A	2019-10-08	People's Liberation Army General Hospital	Inflammation	probiotic lipids / phospholipids	Non specific	Western based
Probiotic compositions including immune modulators	US20190307802 A1	2019-10-10	4Life Patents, Llc	Immunity link General digestive health	probiotic	Non specific	Western based
Lactobacillus plantarum HJ-S2 with functions of reducing cholesterol and enriching selenium and application thereof	CN110317757A	2019-10-11	Third Institute of Oceanography, Ministry of Natural Resources	Metabolic health link	probiotic	Non specific	Western based
Composition for activating fatty acid-G protein coupling receptor route	CN110327379A	2019-10-15	Macau University of Science and Technology	Microbiota focused	natural plant extract / phytochemical	Non specific	Traditional Herbal Medicine
Stomach-invigorating health-care food	CN110338417A	2019-10-18	Li Hongguang	General digestive health Cramping / Pain	other (often THM concoction)	Kumara	Traditional Herbal Medicine
Composite soybean protein powder with intestinal regulating function and preparation process thereof	CN110353086A	2019-10-22	Pingdingshan Tianjing Plant Protein Co., Ltd.	Microbiota focused	prebiotic	Non specific	Western based
Intestinal short-chain fatty acid production promoting composition	JP2019170335A	2019-10-10	Yaizu Suisan Chemical Industry Co., Ltd. Shizuoka University	Microbiota focused	prebiotic	Non specific	Western based

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Compound grain bean sprout digestion-promoting crisp chips rich in gamma-aminobutyric acid and making method thereof	CN110367450A	2019-10-25	Jilin University	General digestive health	natural plant extract / phytochemical	Non specific	Western based
Novel Lactobacillus paracasei strain having antimicrobial effect on Mycobacterium paratuberculosis and composition for preventing or treating inflammatory bowel disease comprising the same	KR102036374B1	2019-10-24	Jong Kun Dang Bio Co., Ltd. Seoul National University Industry-University Cooperation Foundation	IBS/IBD focused	probiotic	Non specific	Western based
Lactobacillus rhamnosus CCFM1068 and application thereof	CN110387342A	2019-10-29	Gangnam University	Constipation / Intestinal motility	probiotic	Non specific	Western based
Lactobacillus acidophilus capable of improving intestinal flora and regulating immunity, and application of lactobacillus acidophilus	CN110396487A	2019-11-01	Beijing Ketuo Hengtong Biotechnology Co., Ltd.	Immunity link Microbiota focused	probiotic	Non specific	Western based
Chinese yam, coix seed and gordon euryale seed powder and production method thereof	CN110393259A	2019-11-01	Sichuan Jingjing Food Co., Ltd.	General digestive health	prebiotic	Kumara	Traditional Herbal Medicine
A composition for improving intestinal tract and releasing the constipation and its application	HK1257803A	2019-11-01	Tonghua Trigel Pharmaceutical Technology Promotion Service Co., Ltd.	Constipation / Intestinal motility	natural plant extract / phytochemical	Non specific	Traditional Herbal Medicine
Bifidobacterium longum strain and application thereof	CN110452829A	2019-11-15	Guangxi University	Immunity link Microbiota focused	probiotic	Non specific	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Lactic acid bacterium solid beverage capable of improving human intestinal health and preparation method thereof	CN110463892A	2019-11-19	Shandong Zhongwei Zhongkang Biological Technology Co., Ltd.	Microbiota focused	probiotic	Non specific	Western based
Use of composition prepared by Lactobacillus paracasei to improve human gut microbiota characterized by having the effect of improving human gut microbiota	TW201943419A	2019-11-16	United enterprise co., Ltd.	Microbiota focused	probiotic	Non specific	Western based
Health-preserving soup suitable for young people and preparation method thereof	CN110477334A	2019-11-22	Guangdong Yijiatang Pharmaceutical Co., Ltd.	General digestive health	other (often THM concoction)	Non specific	Traditional Herbal Medicine
Probiotics solid beverage	CN110477105A	2019-11-22	Li Zhong	Immunity link General digestive health	probiotic	Non specific	Traditional Herbal Medicine
Lactobacillus plantarum X7022 and application thereof	CN110499263A	2019-11-26	East China University of Science and Technology	Gut brain / depression / anxiety	probiotic	Non specific	Western based
Healthy convenience food meal replacement powder containing citrus maxima and having function of relaxing bowels as well as preparation method and application of meal replacement powder	CN110522041A	2019-12-03	Guangdong Youtong Tongyoumei Agricultural Products Technology Research Co., Ltd.	Cramping / Pain	other (often THM concoction)	Non specific	Traditional Herbal Medicine

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Abelmoschus esculentus powder containing agent for loosening bowel to relieve constipation and preparation method of abelmoschus esculentus powder containing agent	CN110522022A	2019-12-03	Zhejiang University	Constipation / Intestinal motility	natural plant extract / phytochemical	Non specific	Traditional Herbal Medicine
Instant food capable of preventing and lowering hyperglycemia, hyperlipidemia and hypertension	CN110521918A	2019-12-03	Guangxi Jinghong Health Industry Co., Ltd.	General digestive health Metabolic health link	prebiotic	Berries	Traditional Herbal Medicine
Medicine for treating intestinal diseases and preparation method thereof	CN110522784A	2019-12-03	Luan Yunpeng	Immunity link Microbiota focused	natural plant extract / phytochemical	Non specific	Traditional Herbal Medicine
Intestinal flora-improving food and drink	JP2019198281A	2019-11-21	Kao Corporation	Microbiota focused	natural plant extract / phytochemical	Non specific	Western based
Compound nutrition powder prepared by fermenting small red beans with lactic acid bacteria, and production process thereof	CN110537671A	2019-12-06	Harbin University of Commerce	Microbiota focused	probiotic	Non specific	Western based
Consortia of living bacteria useful for treatment of microbiome dysbiosis	IL269886A	2019-12-31	Eth Zurich University Of Zurich	Microbiota focused	probiotic	Non specific	Western based
Fruit and vegetable noodles for conditioning intestines and stomachs of infants and preparation method thereof	CN110558482A	2019-12-13	Chengkou County Tuxingsheng Agricultural Technology Development Co., Ltd.	General digestive health	other (often THM concoction)	Non specific	Traditional Herbal Medicine

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
A Composition Comprising Defatted Perilla Extract for Improvement of Intestinal Function and Constipation	KR1020190136333A	2019-12-10	Landlord	Constipation / Intestinal motility	natural plant extract / phytochemical	Non specific	Traditional Herbal Medicine
Cellulose fruity beverage	CN110574852A	2019-12-17	Tianshui Huasheng Agricultural Comprehensive Development Co., Ltd.	General digestive health Metabolic health link	other (often THM concoction)	Non specific	Western based
Weight-reducing whole-grain nutritional healthy meal replacement food and preparation method thereof	CN110583974A	2019-12-20	Wu Yongqiong	General digestive health	other (often THM concoction)	Berries	Traditional Herbal Medicine
Low-sugar probiotic composition as well as preparation method and application thereof	CN110584119A	2019-12-20	Zhejiang Huakang Pharmaceutical Co., Ltd.	Metabolic health link Microbiota focused	probiotic	Non specific	Western based
Non-viable bifidobacterium bifidum bacteria and uses thereof	WO2019243563A1	2019-12-26	Synformulas Gmbh	IBS/IBD focused	probiotic	Non specific	Western based
Lactobacillus plantarum for efficiently lowering in-vivo cholesterol level and application of lactobacillus plantarum	CN110616173A	2019-12-27	Jilin Agricultural University	Metabolic health link	probiotic	Non specific	Western based
Chaenomeles speciosa nakai substitutional tea with intestinal regulation function and preparation method of substitutional tea	CN110623117A	2019-12-31	Xuancheng Huake Xuan Papaya Biotechnology Co., Ltd.	General digestive health Diarrhoea	natural plant extract / phytochemical	Non specific	Traditional Herbal Medicine

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Seaweed and ferment rice cakes and making method thereof	CN110623202A	2019-12-31	Qingdao Mingyue Seaweed Bio-Health Technology Group Co., Ltd.	General digestive health	prebiotic probiotic natural plant extract / phytochemical	Seafood / Marine	Traditional Herbal Medicine
Compound probiotics preparation with gastric and intestinal mucosa protection effect, and application of compound probiotics preparation	CN110643524A	2020-01-03	Guangdong Yikewei Health Technology Co., Ltd.	General digestive health	probiotic	Non specific	Western based
Full-nutrition formula food and application thereof	CN110638042A	2020-01-03	Bright Dairy Co., Ltd. Jiangnan University	IBS/IBD focused	protein / amino acid / peptide vitamin / mineral	Dairy	Western based
Peptide-containing composition edible for people with poor gastrointestinal functions and application	CN110652010A	2020-01-07	Liaoning Taiiai Peptide Bioengineering Technology Co., Ltd.	General digestive health	prebiotic protein / amino acid / peptide	Non specific	Traditional Herbal Medicine
Burdock and ginseng essence extract and preparation method thereof	CN110679935A	2020-01-14	Tianyi Food (Xuzhou) Co., Ltd.	General digestive health	prebiotic	Kumara	Traditional Herbal Medicine
Lactobacillus plantarum for relieving mental stress and application thereof	CN110684694A	2020-01-14	Beijing Ketuo Hengtong Biotechnology Co., Ltd.	Gut brain / depression / anxiety Microbiota focused	probiotic	Non specific	Western based
Watermelon seed with stomach-invigorating and digestion-promoting functions and preparation method of watermelon seed	CN110679892A	2020-01-14	Hunan Qiaofeng Food Co., Ltd.	General digestive health	other (often THM concoction)	Non specific	Traditional Herbal Medicine

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Lactobacillus plantarum and application thereof in aspect of improving expression quantity of intestinal tract IL-17F	CN110680837A	2020-01-14	Gangnam University	Immunity link	probiotic	Non specific	Western based
Prebiotic peptide composite probiotics for treating constipation and indigestion and preparation method thereof	CN110693008A	2020-01-17	Guozhong Xinghe Biomedical Technology Co., Ltd. He Jingren Li Yubao Yunhong Group Co., Ltd.	General digestive health Constipation / Intestinal motility	prebiotic probiotic	Non specific	Western based
Protein bar based on phosphatidylserine and preparation method of protein bar	CN110693017A	2020-01-17	Nantong Houyuan Biological Technology Co., Ltd.	Gut brain / depression / anxiety Microbiota focused	lipids / phospholipids	Non specific	Western based
Compositions comprising bacterial strains	HK1260125A	2019-12-13	4D Pharma Research Limited	Inflammation	probiotic	Non specific	Western based
Mixed formula of health powder	CN110710670A	2020-01-21	Wang Zhekun	Constipation / Intestinal motility	other (often THM concoction)	Berries	Traditional Herbal Medicine
Compound enzyme and preparation method thereof	CN110710677A	2020-01-21	Li Guili	Immunity link General digestive health	probiotic	Kumara Berries	Traditional Herbal Medicine
Pharmaceutical composition for preventing or treating inflammatory disease comprising dudleya brittonii extract	KR102063779B1	2020-01-08	My Well F & F Co., Ltd.	Inflammation	natural plant extract / phytochemical	Non specific	Traditional Herbal Medicine
Treatment methods and compositions	WO2020018482 A1	2020-01-23	Stc.Unm Ma, Thomas Y.	Gut barrier	probiotic	Non specific	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
A milk and fermented milk having anti-inflammatory effects on intestinal epithelial cells and having excellent ability to reach to intestinal epithelial cells	KR1020200007386A	2020-01-22	Lotte Food Co., Ltd.	Inflammation	probiotic	Dairy	Western based
Preparation method and application of a composition with improving the intestinal tract and releasing the constipation	HK1263182A	2020-01-31	Tonghua Trigel Pharmaceutical Technology Promotion Service Co., Ltd.	Constipation / Intestinal motility	natural plant extract / phytochemical	Non specific	Traditional Herbal Medicine
Compound jam and preparation method thereof	CN110720618A	2020-01-24	Li Jinji (Xinhui) Food Co., Ltd. People's Liberation Army Air Force Characteristic Medical Center	Microbiota focused	prebiotic	Berries	Western based
Sauce using sesame leaves and ficus tikoua bur as main raw materials and making process	CN110731497A	2020-01-31	Jiangsu Vocational College of Economics and Trade	Constipation / Intestinal motility	other (often THM concoction)	Non specific	Traditional Herbal Medicine
Bifidobacterium breve ccfm1025, foods fermented thereby and application thereof	WO2020037532A1	2020-02-27	Jiangnan University	Gut brain / depression / anxiety	probiotic	Non specific	Western based
Bifidobacterium longum subsp. infantis ccfm687 and fermented food and application thereof	WO2020037533A1	2020-02-27	Jiangnan University	IBS/IBD focused Gut brain / depression / anxiety	probiotic	Non specific	Western based
Nutritional supplements and therapeutic compositions comprising probiotics	US20200078421A1	2020-03-12	Direct Digital, LLC DbA Adaptive Health	Gut brain / depression / anxiety	probiotic	Non specific	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Bifidogenic hypoallergenic gos compositions and methods for providing the same involving beta-galactosidase from a strain of lactobacillus delbrueckii ssp bulgaricus	WO2020049016 A1	2020-03-12	Frieslandcampin a Nederland B.V.	General digestive health	prebiotic	Non specific	Western based
Compositions comprising a bacterial strain of blautia hydrogenotrophica for use in the treatment or prevention of diarrhea or constipation	HK1246680A1	2020-03-20	4D Pharma Plc	Constipation / Intestinal motility Diarrhoea	probiotic	Non specific	Western based
Compositions comprising bacterial strains	WO2020058499 A1	2020-03-26	4D Pharma Research Limited	Inflammation	probiotic	Non specific	Western based
Compositions comprising bacterial strains	IL272491A	2020-03-31	4D Pharma Research Limited	IBS/IBD focused Microbiota focused	probiotic	Non specific	Western based
Compositions comprising bacterial strains	WO2020074569 A1	2020-04-16	4D Pharma Research Limited	Microbiota focused	probiotic	Non specific	Western based
Compositions comprising bacterial strains	WO2020079282 A1	2020-04-23	4D Pharma Research Limited	IBS/IBD focused	probiotic	Non specific	Western based
Compositions and methods for preventing and treating antibiotic induced pathologies using probiotics in the biofilm state	WO2020086487 A1	2020-04-30	Research Institute At Nationwide Children's Hospital	General digestive health	probiotic	Non specific	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Therapeutic microbiota for the treatment and/or prevention of dysbiosis	WO2020097483 A1	2020-05-14	The Brigham And Women's Hospital, Inc. The Children's Medical Center Corporation	IBS/IBD focused	probiotic	Non specific	Western based
Microbial compositions comprising ellagitannin and methods of use	WO2020096992 A1	2020-05-14	Marvelbiome, Inc.	Microbiota focused	prebiotic probiotic	Berries	Western based

8. THE EXTRA STUFF

8.1. Searching and Refinement Process

The search and refinement process was carried out in the following steps:

- Preparation of search criteria including key words and International Patent Classifications (IPCs) to target subject matter of interest, testing and refining to ensure relevant subject matter found. Searching using Boolean search criteria within PatSnap software accessing over 130 million published patents globally, to develop an initial raw dataset of patent families. The search and the results of this report captures new patents published between 13 March 2019 to 17 May 2020, and with a priority date after 13 September 2017.
- From a total of 1198 raw search results, we filtered these down to 387 patent families that we deemed relevant to HVN's Digestive Health platform.
- We then further classified each "relevant" patent by the health target(s), type of active(s), relevance to HVN interest foods, and as traditional herbal medicine based or Western based patents. Each relevant patent was then classed as Bull's Eye, Halo or Background as previously defined in section 1.3. The list of all relevant patents and links to the full text are provided in Sections 5-7.

8.2. Author of this Report

This updated report was prepared by Dr. Peter Brown, Director of IPSynergy (www.IPSynergy.co.nz). Peter is a registered patent attorney in NZ and Australia, holds a PhD in protein biochemistry and has substantial commercial experience dealing with food science, innovation and IP strategies. If you have any questions regarding this report, please feel free to contact Peter (peter.brown@ipsynergy.co.nz).