



Patent Insights Immune Health

Report dated 1 June 2021
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1.INTRODUCTION



1.1.Executive Summary

We identified 306 newly published patents since our last report of June 2020. Of these, 148 were classified as either Bulls Eye or Halo.

In this report, any analytics focusing on trends in the last 12 months (unless otherwise specified) only looked at these Bulls Eye and Halo patents.

From China, Dalian Polytechnic University (Liaoning province) has filed a topical patent ([CN111658664A](#)) focusing on sea cucumber polysaccharides to battle Covid-19.

Natural extracts continue to dominate new inventions, from various sources. Probiotics and antioxidants also play a part.

Our analysis shows that immune focused patent filings have been in decline over the past two years. Future reports will determine whether this is just a temporary downturn as predicted by Patsnap software.



Anti-inflammatory-related patents are being filed at a higher proportion than seen last year, with relatively fewer patents relating to the respiratory non-viral field. An increase in the number of patents relating to viral respiratory infection is also seen, with citrus used in some inventions ([KR102144049B1](#)).

Western-based multinationals continue to rank highly in the overall landscape. However, Asian-based players are becoming more prevalent, with South Korea and China in particular showing a spike of activity in the past year.

Patents of note from the Korea Food Research Institute include [KR1020210003614A](#) and [KR102210919B1](#), relating to the prevention and treatment of influenza virus infection using persimmon and barley leaf extracts respectively.

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 June 2020 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; and
- trends and insights from the Bulls Eye and Halo patents published over the past 12 months; 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 are patents published after 25 April 2020, providing immune health outcomes through food/drink interventions. We excluded patents generally 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 relate generally to protection from viral respiratory diseases, non-viral respiratory conditions such as asthma or from pollution, anti-inflammation, immune-based skin conditions, immunity health linked to the gut microbiome, or general immunity. Bull's Eye patents will also usually relate to foods, or food components 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 (e.g. there is poor scientific data to support the patent, or the patent is not focused primarily on immune health).

Background patents refer generally to immune health but not aligned on HVN focus. Unless otherwise specified, these were not included in the 12-month analytics. Many traditional herbal medicines (THM) approaches we found are classed as background patents because they utilise food components which are not relevant to HVN or often are not solely focused on immune health. A full list of the Background patents is presented in section 5.

2. PATENT TRENDS IN IMMUNE 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

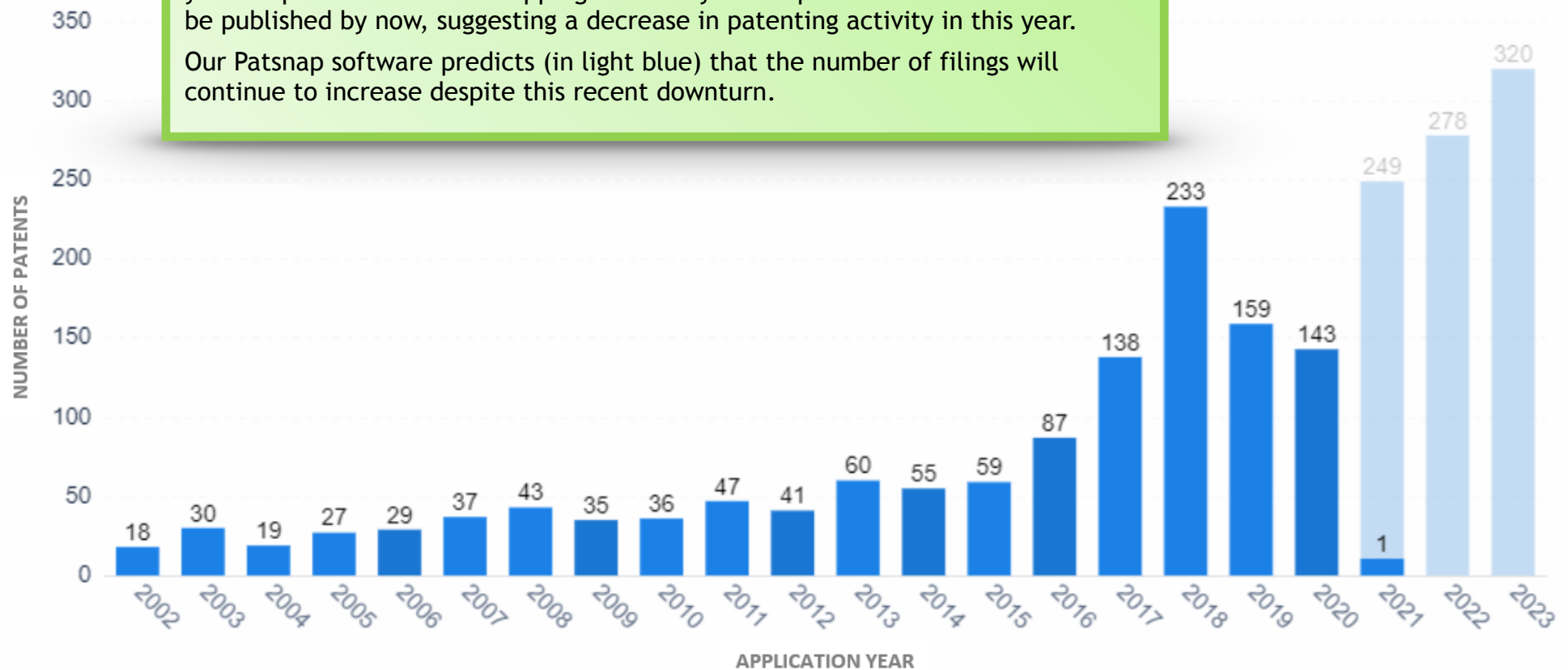
discovery



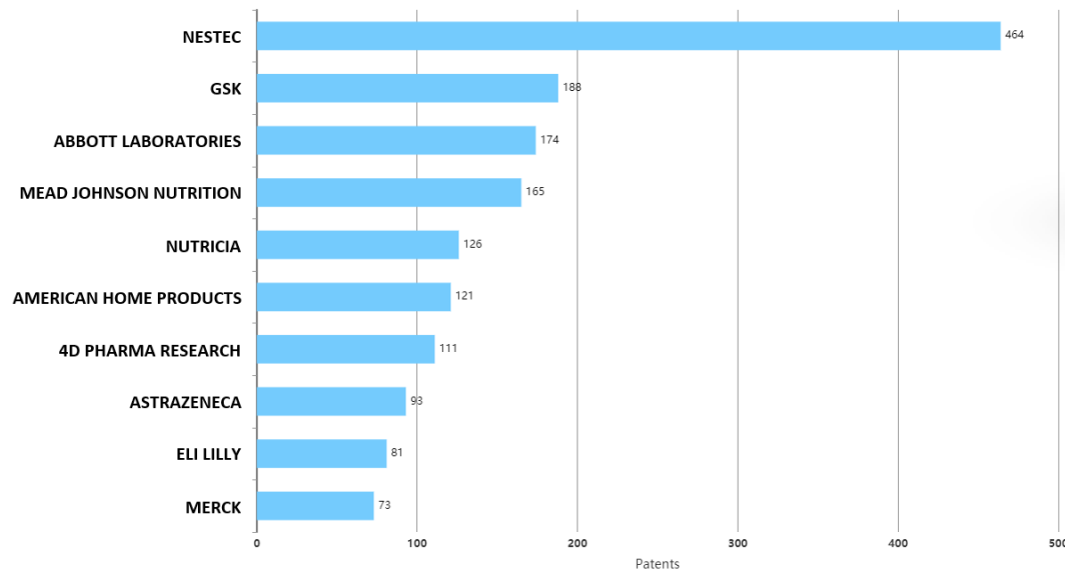
2.1.Overall Patent Application Trend in Immune Health (past 20 years)

In this update, we identify 306 new patents relevant to immune health since our last report, bringing out total landscape over the past 20 years to 1422 unique patent families (8953 patents globally). However, the growth trends seen in last year's report seems to be dropping off. Many of the patents filed in 2019 would be published by now, suggesting a decrease in patenting activity in this year.

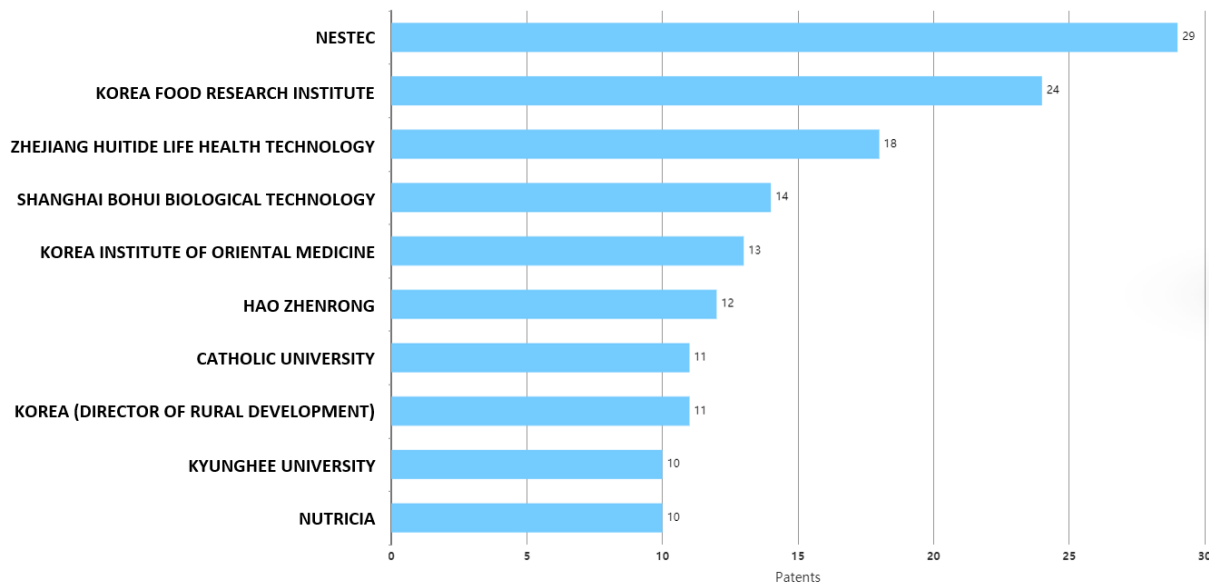
Our Patsnap software predicts (in light blue) that the number of filings will continue to increase despite this recent downturn.



2.2.Ranking of Applicants in Immune Health (past 20 years)



Here, we ranked Applicants by total number of patents filed globally, recognising some companies will file many patents for a single invention. Western based multinationals continue to rank highly.



This bottom graph ranks Applicants by their number of unique patented inventions (i.e patent families). Here, we continue to see many Asian Applicants in the top 10, including Korea Food Research Institute featuring very strongly, following closely behind Nestle.

2.3.Highest Valued Immune Health Patents (past 20 years)

Patent/Title	Std. Current Assignee	Simple Family	IPC Scope ⓘ	Value (USD)	Estimation Lifespan
US10946025B2 Compounds	GLAXO GRP LTD	100	3	\$10,390,000	1yrs <div><div></div></div> Application Expiry
ES2699161T3 Hydroxymethylbutyrate compositions and uses thereof	ABBOTT LAB	51	8	\$7,810,000	16yrs <div><div></div></div> Application Expiry
BRPI0616960B1 Use of lactobacillus for the treatment of viral infections	PROBI	55	6	\$7,550,000	15yrs <div><div></div></div> Application Expiry
HK1220636A1 Immunostimulatory g,u-containing oligoribonucleotides	ZOTTIS BELGIUM	38	0	\$6,440,000	5yrs <div><div></div></div> Application Expiry
BRPI0607743B1 prebiotic nutritional composition for babies and use of a prebiotic nutritional composition for babies.	NUTRICIA	41	6	\$5,340,000	15yrs <div><div></div></div> Application Expiry
HK1227316A1 Use of IgG in the manufacture of a medicament for the prevention or treatment of respiratory allergies	MJN U S HLDG	40	0	\$5,320,000	4yrs <div><div></div></div> Application Expiry
EP3164141B1 Food and beverage compositions infused with lipophilic active agents and methods of use thereof	POVIVA CORP	43	2	\$5,060,000	6yrs <div><div></div></div> Application Expiry
SG135554A1 Use of an influenza virus oil-in-water emulsion adjuvant to induce cd4 t-cell and/or improved b-memory cell response	GLAXOSMITHKLINE BIOLOGICALS SA	1	0	\$4,820,000	Expiry data unavailable
HK1197933A1 Diagnosis and risk stratification by means of the novel marker ct-proadm	BRAHMS	24	0	\$4,820,000	7yrs <div><div></div></div> Application Expiry

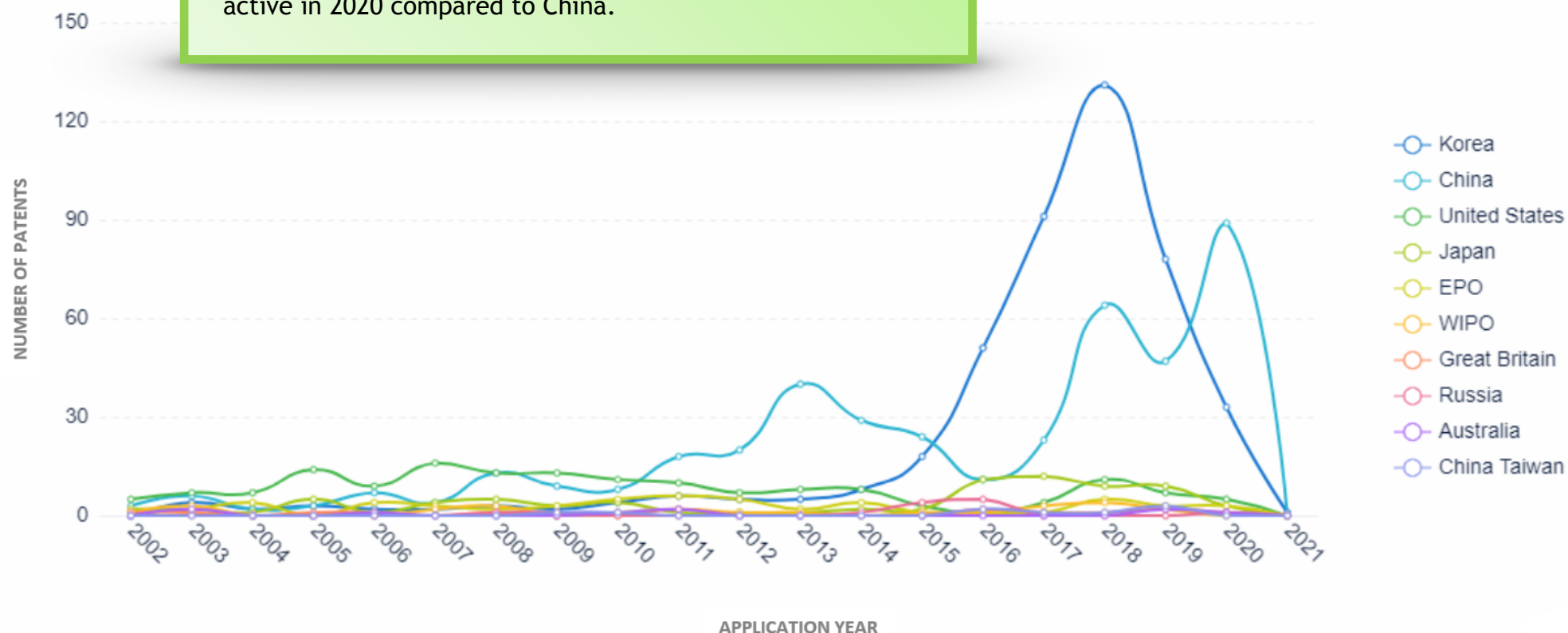
We are looking at the top 10 valued patents our immune health landscape from the past 20 years.

PatSnap's valuation algorithm takes into account market coverage, market attractiveness, technology quality, company score and legal score of the patents.

Many of the highest valued immune patents are more pharmaceutical- based than food-based. However, there are still some food based approaches and food companies like Nutricia and Mead Johnson that make the top 10 valued patents. Also we see as well as smaller niche players like Probi and Poviva who contribute to the highest valued patents, highlighting it is not just the multinationals that can develop valuable IP in the immune health landscape.

2.4.Regions Generating the Most Patents (past 20 years)

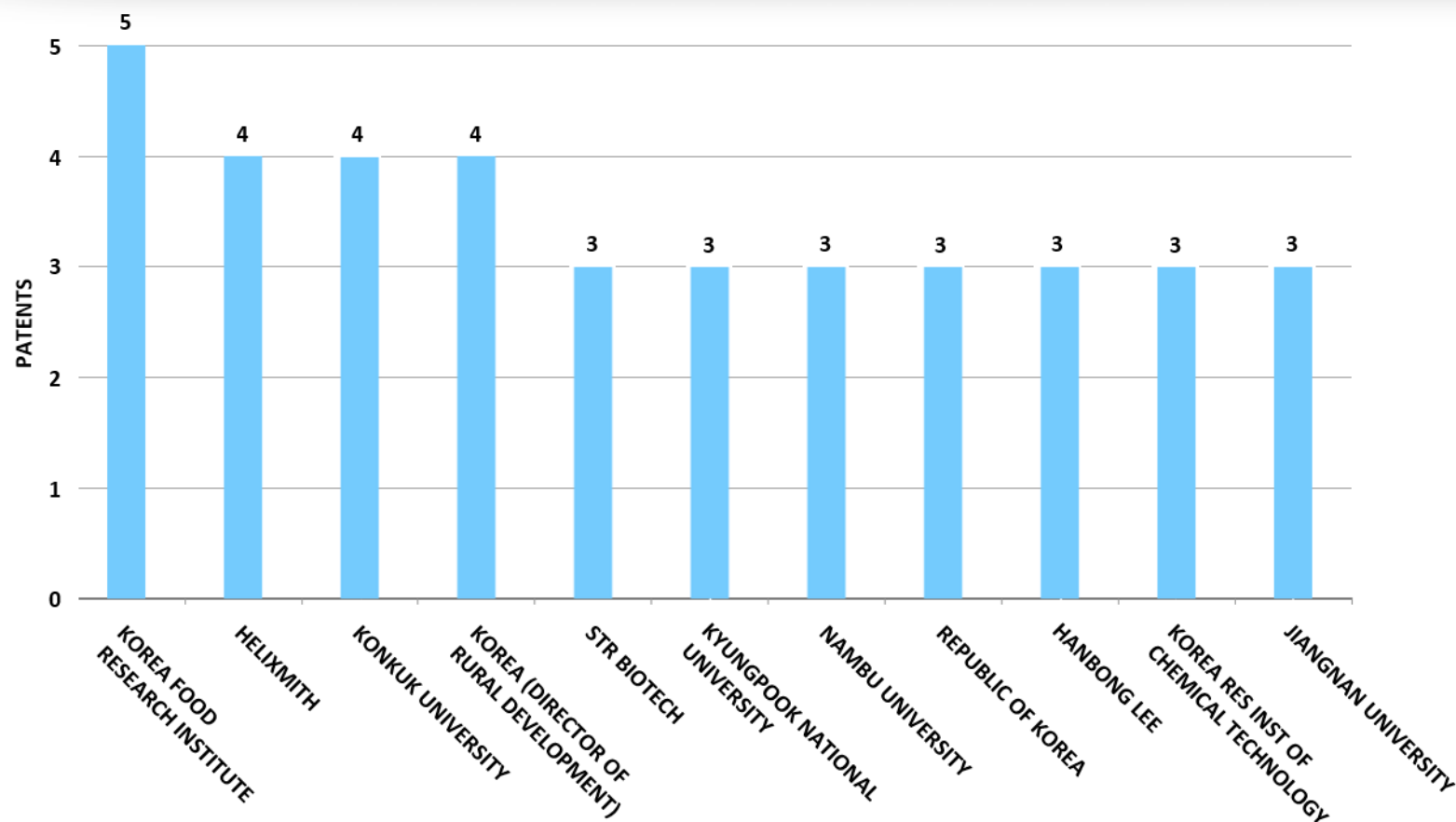
We see the recent dominance of South Korea and China in the immune health landscape, although South Korea has been less active in 2020 compared to China.



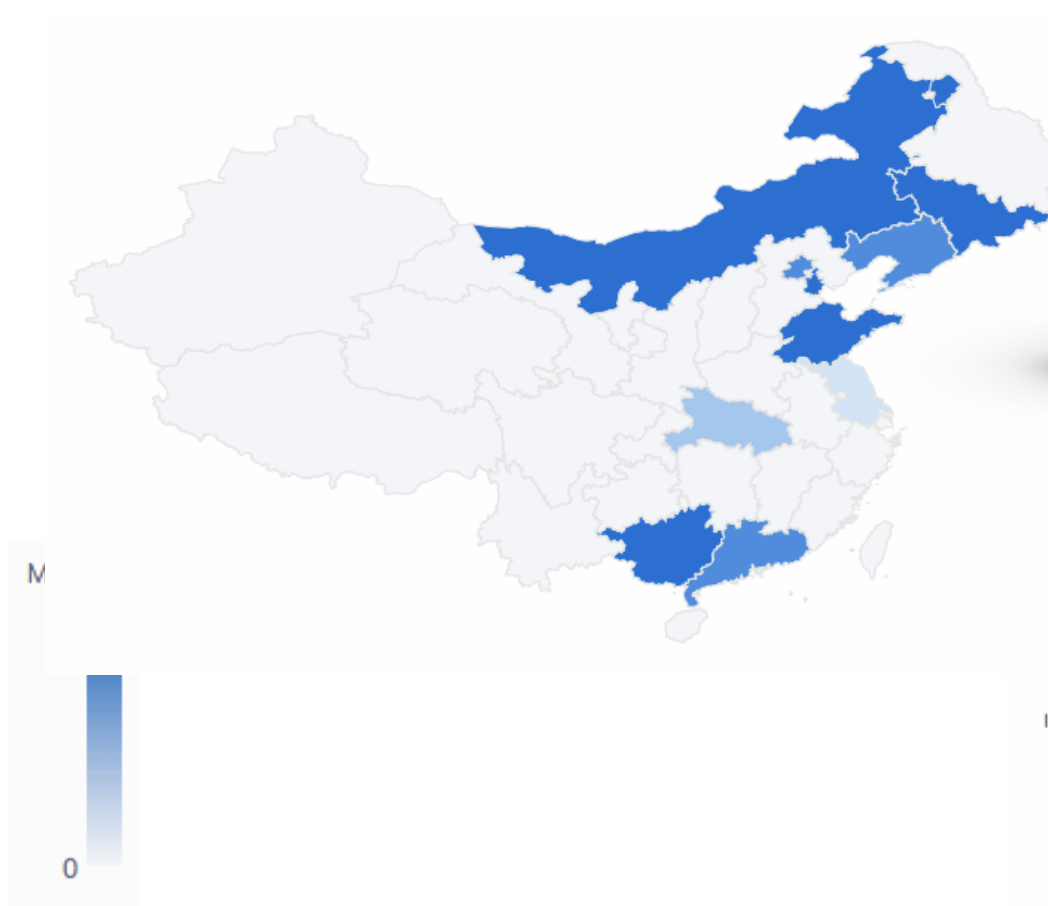
2.5.Top Patent Applicants (past 12 months)

Korean filers clearly dominate when looking at the Bull's Eye and Halo patents published in the last 12 months only. The Korea Food Research Institute, Helixmith and Konkuk University and Korea Rural Development all featured strongly.

Patents of note from the Korea Food Research Institute include [KR1020210003614A](#) and [KR102210919B1](#), relating to the prevention and treatment of influenza virus infection using persimmon and barley leaf extracts respectively.

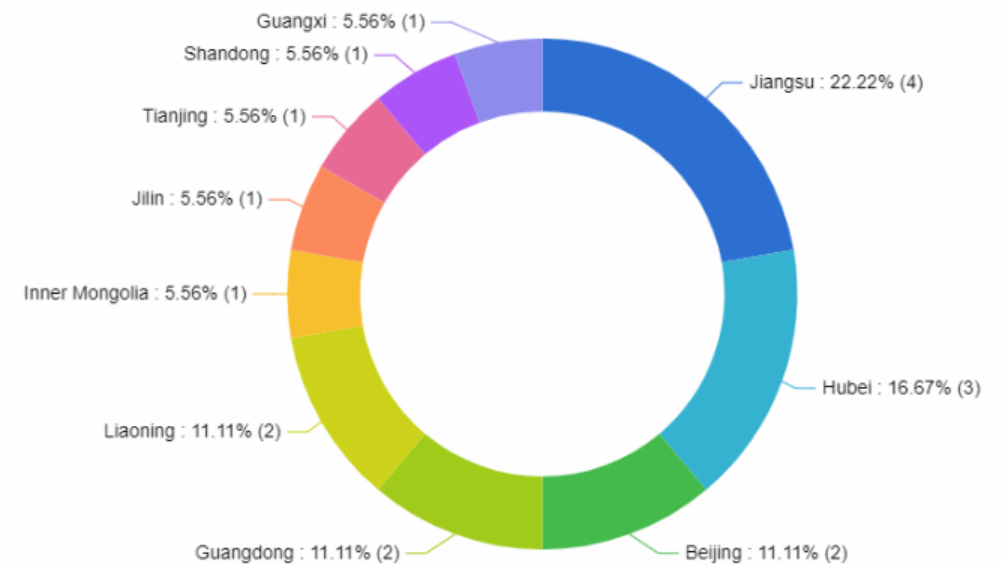


2.6.Chinese Patent Applicants by Province (past 12 months)

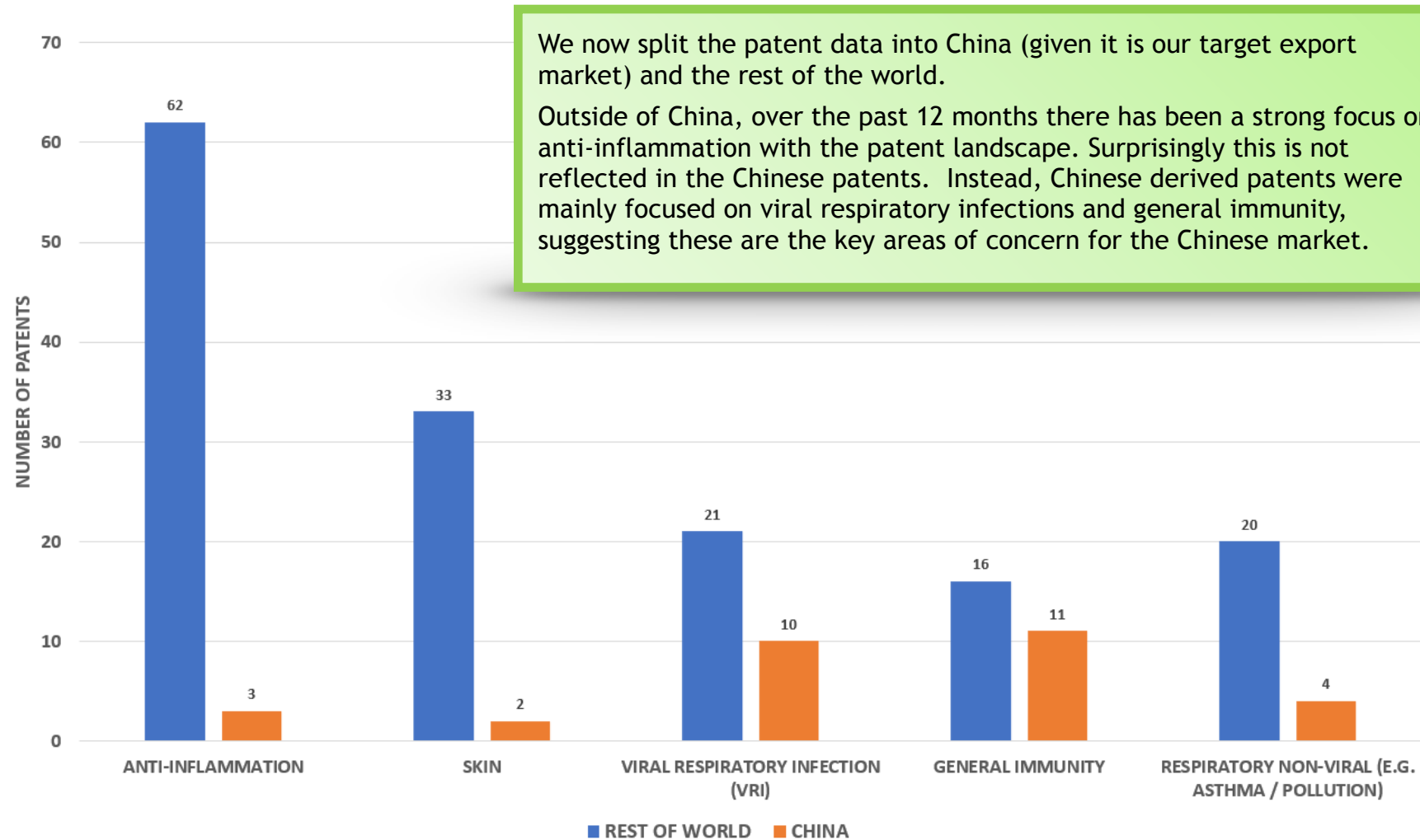


When compared with last year's report, we see a very similar pattern in the main Chinese provinces where immune health patents are originating. Jiangsu continues to hold the top spot, but a relative decrease in the proportion of patents filed.

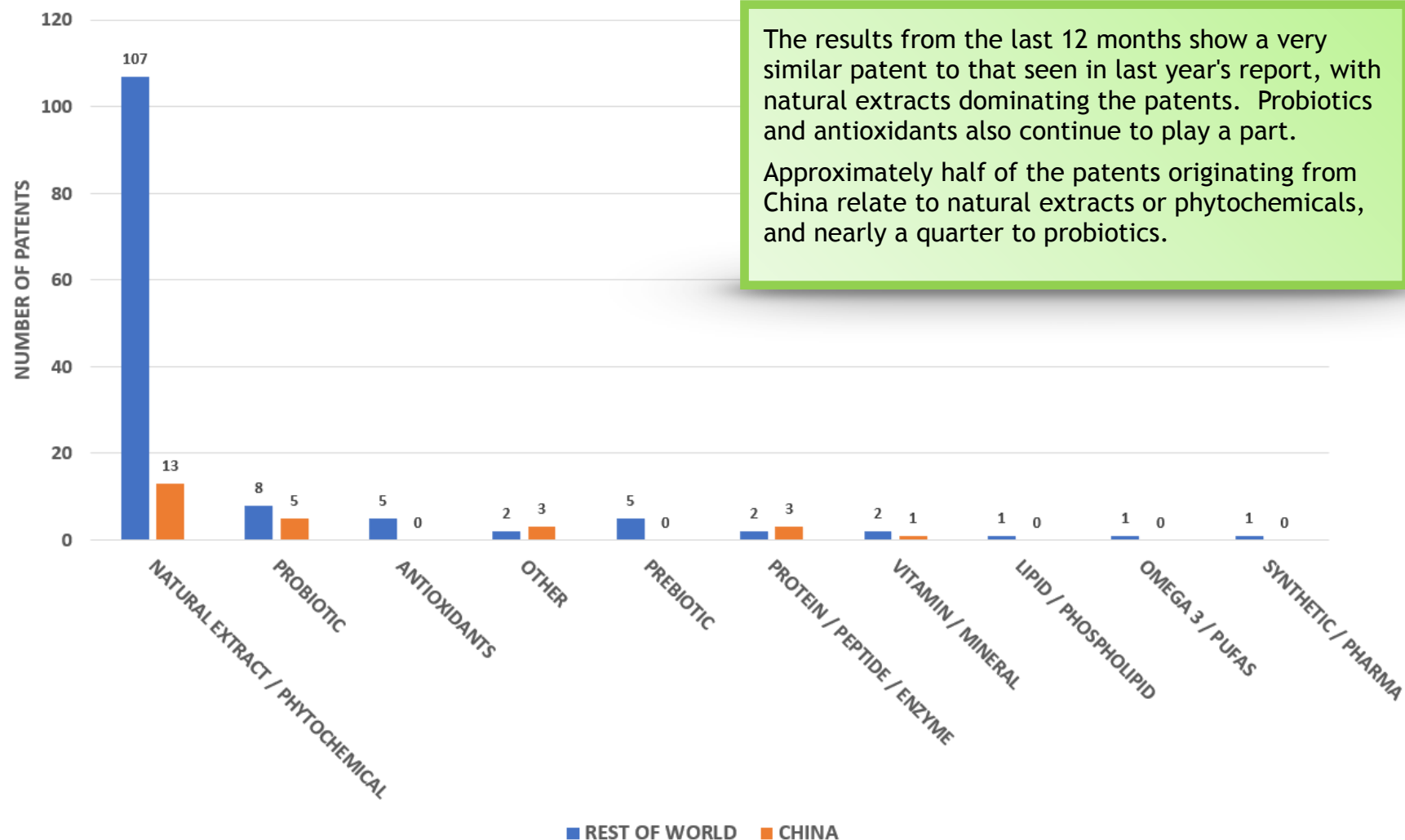
Liaoning province sees a number of new patent filings, including [CN111658664A](#) from Dalian Polytechnic University focusing on sea cucumber polysaccharides to battle Covid-19.



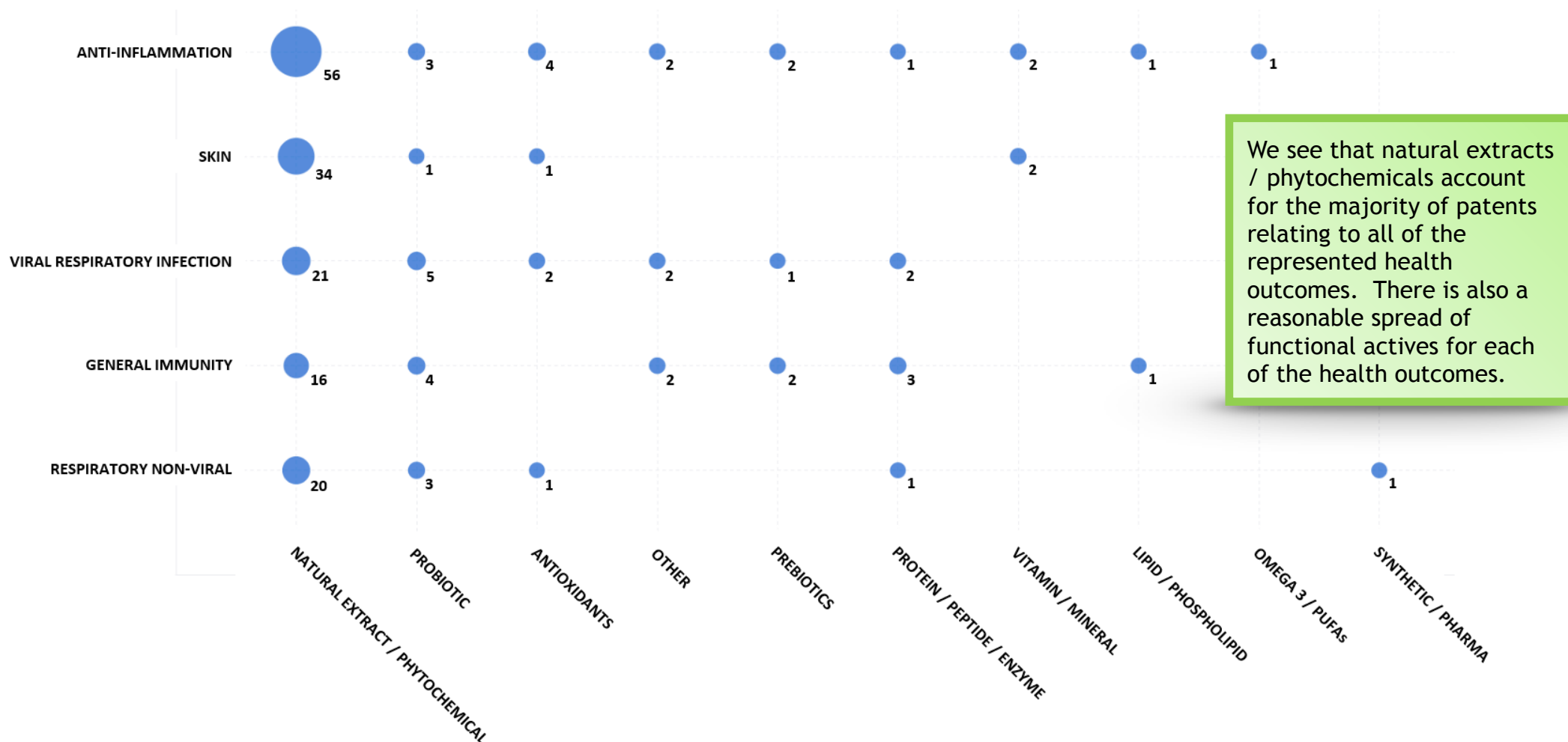
2.7. Health Focus (past 12 months)



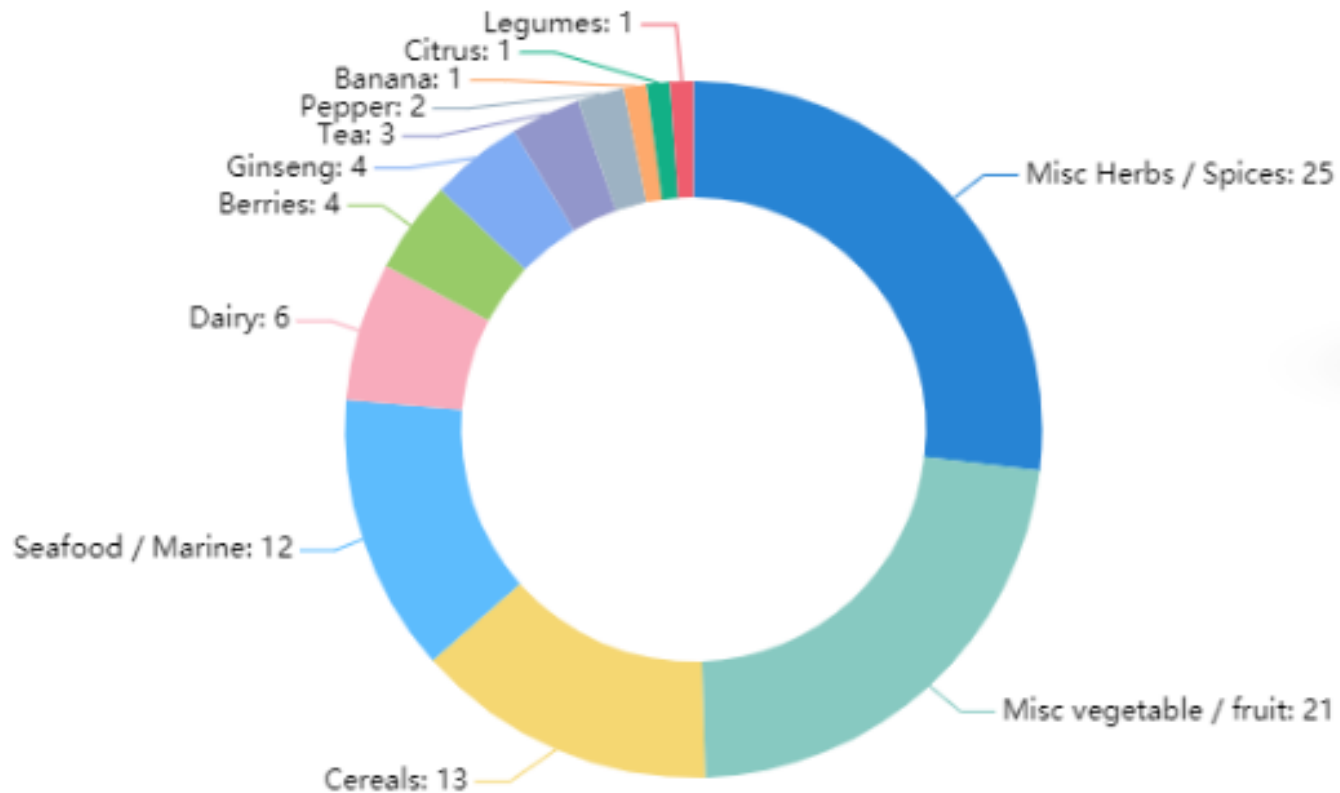
2.8.Primary Functional Actives (past 12 months)



2.9.Functional actives vs Health Focus (past 12 months)



2.10. Foods seen in the Immune Health Patent Landscape (past 12 months)



Miscellaneous herbs, spices, vegetables and fruits and represented in nearly half of the patents found in this year's review. Cereals and marine-based foods are also noticeable as being mentioned in another quarter of the inventions identified.

3.BULL'S EYE PATENTS

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Pharmaceutical composition comprising extract from camellia japonica as active ingredient for prevention and treatment of viral infection	WO2020235717A1	2020-11-26	HUSCION CO., LTD.	Viral respiratory Infection (VRI)	Natural Extract / Phytochemical	N/A	Western based
Use of anthocyanin-anionic polysaccharide complex for preventing or treating influenza virus a infection	WO2020262964A1	2020-12-30	JBKLAB CO., LTD.	Viral respiratory Infection (VRI)	Natural Extract / Phytochemical	N/A	Western based
Composition for inhibiting influenza virus including nodakenin and/or nodakenetin	WO2020262799A1	2020-12-30	LG HOUSEHOLD & HEALTH CARE LTD.	Viral respiratory Infection (VRI)	Natural Extract / Phytochemical	Misc vegetable / fruit	Western based
Enzymatically hydrolysed pectic polysaccharides for treating or preventing infections	EP3700357 A1	2020-09-02	NUTRILEADS B.V.	Viral respiratory Infection (VRI)	Natural Extract / Phytochemical	Misc vegetable / fruit	Western based
Antiviral composition with the extract of red yeast rice	KR1020200090519A	2020-07-29	Kongju National University Industry-Academic Cooperation Foundation	Viral respiratory Infection (VRI)	Natural Extract / Phytochemical	Cereals	Western based
Antiviral composition for influenza a virus comprising plant essential oils as an active material	KR102118181B1	2020-06-02	Gwangju Women's University Industry-Academic Cooperation Foundation	Viral respiratory Infection (VRI)	Natural Extract / Phytochemical	Misc Herbs / Spices	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Manufacturing method of composition for the prevention or treatment of highly pathogenic avian influenza virus and composition for the prevention or treatment of highly pathogenic avian influenza virus using the same	KR102231437B1	2021-03-24	Bosam Bio Industry Co., Ltd.	Viral respiratory Infection (VRI)	Natural Extract / Phytochemical	Cereals	Western based
A composition for the improving, preventing and treating of influenza virus infection comprising polysaccharide fraction isolated from barley leaf	KR102210919B1	2021-02-02	Korea Food Research Institute	Viral respiratory Infection (VRI)	Natural Extract / Phytochemical	Cereals	Western based
A composition for the improving, preventing and treating of influenza virus infection comprising polysaccharide fraction isolated from persimmon leaf	KR1020210003614A	2021-01-12	Korea Food Research Institute	Viral respiratory Infection (VRI)	Natural Extract / Phytochemical	Misc vegetable / fruit	Western based
Faint-fragrance scented tea, and preparation method and application thereof	CN111420005A	2020-07-17	Guangxi Jianhua Health Industry Co., Ltd.	Viral respiratory Infection (VRI)	Natural Extract / Phytochemical	Tea	Western based
Composition for preventing or inhibiting influenza virus infection containing ginseng fruit polysaccharide	CN112368008A	2021-02-12	Mari Pacific Co., Ltd.	Viral respiratory Infection (VRI)	Natural Extract / Phytochemical	Ginseng	Western based
Polysaccharide-containing fish meal buccal tablet and preparation method thereof	CN111990651A	2020-11-27	Dalian Polytechnic University	Viral respiratory Infection (VRI)	Other	Seafood / Marine	Western based
Nutritional composition	WO2020246585A1	2020-12-10	MORINAGA MILK INDUSTRY CO., LTD.	Viral respiratory Infection (VRI)	Prebiotic	Dairy	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Sea cucumber polypeptides and application thereof	CN111944014A	2020-11-17	Shan Dong University	Viral respiratory Infection (VRI)	Protein / Peptide / Enzyme	Seafood / Marine	Western based
Crude drug composition for preventing or treating respiratory diseases	EP3766509A1	2021-01-20	HELIXMITH CO., LTD	Viral respiratory Infection (VRI) Anti-inflammation	Natural Extract / Phytochemical	Misc Herbs / Spices	Western based
Crude drug composition for preventing or treating respiratory diseases	IN202017039838A	2020-10-02	HELIXMITH CO., LTD.	Viral respiratory Infection (VRI) Anti-inflammation	Natural Extract / Phytochemical	Misc Herbs / Spices	Western based
Crude drug composition for preventing or treating respiratory diseases	IN202017039835A	2020-10-02	HELIXMITH CO., LTD.	Viral respiratory Infection (VRI) Anti-inflammation	Natural Extract / Phytochemical Antioxidants	Misc Herbs / Spices	Western based
Composition containing healthy extract as active ingredient for enhancing production rates of neutralizing antibodies	WO2020204644A1	2020-10-08	KOREA INSTITUTE OF ORIENTAL MEDICINE	Viral respiratory Infection (VRI) General immunity	Natural Extract / Phytochemical	Misc Herbs / Spices	Western based
Herba epimedii medicinal material extract and application thereof in prevention or treatment of coronavirus	CN111759880A	2020-10-13	Guangdong Jinjungkang Biotechnology Co., Ltd.	Viral respiratory Infection (VRI) General immunity	Natural Extract / Phytochemical	Misc Herbs / Spices	Western based
Nitraria sibirica pall whole fruit and processing method and application thereof	CN111265559A	2020-06-12	Jinchang Fangquan Sand Products Co., Ltd.	Viral respiratory Infection (VRI) General immunity	Natural Extract / Phytochemical	Misc vegetable / fruit	Western based
Application of sea cucumber polysaccharide in resisting novel coronavirus	CN111658664A	2020-09-15	Dalian Polytechnic University	Viral respiratory Infection (VRI) General immunity	Other	Seafood / Marine	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Food, cosmetic and pharmaceutical formulation with an immunomodulatory and protective Anti-viral effect	US20210085729A1	2021-03-25	FARBER, BORIS SLAVINOVICH I FARBER, SOFYA BORISOVNA	Viral respiratory Infection (VRI) General immunity	Probiotic	N/A	Western based
Antiviral lung clearing peptides	CN111097040A	2020-05-05	Gou Chunhu	Viral respiratory Infection (VRI) General immunity Anti-inflammation	Protein / Peptide / Enzyme	Misc vegetable / fruit	Western based
Avocado extract composition has bactericidal and antiviral properties and method of manufacturing the same	US10888105B2	2021-01-12	BUI, CU VAN	Viral respiratory Infection (VRI) Respiratory non-viral (e.g. asthma / pollution)	Natural Extract / Phytochemical	Misc vegetable / fruit	Western based
Lung-moistening lung-clearing health-care tea and preparation method thereof	CN111657378A	2020-09-15	Wuhan Wansongtang Biomedical Technology Co., Ltd.	Viral respiratory Infection (VRI) Respiratory non-viral (e.g. asthma / pollution)	Natural Extract / Phytochemical	Tea	Western based
Crude Drug Composition For Preventing Or Treating Respiratory Diseases	US20200405798A1	2020-12-31	HELIXMITH CO., LTD.	Viral respiratory Infection (VRI) Respiratory non-viral (e.g. asthma / pollution) Anti-inflammation	Natural Extract / Phytochemical Antioxidants	Misc Herbs / Spices	Western based
Probiotic mixed formulation having Anti-influenza capability and use thereof	WO2020133805A1	2020-07-02	JIANGNAN UNIVERSITY	Viral respiratory Infection (VRI) Skin	Probiotic	N/A	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Composition for treating and preventing pulmonary disease caused by fine dust, comprising ecklonia cava extract	WO2021049780A1	2021-03-18	INDUSTRY-ACADEMIC COOPERATION FOUNDATION GYEONGSANG NATIONAL UNIVERSITY	Respiratory non-viral (e.g. asthma / pollution)	Natural Extract / Phytochemical	Seafood / Marine	Western based
Composition for preventing or treating Coal-Fly Ash-induced respiratory inflammation comprising extracts of Hypericum ascyron L.	KR1020210019979A	2021-02-23	Kyungpook National University Industry-Academic Cooperation Foundation	Respiratory non-viral (e.g. asthma / pollution)	Natural Extract / Phytochemical	N/A	Western based
Composition for prevention or treatment respiratory diseases comprising extracts of Schizonepeta tenuifolia as an active ingredient	KR1020210020554A	2021-02-24	Kim Man-jong	Respiratory non-viral (e.g. asthma / pollution)	Natural Extract / Phytochemical	Misc Herbs / Spices	Western based
A composition comprising extract of Schisandra chinensis, pear and Platycodon grandiflorum for preventing or treating respiratory inflammatory diseases	KR102169920B1	2020-10-26	Mungyeong City	Respiratory non-viral (e.g. asthma / pollution)	Natural Extract / Phytochemical	Misc vegetable / fruit	Western based
A composition for preventing, alleviating or treating respiratory disease comprising extracts of Eriobotrya japonica as an active ingredient	KR1020210020602A	2021-02-24	Doojin Seol	Respiratory non-viral (e.g. asthma / pollution)	Natural Extract / Phytochemical	N/A	Western based
Pharmaceutical composition comprising fermented extract of peppermint for preventing or treating of respiratory diseases	KR102147801B1	2020-08-26	Ajou University Industry-Academic Cooperation Foundation	Respiratory non-viral (e.g. asthma / pollution)	Natural Extract / Phytochemical	Misc Herbs / Spices	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Pharmaceutical composition comprising fermented extract of peppermint for preventing or treating of respiratory diseases	KR1020200100579A	2020-08-26	Ajou University Industry-Academic Cooperation Foundation	Respiratory non-viral (e.g. asthma / pollution)	Natural Extract / Phytochemical	Misc Herbs / Spices	Western based
Composition for preventing or treating respiratory inflammation disease comprising an extract of balloon flower roots	KR1020200075309A	2020-06-26	Good Farming Association Corporation	Respiratory non-viral (e.g. asthma / pollution)	Natural Extract / Phytochemical	N/A	Western based
Compositions for preventing and treating of inflammatory respiratory diseases and method for manufacturing thereof	KR102112287B1	2020-05-19	Biotion Co., Ltd. Health Maker Co., Ltd. Korea University Industry-Academic Cooperation Foundation	Respiratory non-viral (e.g. asthma / pollution)	Natural Extract / Phytochemical	N/A	Western based
A composition for improving, preventing and treating of asthmatic containing oriental medicine herbs oil extract as an active ingredient	KR1020200082648A	2020-07-08	Charmdown Co., Ltd.	Respiratory non-viral (e.g. asthma / pollution)	Natural Extract / Phytochemical	Misc Herbs / Spices	Western based
A composition for the prevention or treatment of respiratory diseases caused by fine dust containing agastache rugosa and licorice extract	KR102131602B1	2020-07-08	Cosmax NBT Co., Ltd. Cosmax NS Co., Ltd.	Respiratory non-viral (e.g. asthma / pollution)	Natural Extract / Phytochemical	Misc Herbs / Spices	Western based
A composition for the prevention or treatment of respiratory diseases caused by fine dust containing agastache rugosa extract	KR102160413B1	2020-09-28	Cosmax NBT Co., Ltd. Cosmax NS Co., Ltd.	Respiratory non-viral (e.g. asthma / pollution)	Natural Extract / Phytochemical	Misc Herbs / Spices	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Composition containing Luo Han Guo extract as an effective ingredient for the prevention, improvement or treatment of respiratory diseases	CN112367859A	2021-02-12	Korea Institute of Oriental Medicine	Respiratory non-viral (e.g. asthma / pollution)	Natural Extract / Phytochemical	Misc vegetable / fruit	Western based
Composition for protecting lung using yuja pericarp	KR102144049B1	2020-08-12	Immunotech Co., Ltd.	Respiratory non-viral (e.g. asthma / pollution)	Natural Extract / Phytochemical Protein / Peptide / Enzyme	Citrus	Western based
Composition for preventing or treating allergic rhinitis comprising novel ginsenoside	KR1020200049313A	2020-05-08	AMOREPACIFIC	Respiratory non-viral (e.g. asthma / pollution)	Synthetic / Pharma	Ginseng	Western based
Use of laurus nobilis extract fractions to protect against air pollution related diseases	WO2020156908A1	2020-08-06	DSM IP ASSETS B.V.	Respiratory non-viral (e.g. asthma / pollution) Anti-inflammation	Natural Extract / Phytochemical	Misc Herbs / Spices	Western based
Composition for preventing or treating inflammation, allergies and asthma, containing veronicastrum sibiricum l. pennell as active ingredient, and use thereof	WO2020226204A1	2020-11-12	KT&G CORPORATION	Respiratory non-viral (e.g. asthma / pollution) Anti-inflammation	Natural Extract / Phytochemical	N/A	Western based
Composition for preventing, ameliorating or treating allergic disease comprising coffee extract as effective component	KR102120758B1	2020-06-09	Korea Institute of Oriental Medicine	Respiratory non-viral (e.g. asthma / pollution) Anti-inflammation Skin	Natural Extract / Phytochemical	Misc vegetable / fruit	Western based
Fagopyrum Nutraceutical Compositions	US20210085741A1	2021-03-25	DST PHARMA, INC.	General immunity	Natural Extract / Phytochemical	N/A	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Pharmaceutical Composition for Preventing or Treating Allergic Disease Containing Extract from Bark of <i>Prunus serrulata</i>	KR1020200099357A	2020-08-24	Kyungpook National University Industry-Academic Cooperation Foundation	General immunity	Natural Extract / Phytochemical	N/A	Western based
Immunologic adjuvant comprising acid decomposed undaria pinnatifida extract and method for preparation thereof	KR1020200061787A	2020-06-03	Duksung Women's University Industry-Academic Cooperation Foundation	General immunity	Natural Extract / Phytochemical	Seafood / Marine	Western based
Preparing method of a composition for preventing, improving and treating allergic disease using fermented barley extract	KR1020200083815A	2020-07-09	Ilhwa Co., Ltd. Yuhan University Industry-Academic Cooperation Foundation Gyeonggi University Industry-Academic Cooperation Foundation	General immunity	Natural Extract / Phytochemical	Cereals	Western based
Mulberry-ganoderma lucidum-lactic acid bacteria co-fermentation product and preparation method and application of extract thereof	CN111938147A	2020-11-17	Huaiyin Institute of Technology	General immunity	Natural Extract / Phytochemical	Berries	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Application of fish body surface polysaccharides and fish body surface digestive polysaccharides	CN111084783A	2020-05-01	Shenzhen Life Valley Life Science and Technology Research Institute	General immunity	Natural Extract / Phytochemical	Seafood / Marine	Western based
Composition and preparation method and application thereof	CN109223739B	2020-11-10	Changchun University of Science and Technology	General immunity	Natural Extract / Phytochemical	Misc Herbs / Spices	Western based
Garlic polysaccharide microcapsules as well as preparation method and application thereof	CN111280365A	2020-06-16	Institute of Agricultural Products Processing, Chinese Academy of Agricultural Sciences	General immunity	Other	N/A	Western based
Nutritional Composition With Human Milk Oligosaccharides And Uses Thereof	US20200222436A1	2020-07-16	MEAD JOHNSON NUTRITION COMPANY	General immunity	Prebiotic	Dairy	Western based
Composition for improving gut flora, or composition for alleviating, preventing or treating gut inflammation, leaky gut syndrome, obesity, or metabolic intestinal disorders, comprising extract of radish greens	WO2020130296A1	2020-06-25	KOREA FOOD RESEARCH INSTITUTE	General immunity	Prebiotic Natural Extract / Phytochemical	Misc vegetable / fruit	Western based
Bifidobacterium lactis BL-99 capable of improving immunity and its application	CN110964657B	2021-03-12	Inner Mongolia Yili Industrial Group Co., Ltd.	General immunity	Probiotic	Dairy	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Bacteriologically pure protein product with high content of minor proteins	RU2738745 C1	2020-12-16	OBSHCHESTV O S OGRANICHENNOI OTVETSTVENNOSTIU «POBEDA-1» (OO «POBEDA-1»)	General immunity	Protein / Peptide / Enzyme	Dairy	Western based
Application of sturgeon protein peptide to preparation of immunomodulatory preparation	CN111202836A	2020-05-29	Chang'e Innovation (Wuhan) Biotechnology Co., Ltd.	General immunity	Protein / Peptide / Enzyme	Seafood / Marine	Western based
An anti-inflammatory or immunological enhancing composition comprising a Halocynthia aurantium tunic lipids as an active ingredient	KR1020200078803A	2020-07-02	Gangneung-Wonju University Industry-Academic Cooperation Foundation	General immunity Anti-inflammation	Lipid / Phospholipid	Seafood / Marine	Western based
A composition of wheatgrass and process for preparation thereof	WO2020213003A1	2020-10-22	KINGRA, IQBAL SINGH	General immunity Anti-inflammation	Natural Extract / Phytochemical	Cereals	Western based
Anti-inflammatory composition of blueberries containing chlorogenic acid as a standard	KR102153250B1	2020-09-07	Konkuk University Glocal Industry-Academic Cooperation Foundation	General immunity Anti-inflammation	Natural Extract / Phytochemical	Berries	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Composition for improving, preventing or treating inflammatory bowel disease or leaky gut syndrome comprising fractions or extract of pepper leave	KR1020200125206A	2020-11-04	Korea Food Research Institute	General immunity Anti-inflammation	Natural Extract / Phytochemical	Pepper	Western based
Composition containing processed product of mulberry leaves	JP2020143022A	2020-09-10	Smile Co., Ltd.	General immunity Skin	Natural Extract / Phytochemical	Tea	Western based
Composition for treating inflammatory diseases comprising detoxicated <i>Rumex crispus</i> L., and method for preparing the same	KR1020200083029A	2020-07-08	Chaeui Science University Industry-Academic Cooperation Group I Gahwa F&C Co., Ltd.	Anti-inflammation	Natural Extract / Phytochemical	N/A	Western based
Peroxisome proliferator-activated receptor (PPAR) activating composition	JP2020164453A	2020-10-08	Takagi Store	Anti-inflammation	Natural Extract / Phytochemical	Seafood / Marine	Western based
A pharmaceutical composition for the treatment of colorectal disease comprising the fermentative products of <i>Kalopanax septemlobus</i> as an active ingredient	KR1020200043296A	2020-04-27	STR Biotech Co., Ltd.	Anti-inflammation	Natural Extract / Phytochemical	N/A	Western based
<i>Sarcopoterium spinosum</i> extract for treating inflammation	WO2020174470A1	2020-09-03	ARIEL SCIENTIFIC INNOVATIONS LTD.	Anti-inflammation	Natural Extract / Phytochemical	N/A	Western based
A composition with antitussive and expectoration activities comprising an extract of <i>atractylodis rhizoma alba</i> and <i>schisandrae fructus</i>	EP3787658A1	2021-03-10	CHONG KUN DANG PHARMACEUTICAL CORP.	Anti-inflammation	Natural Extract / Phytochemical	Misc Herbs / Spices	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Pharmaceutical composition comprising mixture extract of <i>Coptis deltoidea</i> and <i>Schizonepeta tenuifolia</i> as active ingredient for prevention or treatment of inflammatory bowel disease	WO2020222470A1	2020-11-05	HELIXMITH CO., LTD.	Anti-inflammation	Natural Extract / Phytochemical	N/A	Western based
Plant extract mixture for use in the prevention and/or treatment of chronic inflammatory bowel diseases	WO2020249657A1	2020-12-17	VALBIOTIS	Anti-inflammation	Natural Extract / Phytochemical	Berries Misc vegetable / fruit	Western based
A composition for improving, preventing and treating of chronic inflammation diseases caused by excessive NLRP3 inflammasome activation comprising burdock extract	KR102212997B1	2021-02-05	Konkuk University Glocal Industry-Academic Cooperation Foundation	Anti-inflammation	Natural Extract / Phytochemical	Misc Herbs / Spices	Western based
Composition comprising extracts of <i>Acorus gramineus</i> and <i>Dendropanax moribifera</i> for anti-inflammation	KR1020200089527A	2020-07-27	Konkuk University Glocal Industry-Academic Cooperation Foundation	Anti-inflammation	Natural Extract / Phytochemical	N/A	Western based
Composition for Preventing or Treating Neurodegenerative Disease by extracts of <i>Mate</i> and <i>Dendropanax moribifera</i>	KR1020200089528A	2020-07-27	Konkuk University Glocal Industry-Academic Cooperation Foundation	Anti-inflammation	Natural Extract / Phytochemical	N/A	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Composition for anti-oxidation, anti-inflammation, anti-diabetes, or anti-wrinkle comprising extract of Hwangok apple peel	KR1020200046524A	2020-05-07	Kyungpook National University Industry-Academic Cooperation Foundation	Anti-inflammation	Natural Extract / Phytochemical	Misc vegetable / fruit	Western based
Composition for preventing or treating inflammatory diseases or allergic diseases comprising supercritical ethanol extract of skimmed perilla frutescens powder	KR1020200052628A	2020-05-15	Keimyung University Industry-Academic Cooperation Foundation	Anti-inflammation	Natural Extract / Phytochemical	Misc Herbs / Spices	Western based
Compositions for Treating or Preventing Inflammatory Disease Comprising Complex Extracts of Beet, Red Onion, and Purple Sweet Potato as an Active Ingredient	KR102123590B1	2020-06-16	Gustar Corporation	Anti-inflammation	Natural Extract / Phytochemical	Misc vegetable / fruit	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Composition for preventing, ameliorating or treating inflammatory bowel disease comprising extract of <i>Turbinaria ornata</i>	KR102175067B1	2020-11-06	Kunsan National University Industry-Academic Cooperation Foundation I Kyungnam University of Science and Technology Industry-Academic Cooperation I Korea Research Institute of Chemical Technology I Jeju National University Industry-Academic Cooperation Foundation	Anti-inflammation	Natural Extract / Phytochemical	Seafood / Marine	Western based
Composition for Anti-Inflammation and Enhancing Immunity comprising Red Ginseng, Jujube, Platycodi radix	KR102203501B1	2021-01-15	Geumsan Jinseng Cooperative	Anti-inflammation	Natural Extract / Phytochemical	Ginseng	Western based
Composition for anti-inflammatory containing Wild-simulated ginseng extract	KR102126846B1	2020-06-25	Republic of Korea	Anti-inflammation	Natural Extract / Phytochemical	Ginseng	Western based
Composition for preventing or treating of allergic comprising extract of <i>Cyperus flavidus</i>	KR102169159B1	2020-10-22	Republic of Korea	Anti-inflammation	Natural Extract / Phytochemical	N/A	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Pharmaceutical composition for treating or preventing inflammatory diseases comprising the extract of fermented <i>Astragalus membranaceus</i> Bunge	KR1020200074356A	2020-06-25	Korea (Director of Rural Development Administration)	Anti-inflammation	Natural Extract / Phytochemical	N/A	Western based
The fermented plum liquid for preventing inflammatory bowel disease and improving constipation and method for manufacturing the same	KR102154905B1	2020-09-10	Dong-A University Industry-Academic Cooperation Foundation	Anti-inflammation	Natural Extract / Phytochemical	Misc vegetable / fruit	Western based
Composition for preventing diseases, function improvement or treatment of inflammatory gastrointestinal comprising an extract of fermented omija as an active ingredient	KR1020200140606A	2020-12-16	Park Byung-hee	Anti-inflammation	Natural Extract / Phytochemical	Berries	Western based
Composition for preventing diseases, function improvement or treatment of inflammatory gastrointestinal comprising an extract of fermented omija as an active ingredient	KR1020210019483A	2021-02-22	Park Byung-hee	Anti-inflammation	Natural Extract / Phytochemical	N/A	Western based
Anti-inflammatory Composition Comprising Broccoli Extract	KR102119795B1	2020-06-05	Seowon University Industry-Academic Cooperation Foundation	Anti-inflammation	Natural Extract / Phytochemical	Misc vegetable / fruit	Western based
Pharmaceutical Composition comprising <i>Euodia pasteuriana</i> extract for Preventing or Treating Inflammatory disease as active ingredient	KR102220918B1	2021-02-26	Sungkyunkwan University Industry-Academic Cooperation Foundation	Anti-inflammation	Natural Extract / Phytochemical	N/A	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Pharmaceutical Composition comprising Licania macrocarpa extract for Previnting or Treating Inflammatory disease as active ingredient	KR102211732B1	2021-02-03	Sungkyunkwan University Industry-Academic Cooperation Foundation	Anti-inflammation	Natural Extract / Phytochemical	N/A	Western based
Pharmaceutical composition for prevention or treatment inflammatory diseases comprising comprising extract Machilus thubergii, or fractions thereof, or compounds isolated from therefrom	KR1020200126236A	2020-11-06	Andong City (Agricultural Technology Center) Kihyun Kim	Anti-inflammation	Natural Extract / Phytochemical	N/A	Western based
Composition for anti-inflammaion comprising defatted perilla seed extract produced by enzyme treatment as effective component	KR102199750B1	2021-01-07	Isome Co., Ltd. Dongbang Oil Co., Ltd. Andong University Industry-Academic Cooperation Foundation Daegu University Industry-Academic Cooperation Foundation	Anti-inflammation	Natural Extract / Phytochemical	Misc Herbs / Spices	Western based
A composition for preventing or treating inflammation comprising an extract of Ilex cornuta and uses thereof	KR1020200104996A	2020-09-07	Cosmax Co., Ltd.	Anti-inflammation	Natural Extract / Phytochemical	N/A	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Composition for improving, preventing or treating intestinal inflammation or leaky gut syndrome comprising fractions or extract of molokhia leave	KR102233749B1	2021-03-30	Korea Food Research Institute	Anti-inflammation	Natural Extract / Phytochemical	N/A	Western based
Composition for improving, treating or preventing intestinal function or inflammatory bowel disease comprising fermented rice as an active ingredient	KR1020200076157A	2020-06-29	Korea Food Research Institute	Anti-inflammation	Natural Extract / Phytochemical	Cereals	Western based
Pharmaceutical composition for prevention or treatment inflammatory diseases comprising comprising root extract Hovenia dulcis, or fractions thereof, or compounds isolated from therefrom	KR102191279B1	2020-12-15	Korea Research Institute of Chemical Technology Korea Arboretum Management Center	Anti-inflammation	Natural Extract / Phytochemical	Misc vegetable / fruit	Western based
Pharmaceutical composition for prevention or treatment inflammatory diseases comprising comprising root extract Hovenia dulcis, or fractions thereof, or compounds isolated from therefrom	KR1020200131209A	2020-11-23	Korea Research Institute of Chemical Technology Korea Arboretum Management Center	Anti-inflammation	Natural Extract / Phytochemical	N/A	Western based
Application of schisandra chinensis polysaccharide in preparation of medicines or health products for treating inflammatory bowel diseases	CN111514160A	2020-08-11	Nanjing University of Chinese Medicine	Anti-inflammation	Natural Extract / Phytochemical	Misc vegetable / fruit	Western based
Food and drink for preventing and/or treating inflammatory bowel disease or colorectal cancer	CN111773334A	2020-10-16	Nankai University	Anti-inflammation	Natural Extract / Phytochemical	Cereals	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Composition comprising extracts of <i>Stellaria media</i> for treating and preventing apotic dermatitis as an active ingredient	KR1020200072601A	2020-06-23	Yang Seung-won	Anti-inflammation	Natural Extract / Phytochemical Antioxidants	N/A	Western based
Preparation comprising omega-3 fatty acid salts and extracts of gum resins from <i>boswellia</i> species	WO2021019037A1	2021-02-04	EVONIK OPERATIONS GMBH	Anti-inflammation	Natural Extract / Phytochemical Omega 3 / PUFAs	Misc Herbs / Spices	Western based
<i>Amaranthus blitoides</i> with vitamin d compositions to enhance vitamin d half-life and activate vdr in humans and methods of using same	US20200129574A1	2020-04-30	AUDINO, DAVID	Anti-inflammation	Natural Extract / Phytochemical Vitamin / Mineral	Misc Herbs / Spices	Western based
Composition including saccharides complex derived from <i>Undaria pinnatifida</i> sporophyll for preventing, improving or treating inflammatory disease or osteoporosis	KR1020200142605A	2020-12-23	Dynebio Co., Ltd.	Anti-inflammation	Other	Seafood / Marine	Western based
Preparation for the treatment of inflammatory bowel disease using a whole plant fibre extract from sugarcane	AU2019285375A1	2021-01-21	UNIVERSITY OF TASMANIA	Anti-inflammation	Prebiotic	Cereals	Western based
HMO mixtures for the treatment of autoimmune diseases	KR1020210016557A	2021-02-16	Glycom A/S	Anti-inflammation	Prebiotic	Dairy	Western based
Novel <i>kazachstania turicensis</i> cau y1706 and composition using same	WO2020153815A1	2020-07-30	CHUNG ANG UNIVERSITY INDUSTRY ACADEMIC COOPERATION FOUNDATION	Anti-inflammation	Probiotic	N/A	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Composition of Heat-Killed Yeast and Taurine or a Phytomedicine for the Treatment of Chronic Inflammation	US20200353024A1	2020-11-12	RIGDON, KENDA I RIGDON, FRANK BRADY	Anti-inflammation	Probiotic	N/A	Western based
Composition for improving skin comprising an extract of pueraria thomsonii or a compound derived therefrom	HK40028324A	2021-02-05	LG HOUSEHOLD & HEALTH CARE LTD.	Anti-inflammation Skin	Natural Extract / Phytochemical	Legumes	Western based
Cannabinoid and cbd liposome formulations and uses thereof	US20210030678A1	2021-02-04	MEDTERRA PHARMA	Anti-inflammation Skin	Natural Extract / Phytochemical	N/A	Western based
Composition for alleviating, treating, or preventing skin diseases, containing thymus vulgaris extract	WO2020209701A1	2020-10-15	REYON PHARMACEUTICAL CO., LTD. I G&P BIOSCIENCE CO., LTD.	Anti-inflammation Skin	Natural Extract / Phytochemical	Misc Herbs / Spices	Western based
Composition for ameliorating, treating, or preventing skin diseases comprising echinacea purpurea juice	WO2020209702A1	2020-10-15	REYON PHARMACEUTICAL CO., LTD. I G&P BIOSCIENCE CO., LTD.	Anti-inflammation Skin	Natural Extract / Phytochemical	N/A	Western based
Saffron bulb extract for treating inflammations	WO2020182822A1	2020-09-17	TAGORA IP AG	Anti-inflammation Skin	Natural Extract / Phytochemical	N/A	Western based
Composition comprising essential oil extract derived anthoxylum coreanum Nakaiis for prevention or treatment of allergic diseases	KR102198964B1	2021-01-05	Republic of Korea	Anti-inflammation Skin	Natural Extract / Phytochemical	N/A	Western based
A composition for improving, preventing and treating dermatitis comprising Chrysanthemum zawadskii var extract	KR1020200101113A	2020-08-27	Jeongeup City	Anti-inflammation Skin	Natural Extract / Phytochemical	N/A	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
"View nutrition" Take4B4 cold symptoms (Natural vitamin C), soothing triple gel thirst quencher, powdered banana leaves (Intense fiber), UTI (Urinary tract infection) buster	US20200147164A1	2020-05-14	AIKEN, JOE ANN	Anti-inflammation Skin	Natural Extract / Phytochemical Vitamin / Mineral	Banana Misc vegetable / fruit	Western based
A composition for treating atopic dermatitis comprising a fermented product of balloon flower root by bioconversion	KR102168765B1	2020-10-22	STR Biotech Co., Ltd.	Skin	Natural Extract / Phytochemical	N/A	Western based
A composition for treating inflammation comprising a fermented product of black rice bran and balloon flower by bioconversion	KR102152331B1	2020-09-04	STR Biotech Co., Ltd.	Skin	Natural Extract / Phytochemical	Cereals	Western based
Composition for preventing or treating atopic dermatitis comprising extracts of Artemisia capillaris, Cinnamomum cassia, Scutellaria baicalensis and Coptis japonica	KR102213593B1	2021-02-15	You Care Farm Co., Ltd.	Skin	Natural Extract / Phytochemical	Misc Herbs / Spices	Western based
Composition for improving or treating atopic dermatitis comprising extracts of a mulberry tree as active ingredient	KR102117520B1	2020-06-03	Hansaeng Planet Co., Ltd. Hanbong Lee	Skin	Natural Extract / Phytochemical	N/A	Western based
Cosmetic composition having composition for prevention and treatment atopic dermatitis comprising extracts of a mulberry tree as active ingredient	KR102141148B1	2020-08-05	Hansaeng Planet Co., Ltd. Hanbong Lee	Skin	Natural Extract / Phytochemical	N/A	Western based
Pharmaceutical composition for preventing or treating atopic dermatitis, containing fermentation product of carica papaya linn.	WO2020242010A1	2020-12-03	SEOUL NATIONAL UNIVERSITY R&DB FOUNDATION	Skin	Natural Extract / Phytochemical	Misc vegetable / fruit	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Composition for preventing, improving or treating atopic dermatitis comprising Rosa davurica extract as effective component	KR102156543B1	2020-09-16	Gyeongsang National University Industry-Academic Cooperation Foundation	Skin	Natural Extract / Phytochemical	N/A	Western based
Composition comprising Fritillariae Thunbergii Bulbs extract for preventing or treating atopic dermatitis	KR102209969B1	2021-02-01	Kyunghee University Industry-Academic Cooperation Foundation	Skin	Natural Extract / Phytochemical	Cereals	Western based
Composition for prevention or treatment of atopic dermatitis with Illicium difengpi	KR102204940B1	2021-01-19	Nambu University Industry-Academic Cooperation Foundation	Skin	Natural Extract / Phytochemical	N/A	Western based
Composition for prevention or treatment of atopic dermatitis with Sargentodoxa cuneata	KR1020210034379A	2021-03-30	Nambu University Industry-Academic Cooperation Foundation	Skin	Natural Extract / Phytochemical	N/A	Western based
A composition for preventing or treating atopic dermatitis comprising the extract of corn silk	KR1020200117957A	2020-10-14	Korea (Director of Rural Development Administration)	Skin	Natural Extract / Phytochemical	Cereals	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
A composition for preventing or treating atopic dermatitis comprising the extract of oat sprout	KR1020210013497A	2021-02-04	Korea (Director of Rural Development Administration)	Skin	Natural Extract / Phytochemical	Cereals	Western based
A composition comprising extract of <i>Prasiola japonica</i> for preventing or treating for inflammatory skin diseases	KR1020200081914A	2020-07-08	Samcheok City	Skin	Natural Extract / Phytochemical	N/A	Western based
Composition for preventing or treating psoriasis comprising sesquiterpenoid compounds or sesquiterpenoids enriched fraction derived from <i>Tussilago farfara</i>	KR102218299B1	2021-02-22	Seowon University Industry-Academic Cooperation Foundation	Skin	Natural Extract / Phytochemical	N/A	Western based
Anti-atopic composition comprising extract of pepper seed meal as effective component	KR102213459B1	2021-02-08	Andong University Industry-Academic Cooperation Foundation Isome Co., Ltd. Nutrition Red Pepper Distribution Corporation	Skin	Natural Extract / Phytochemical	Pepper	Western based
Composition for Anti-inflammation and Atopy Dermatitis Using an Extract of Barly Nuruk	KR1020200093347A	2020-08-05	Jeju Techno Park Foundation Jeju Herb Cooperative Association	Skin	Natural Extract / Phytochemical	Cereals	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Composition for regulating skin hypersensitivity comprising Callophyllis japonica extract	KR1020200091545A	2020-07-31	Chosun University Industry-Academic Cooperation Foundation	Skin	Natural Extract / Phytochemical	Seafood / Marine	Western based
A Compositions for anti-itching of skin and preventing or improvement of atopic dermatitis comprising extract from Ageratum houstonianum, Schisandra chinensis and Bupleurum falcatum	KR102107748B1	2020-05-08	Azera Biotech Co., Ltd.	Skin	Natural Extract / Phytochemical	N/A	Western based
Composition for preventing, ameliorating or treating atopic dermatitis comprising enzyme treated Diospyros lotus as effective component	KR102227261B1	2021-03-12	AtoQ&A Co., Ltd.	Skin	Natural Extract / Phytochemical	N/A	Western based
Functional food having composition for prevention and treatment atopic dermatitis comprising extracts of a mulberry tree as active ingredient	KR102141337B1	2020-08-04	Hansaeng Planet Co., Ltd. Hanbong Lee	Skin	Natural Extract / Phytochemical	N/A	Western based
A composition for preventing or treating atopy comprising the extract of Artemisia Anomala	KR1020200074308A	2020-06-25	Korea Institute of Oriental Medicine	Skin	Natural Extract / Phytochemical	N/A	Western based
Composition for preventing, ameliorating or treating allergic skin disease containing depigmented gardenia extract as an active ingredient	CN112351788A	2021-02-09	Korea Institute of Oriental Medicine	Skin	Natural Extract / Phytochemical	Misc vegetable / fruit	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Composition for preventing, treating or improving skin immunity disease	KR102155704B1	2020-09-14	Nambu University Industry-Academic Cooperation Foundation	Skin	Natural Extract / Phytochemical Antioxidants	N/A	Western based
Sophora davidii and chamomile antiallergic composition as well as preparation method and application thereof	CN111110836A	2020-05-08	Wuhan University of Light Industry	Skin	Natural Extract / Phytochemical Vitamin / Mineral	Misc Herbs / Spices	Western based

4. HALO PATENTS

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Novel lactobacillus plantarum Probio-091 improving respiratory immunity, and Composition for reduction or treatment of avian influenza virus and acute respiratory distress syndrome comprising the same	KR1020200054594A	2020-05-20	Probionic Co., Ltd.	Viral respiratory Infection (VRI)	Probiotic	N/A	Western based
A strain of mucosal lactobacillus with anti-influenza ability and its application	CN109486722B	2020-08-04	Jiangnan University Food Biotechnology Research Institute of Jiangnan University (Yangzhou)	Viral respiratory Infection (VRI)	Probiotic	N/A	Western based
Composition for anti-virus Comprising Nano-Sized Lactic Acid Bacteria from Kimchi	KR1020200084829A	2020-07-13	Biogenics Korea Co., Ltd.	Viral respiratory Infection (VRI)	Probiotic	N/A	Western based
Black seed is cure for cancer, aids, flu virus and any other virus or disease in body	CA3030722A1	2020-07-21	KHAN, FAISAL	Viral respiratory Infection (VRI) General immunity	Natural Extract / Phytochemical	N/A	Western based
A bifidobacterium lactis GKK2, a composition comprising thereof and its use for improving allergic asthma	TWI709408B	2020-11-11	GRAPE KING BIO LTD.	Respiratory non-viral (e.g. asthma / pollution)	Probiotic	N/A	Western based
A strain of Lactobacillus reuteri capable of relieving allergic asthma and its application	CN109628359B	2021-03-02	Jiangnan University	Respiratory non-viral (e.g. asthma / pollution)	Probiotic	N/A	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Primary actives	HVN Food link	Traditional herbal medicine
Lactobacillus paracasei for relieving allergic rhinitis and application of lactobacillus paracasei	CN111575211A	2020-08-25	Beijing Ketuo Hengtong Biotechnology Co., Ltd.	Respiratory non-viral (e.g. asthma / pollution)	Probiotic	N/A	Western based
Application of lactobacillus reuteri from breast milk to regulation of maternal and infant immune functions	CN111265553A	2020-06-12	Hunan Feile Biological Technology Co., Ltd. Sun Jin Guangzhou Feile Biological Technology Co., Ltd.	General Immunity	Probiotic	Dairy	Western based
Compositions comprising bacterial strains	IL277422A	2020-10-29	4D PHARMA RESEARCH LIMITED	General immunity Anti-inflammation	Probiotic	N/A	Western based
Use of fraction of apios americana tuber extract having Anti-inflammatory activity as preventive or therapeutic agent for alcoholic gastritis, and production method thereof	WO2020256464A1	2020-12-24	KOREA INSTITUTE OF ORIENTAL MEDICINE	Anti-inflammation	Natural Extract / Phytochemical	Misc vegetable / fruit	Western based
Composition for skin whitening or anti-inflammatory comprising extract of fermented Angelica gigas with improved antioxidant activity as effective component	KR1020200086781A	2020-07-20	Jade Min	Anti-inflammation	Natural Extract / Phytochemical Antioxidants	Misc Herbs / Spices	Western based
Composition for preventing or treating neuroinflammatory disorders, comprising bee venom extract as active ingredient	WO2020197332A1	2020-10-01	INIST ST CO., LTD.	Anti-inflammation	Other	N/A	Western based

5. BACKGROUND PATENTS

Title	Publication Number	Publication Date	Owner	Health Focus	Traditional herbal medicine
Traditional Chinese medicine composition for treating pneumonia	CN111281914A	2020-06-16	Ding Hong	Viral respiratory Infection (VRI)	Traditional Herbal Medicine
Formula and preparation method of treatment tea for viral diseases	CN111388549A	2020-07-10	Lu Maolin	Viral respiratory Infection (VRI)	Traditional Herbal Medicine
Medicinal composition for respiratory disease in autumn	CN111888413A	2020-11-06	Tianjin University of Traditional Chinese Medicine	Viral respiratory Infection (VRI)	Traditional Herbal Medicine
Antiviral traditional Chinese medicine composition and preparation method and application thereof	CN111803593A	2020-10-23	Deng Runhua Liang Feng	Viral respiratory Infection (VRI)	Traditional Herbal Medicine
Traditional Chinese medicine composition for preventing and adjunctively treating pneumonia and preparation method thereof	CN111743977A	2020-10-09	Institute of Agricultural Environment and Sustainable Development, Chinese Academy of Agricultural Sciences	Viral respiratory Infection (VRI) Anti-inflammation	Traditional Herbal Medicine
Medicinal and edible Chinese medicinal composition and preparation method and application thereof	CN111956753A	2020-11-20	Shan Dong University	Viral respiratory Infection (VRI) General immunity	Traditional Herbal Medicine
Medicinal and edible traditional Chinese medicine preparation and application thereof	CN111773282A	2020-10-16	Guangdong Jinjungkang Biotechnology Co., Ltd.	Viral respiratory Infection (VRI) General immunity	Traditional Herbal Medicine

Title	Publication Number	Publication Date	Owner	Health Focus	Traditional herbal medicine
Composition capable of preventing and treating novel coronavirus and flu and preparation method of beverage thereof	CN111588766A	2020-08-28	Changchun University of Chinese Medicine	Viral respiratory Infection (VRI) General immunity	Traditional Herbal Medicine
Bag tea with effects of improving immunity and preventing viruses	CN111298034A	2020-06-19	Lei Yunshang Pharmaceutical Group Co., Ltd.	Viral respiratory Infection (VRI) General immunity	Traditional Herbal Medicine
Feed additive and preparation method thereof	CN111513188A	2020-08-11	Anhui Shengzhiyuan Industrial Co., Ltd.	Viral respiratory Infection (VRI) General immunity Anti-inflammation	Traditional Herbal Medicine
Food composition for improvement of respiratory function	KR102128457B1	2020-06-30	Korean Peninsula, Inc.	Viral respiratory Infection (VRI) Respiratory non-viral (e.g. asthma / pollution)	Traditional Herbal Medicine
Tea bag for preventing Covid-19 and preparation method of teabag	CN111480718A	2020-08-04	Huang Luqi	Viral respiratory Infection (VRI) Respiratory non-viral (e.g. asthma / pollution)	Traditional Herbal Medicine
A composition for improving, preventing and treating of asthma and vascular disease	KR102185006B1	2020-12-01	Jangsu Food Co., Ltd.	Respiratory non-viral (e.g. asthma / pollution)	Traditional Herbal Medicine
Composition for nourishing yin, moistening lung, relieving cough and asthma, a functional food and a preparation method of functional food	CN111466563A	2020-07-31	Shanxi Zhendong Wuhe Health Technology Co., Ltd.	Respiratory non-viral (e.g. asthma / pollution)	Traditional Herbal Medicine

Title	Publication Number	Publication Date	Owner	Health Focus	Traditional herbal medicine
Traditional Chinese medicine composition for preventing respiratory tract infection pathogenic microorganisms and preparation method thereof	CN111407817A	2020-07-14	Lai Yu	Respiratory non-viral (e.g. asthma / pollution)	Traditional Herbal Medicine
Composition of the extract of combined herb CGE for preventing and treating respiratory inflammation	KR102197445B1	2020-12-31	Chungnam National University Industry-Academic Cooperation Foundation I Pyunkang Co., Ltd.	Respiratory non-viral (e.g. asthma / pollution) Anti-inflammation	Traditional Herbal Medicine
A composition, its preparation method and application	CN108888715B	2021-03-23	Yunnan Decaitang Biomedical Technology Co., Ltd.	Respiratory non-viral (e.g. asthma / pollution) Anti-inflammation	Traditional Herbal Medicine
Functional flour for supporting healthy energy, improving immunity and preventing and controlling epidemic toxin	CN111264755A	2020-06-12	Yang Bo	Respiratory non-viral (e.g. asthma / pollution) General immunity	Traditional Herbal Medicine
Composition for clearing away lung-heat and relieving cough as well as preparation method and application thereof and medicine	CN111714544A	2020-09-29	Zhang Jingzhi	Respiratory non-viral (e.g. asthma / pollution) General immunity Anti-inflammation	Traditional Herbal Medicine
Functional beverage for supporting healthy energy, improving immunity and preventing and controlling epidemic toxin	CN111264735A	2020-06-12	Yang Bo	Respiratory non-viral (e.g. asthma / pollution) General immunity Anti-inflammation	Traditional Herbal Medicine

Title	Publication Number	Publication Date	Owner	Health Focus	Traditional herbal medicine
Food or beverage for babies and infants, method for improving intestinal environment of baby or infant, and method for enhancing immunity of baby or infant	WO2020166527A1	2020-08-20	TANAKA MEGUMI I TANAKA TSUNEMARU	General immunity	Western based
Application of dairy products in improving SIgA level of intestinal tracts of infants and young children	CN111227046A	2020-06-05	Inner Mongolia Yili Industrial Group Co., Ltd.	General immunity	Western based
Compositions comprising bacterial strains	IN202017040590A	2021-01-01	4D PHARMA RESEARCH LIMITED	General immunity	Western based
Substance for treating and/or preventing allergic diseases, and design method and preparation method therefor	WO2020108448A2	2020-06-04	DONG, FUTIAN	General immunity	Traditional Herbal Medicine
Method for processing oil crops using rhodotorula	WO2020124632A1	2020-06-25	JIANGNAN UNIVERSITY	General immunity	Western based
Anti-obesity agent, anti-dementia agent, deodorant, anti-aging agent, anti-glycation agent, anti-type i allergy agent, hypotensive agent, flavor improving agent, muscle enhancing agent, and bone metabolism improving agent	AU2019277620A1	2020-12-17	mitsui sugar co., ltd.	General immunity	Western based
Composition comprising vitamin a and non digestible oligosaccharides	WO2020234226A1	2020-11-26	N.V. NUTRICIA	General immunity	Western based
Composition for tonifying kidney and strengthening yang, and its preparation method and application	TW202017579A	2020-05-16	TONGHUA TELI JIER PHARMACEUTICAL TECHNOLOGY SERVICE CO. LTD.	General immunity	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Traditional herbal medicine
Immunity-boosting gel candy for children and the method of preparation	AU2020102282A4	2020-10-21	UNIPHARM HEALTHY MANUFACTURING CO. LIMITED	General immunity	Traditional Herbal Medicine
Compositions and methods for the treatment of allergies	JP2021502391A	2021-01-28	VEDANTA BIOSCIENCES, INC.	General immunity	Western based
Composition for Enhancing Immunity comprising Kalopanax Extract as effective component	KR102154284B1	2020-09-09	Dankook University Cheonan Campus Industry-Academic Cooperation Foundation	General immunity	Western based
Composition for Anti-Allergy Using an Extract of Gnetum macrostachyum	KR102114674B1	2020-05-26	Korea (Director of National Institute of Biological Resources, Ministry of Environment) Gyeonggi-do Economics and Science Promotion Agency	General immunity	Western based
Composition for improving, preventing or treating obesity and metabolic diseases comprising fractions or extract of pepper leave	KR1020200125156A	2020-11-04	Korea Food Research Institute	General immunity	Western based
Lactobacillus and its uses	KR1020210005671A	2021-01-14	Hokukon Company Limited	General immunity	Western based
Oyster peptide and cordyceps mycelium composition with immunity enhancing function and application thereof	CN111657501A	2020-09-15	Ocean University of China Rushan Hualong Biotechnology Co., Ltd.	General immunity	Traditional Herbal Medicine
Preparation method and application of eucommia ulmoides fermentation product	CN111528368A	2020-08-14	Ocean University of China Qingdao Sino-German Jianlian Duzhong Biotechnology Co., Ltd.	General immunity	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Traditional herbal medicine
Tablet candy with biochemical functions and preparation method of tablet candy	CN111096385A	2020-05-05	Zhongyuan Baojian (Xiamen) Biotechnology Co., Ltd.	General immunity	Traditional Herbal Medicine
Functional plant health drink and preparation method thereof	CN111728110A	2020-10-02	Zhongke Guokang (Beijing) Biotechnology Co., Ltd.	General immunity	Traditional Herbal Medicine
Traditional Chinese medicine formula for preventing reworked people from being infected with neocoronavirus and tea bag	CN111529625A	2020-08-14	Jiuxin (Wuhan) Institute of Chinese Medicine Co., Ltd.	General immunity	Traditional Herbal Medicine
Throat-protecting and lung-moistening tea and brewing method thereof	CN111642604A	2020-09-11	Bao Mingjiang	General immunity	Traditional Herbal Medicine
Formula and preparation method of medicine and food homologous hypoglycemic plant teabag	CN111149903A	2020-05-15	Wu Yongsheng	General immunity	Traditional Herbal Medicine
Health-care food having lung nourishing effect and making method of health-care food	CN111903973A	2020-11-10	Guozhen Health Technology (Beijing) Co., Ltd.	General immunity	Traditional Herbal Medicine
Compound nutrient capable of efficiently enhancing immune function of resisting mycobacterium tuberculosis infection of human body	CN111686171A	2020-09-22	Fudan University	General immunity	Western based
Plant-based composition for enhancing immunity and protecting respiratory system and preparation of the plant-based composition	CN111528387A	2020-08-14	Tianjin Jianfeng Flanders Pharmaceutical Technology Development Co., Ltd.	General immunity	Traditional Herbal Medicine
Bifidobacterium animalis BZ11 complex microbial inoculant with effects of improving immunity and regulating intestinal function	CN111567809A	2020-08-25	Oaks Road Co., Ltd.	General immunity	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Traditional herbal medicine
Traditional Chinese medicine additive for improving poultry resistance and preparation method thereof	CN111840404A	2020-10-30	Anhui Zhengdayuan Feed Group Co., Ltd.	General immunity	Traditional Herbal Medicine
Lung-moistening toxin-expelling dendrobium huoshanense tea and production method thereof	CN111773321A	2020-10-16	Anhui Shenhetang Chinese Medicine Health Products Development Co., Ltd.	General immunity	Traditional Herbal Medicine
Preparation method and application of composite edible fungus protein powder	CN111658681A	2020-09-15	Guangdong Institute of Microbiology (Guangdong Microbiological Analysis and Testing Center)	General immunity	Western based
Easily-absorbable and immunity-enhancing nutritional preparation as well as preparation method and application thereof	CN111728222A	2020-10-02	Guangzhou Fudexent Medical Health Technology Co., Ltd.	General immunity	Western based
Zhuang nationality medicine ganoderma tea and preparation method thereof	CN111407864A	2020-07-14	Guangxi Qiangshou Biological Technology Co., Ltd.	General immunity	Traditional Herbal Medicine
Health-care food composition capable of delaying aging and improving immunity and preparation method	CN111436602A	2020-07-24	Liao Hongkai	General immunity	Traditional Herbal Medicine
Short peptide type product	CN111543631A	2020-08-18	Zhang Tianping	General immunity	Western based
Plant composition for beautifying skin and removing chloasma as well as preparation method and application thereof	CN111450203A	2020-07-28	Zhang Jinglin Zhang Cheng	General immunity	Traditional Herbal Medicine

Title	Publication Number	Publication Date	Owner	Health Focus	Traditional herbal medicine
Health-care food for dredging blood vessels, promoting blood circulation and removing blood stasis and preparation method of health-care food	CN111700190A	2020-09-25	Zhang Yuanhe	General immunity	Traditional Herbal Medicine
Tea bag containing herba dendrobii and dark tea and preparation method of tea bag containing herba dendrobii and dark tea	CN111587938A	2020-08-28	Xu Zijian	General immunity	Traditional Herbal Medicine
Biological medicine and medical full-nutrition food for lung and respiratory system diseases, and preparation methods thereof	CN111084878A	2020-05-01	Cao Zhengyu	General immunity	Traditional Herbal Medicine
A composite probiotic composition with anti-aging effect and its preparation method and application	CN110787190B	2020-06-16	Yang Bo	General immunity	Traditional Herbal Medicine
Pure herbal plant composition health-preserving tea and preparation method thereof	CN111528314A	2020-08-14	Yang Yuhua Jiang Qinqun	General immunity	Traditional Herbal Medicine
High-adhesion-property Lactobacillus helveticus strain with immunity enhancement function and application thereof	CN111254087A	2020-06-09	Hangzhou Wahaha Technology Co., Ltd. Hangzhou Wahaha Group Co., Ltd.	General immunity	Western based
Novel lactic acid bacterium strain and immunostimulant containing the same	JP2020092704A	2020-06-18	AOB Keio Group Co., Ltd.	General immunity	Western based
Lactic acid bacteria, innate immune activators derived from the lactic acid bacteria, infectious disease preventive / therapeutic agents and foods and drinks	JPWO2020017390A1	2020-07-30	Genome Drug Discovery Research Institute Co., Ltd. Teikyo University	General immunity	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Traditional herbal medicine
Lung-clearing antiviral health-care tea and preparation method thereof	CN111513159A	2020-08-11	Wuhan Wansongtang Biomedical Technology Co., Ltd.	General immunity	Traditional Herbal Medicine
Novel application of bowel-relaxing formula taking five fruits and vegetables as raw material in enhancing immunity	CN111202800A	2020-05-29	Hebei Yuzhilin Pharmaceutical Co., Ltd.	General immunity	Traditional Herbal Medicine
Rhizoma polygonati, ginseng and dendrobium officinale leaf traditional Chinese medicine compound composition and preparation method, preparation and application thereof	CN111840465A	2020-10-30	Zhejiang Synergy Traditional Chinese Medicine Research and Development Co., Ltd.	General immunity	Traditional Herbal Medicine
Pitaya flower polysaccharide composition with insulin balancing effect	CN111789256A	2020-10-20	Hainan North Latitude Eighteen Degrees Food Processing Co., Ltd.	General immunity	Traditional Herbal Medicine
Traditional Chinese medicine health-care product for enhancing immunity	CN111588035A	2020-08-28	Shenzhen Huixin Medical Technology Co., Ltd.	General immunity	Traditional Herbal Medicine
Medicinal and edible composite health-care beverage with effects of enriching blood and tonifying qi and preparation method thereof	CN111066984A	2020-04-28	Hunan Shangdao Biological Technology Co., Ltd.	General immunity	Traditional Herbal Medicine
Medicinal and edible traditional Chinese medicine composition and application thereof	CN111743066A	2020-10-09	Wang Xijun	General immunity	Traditional Herbal Medicine
Truffle oral liquid and preparation method thereof	CN111357893A	2020-07-03	Wang Jia	General immunity	Traditional Herbal Medicine
Infant health-care tea	CN111418675A	2020-07-17	Wang Kunquan	General immunity	Traditional Herbal Medicine

Title	Publication Number	Publication Date	Owner	Health Focus	Traditional herbal medicine
Health-enhancing powder containing blackberries, black fungus, Chinese dates, coix seeds and Maca	CN111329053A	2020-06-26	Wang Dejun	General immunity	Traditional Herbal Medicine
Medicinal and edible soup base and decoction for conditioning constipation	CN111419972A	2020-07-17	BAI Tianzhao	General immunity	Traditional Herbal Medicine
Pharmaceutical composition for treating stomach illness and application thereof	CN111643608A	2020-09-11	CSPC Yuanda (Dalian) Pharmaceutical Co., Ltd.	General immunity	Western based
Probiotic stachyose and preparation process thereof	CN111840336A	2020-10-30	Xi'an Little Angel Life Nutrition Science and Health Research Institute Co., Ltd.	General immunity	Western based
Composition for enhancing immune function and preparation method thereof	CN111493319A	2020-08-07	Xie Dejun	General immunity	Traditional Herbal Medicine
Bifidobacterium lactis nbk-W13 and its application	CN110452842B	2021-03-19	Nobake (Wuhan) Biotechnology Co., Ltd.	General immunity	Western based
Health-preserving tea capable of delaying senescence and preparation method thereof	CN111329951A	2020-06-26	Xie Wenjin	General immunity	Traditional Herbal Medicine
Traditional Chinese medicine composition for improving mucosal immune function of respiratory tract and preparation method of traditional Chinese medicine composition	CN111569029A	2020-08-25	Lai Yu	General immunity	Traditional Herbal Medicine
Inonotus obliquus health-care tea capable of invigorating spleen, eliminating dampness and eliminating turbidity	CN111543524A	2020-08-18	Tonghua Dayijunfang Health Technology Co., Ltd.	General immunity	Traditional Herbal Medicine

Title	Publication Number	Publication Date	Owner	Health Focus	Traditional herbal medicine
Inonotus obliquus-cordyceps sinensis health-care tea capable of warming yang, tonifying qi and dispelling cold	CN111493189A	2020-08-07	Tonghua Dayijunfang Health Technology Co., Ltd.	General immunity	Traditional Herbal Medicine
Multifunctional tea essential oil and preparation method thereof	CN111743956A	2020-10-09	Chen Kun	General immunity	Traditional Herbal Medicine
Preparation method of instant health-care beverage containing Xiaoqianma powder	CN111670983A	2020-09-18	Chen Zheng	General immunity	Traditional Herbal Medicine
Compound probiotic infant formula milk powder and preparation method thereof	CN111067104A	2020-04-28	Heilongjiang Wandashan Dairy Co., Ltd.	General immunity	Western based
Anti-inflammatory or immunity-boosting composition comprising Protactia Brevitarsis extract prepared by high pressure-enzymatic hydrolysis system	KR1020200062024A	2020-06-03	Wonkwang Hub Co., Ltd. Korea Food Research Institute Chonbuk National University Industry-Academic Cooperation Foundation	General immunity Anti-inflammation	Western based
Compositions comprising bacterial strains	IL278471A	2021-01-31	4D PHARMA RESEARCH LIMITED	General immunity Anti-inflammation	Western based
Compositions comprising bacterial strains	IL278452A	2021-01-31	4D PHARMA RESEARCH LIMITED	General immunity Anti-inflammation	Western based
Compositions comprising bacterial strains	EP3790564A1	2021-03-17	4D PHARMA RESEARCH LIMITED	General immunity Anti-inflammation	Western based
Sunflower seed protein-derived peptides	US20210017240A1	2021-01-21	ACCESS BUSINESS GROUP INTERNATIONAL LLC	General immunity Anti-inflammation	Western based
Sunflower seed protein-derived peptides	TW202110868A	2021-03-16	ACCESS BUSINESS GROUP INTERNATIONAL LLC	General immunity Anti-inflammation	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Traditional herbal medicine
A nutraceutical composition for preventing bad breath and boosting immunity	WO2020165743A1	2020-08-20	BHOOKHAHAATHI HOSPITALITY PRIVATE LIMITED	General immunity Anti-inflammation	Western based
Composition comprising inotodiol compound as effective ingredient for prevention or treatment of allergy disease	AU2018425043A1	2020-12-10	CARBOEXPERT INC.	General immunity Anti-inflammation	Western based
Immunomodulatory probiotic bacteria and uses thereof	TW202045193A	2020-12-16	TCI CO., LTD	General immunity Anti-inflammation	Western based
A composition for immune enhancement comprising micro-sized component of Grifola frondosa	KR102182507B1	2020-11-24	Kangwon National University Industry-Academic Cooperation Foundation I Purunsol Food Co., Ltd.	General immunity Anti-inflammation	Western based
Energy control pills composition and fabricating method thereof	KR1020200085414A	2020-07-15	Sunim Kim	General immunity Anti-inflammation	Traditional Herbal Medicine
Multi-effect bacillus subtilis for high yield of immune polysaccharide and bacteriocin and application	CN111961617A	2020-11-20	China Agricultural University	General immunity Anti-inflammation	Western based
Eight-pure natural Chinese herbal medicine instant powder tea, and preparation method and using method thereof	CN111194807A	2020-05-26	Yunnan Agricultural University	General immunity Anti-inflammation	Traditional Herbal Medicine
Lactobacillus paracasei capable of relieving or treating allergic disease and application of lactobacillus paracasei capable of relieving or treating allergic disease	CN111575204A	2020-08-25	Inner Mongolia Mengniu Dairy (Group) Co., Ltd.	General immunity Anti-inflammation	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Traditional herbal medicine
Method for preparing coptis chinensis franch radix fermented enzymatic composition, as well as preparation and application of coptis chinensis franch radix fermented enzymatic composition	CN111357871A	2020-07-03	Beijing Zhongnong Jinteng Biotechnology Co., Ltd.	General immunity Anti-inflammation	Traditional Herbal Medicine
Herbaceous composition and beverage thereof, and preparation method of herbaceous beverage	CN111406862A	2020-07-14	Ye Xingliang	General immunity Anti-inflammation	Traditional Herbal Medicine
Saussurea involucrata culture nourishing paste and preparation method thereof	CN111631374A	2020-09-08	Dalian Prekang Biotechnology Co., Ltd.	General immunity Anti-inflammation	Traditional Herbal Medicine
Snow lotus herb culture composition for relieving sore throat and application	CN111617192A	2020-09-04	Dalian Prekang Biotechnology Co., Ltd.	General immunity Anti-inflammation	Western based
Lactobacillus casei with immunomodulatory, anti-inflammatory and anti-cervical cancer effects and application	CN111560330A	2020-08-21	Tianjin University of Science and Technology	General immunity Anti-inflammation	Western based
Traditional Chinese medicine food beneficial for treating pneumonia and common cold	CN111184168A	2020-05-22	An Wenfeng	General immunity Anti-inflammation	Traditional Herbal Medicine
Formula and preparation process of polymerized instant garlic granules	CN111466539A	2020-07-31	Shandong Xinnuo Food Technology Co., Ltd.	General immunity Anti-inflammation	Traditional Herbal Medicine
Preparation method and application of dandelion leaf water-soluble crude extract	CN111803531A	2020-10-23	Coastal Agriculture Research Institute, Hebei Academy of Agriculture and Forestry Sciences	General immunity Anti-inflammation	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Traditional herbal medicine
Mandarin fish feed additive, and preparation method and application thereof	CN111887349A	2020-11-06	Institute of Animal Husbandry and Veterinary Medicine, Hubei Academy of Agricultural Sciences	General immunity Anti-inflammation	Traditional Herbal Medicine
Composition of EGCG and cordyceps militaris extract and preparation method and application of composition	CN111297918A	2020-06-19	Fuzhou Qianzheng Pharmaceutical Co., Ltd.	General immunity Anti-inflammation	Western based
Anti-plague immune peptide	CN111150066A	2020-05-15	Gou Chunhu	General immunity Anti-inflammation	Western based
Inonotus obliquus tea drink and preparation process thereof	CN111700138A	2020-09-25	Xi'an Little Angel Life Nutrition Science and Health Research Institute Co., Ltd.	General immunity Anti-inflammation	Traditional Herbal Medicine
Making method of tea replacement	CN111345378A	2020-06-30	Chongqing Jiyu Biological Engineering Co., Ltd.	General immunity Anti-inflammation	Traditional Herbal Medicine
Solid beverage for adjuvant therapy of intestinal diseases as well as preparation method and application thereof	CN111700116A	2020-09-25	Changsha Heavy Chain Antibody Research Institute I Wang Jiaqi	General immunity Anti-inflammation	Western based
Preparation method of health-care tea containing water-soluble cannabidiol	CN111670985A	2020-09-18	Heilongjiang Nabesi Anti-Crownsu Biotechnology Co., Ltd.	General immunity Anti-inflammation	Traditional Herbal Medicine
Lactobacillus paracasei strain and use thereof	US20210077550A1	2021-03-18	KO BIOLABS, INC.	General immunity Anti-inflammation Skin	Western based
Lactobacillus gasseri kbl697 strain and use thereof	EP3798298A1	2021-03-31	KOBIOLABS, INC.	General immunity Anti-inflammation Skin	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Traditional herbal medicine
Anti-allergy, atopic dermatitis alleviation or skin regeneration composition containing jasmone as active ingredient	WO2020130478A1	2020-06-25	BOTANICSENS	General immunity Skin	Western based
Pharmaceutical composition for treating or preventing inflammatory diseases comprising the extract or fractions thereof of the fermented <i>Cordyceps militaris</i> grown on <i>Rhynchosia nulubilis</i>	KR1020200064624A	2020-06-08	Cell Activity Research Institute Co., Ltd. Gachon University Industry-Academic Cooperation Foundation	Anti-inflammation	Western based
Method for obtaining oleocanthal type secoiridoids and for producing respective pharmaceutical preparations	WO2020165614A9	2020-12-24	MAGIATIS, PROKOPIOS I MELLIU, ELENI I DIAMANTAKOS, PANAGIOTIS I RIGAKOU, AIMILIA	Anti-inflammation	Western based
Process for the production of vesicles from citrus juice	WO2020202086A1	2020-10-08	NAVHETEC S.R.L.	Anti-inflammation	Western based
Plant tissue-derived nanoparticles and food powders	WO2020097739A1	2020-05-22	PSIGRYPH INC.	Anti-inflammation	Western based
Gut flora-improving composition comprising beta-glucan and use thereof	WO2020246817A1	2020-12-10	QUEGEN BIOTECH CO., LTD.	Anti-inflammation	Western based
Method for producing hop extract	AU2019200893B2	2020-07-16	SUNTORY HOLDINGS LIMITED	Anti-inflammation	Western based
<i>Lactobacillus fermentum</i> strain v3 and its efficacies of Anti-inflammation and cancer prevention	TW202103717A	2021-02-01	SYNGEN BIOTECH CO., LTD.	Anti-inflammation	Western based
Preparation method of caulerpa lentillifera extract and application thereof	HK40006925A	2020-05-29	THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY	Anti-inflammation	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Traditional herbal medicine
Albizia julibrissin extract-containing composition	WO2021005941A1	2021-01-14	TOYOBO CO., LTD.	Anti-inflammation	Western based
Composition for preventing or treating immune diseases comprising mixture of Microbiome	KR102156829B1	2020-09-18	Catholic University Industry-Academic Cooperation Foundation	Anti-inflammation	Western based
Pharmaceutical composition for preventing or treating inflammatory disease comprising extract of Pilea martinii as effective component	KR102117547B1	2020-06-03	Kyunghee University Industry-Academic Cooperation Group I Korea Research Institute of Bioscience and Biotechnology	Anti-inflammation	Western based
Pharmaceutical composition for preventinr or treating osteoarthritis comprising Sparassis crispa	KR102127887B1	2020-06-29	Keimyung University Industry-Academic Cooperation Foundation	Anti-inflammation	Western based
Composition for preventing, improving or treating arthritis comprising extract of Ganoderma lucidum, extract of Artemisia princeps or mixture thereof	KR102143244B1	2020-08-11	Republic of Korea	Anti-inflammation	Western based
Composition for preventing, improving or treating arthritis comprising extract of Ganoderma lucidum, extract of Carthamus tinctorius L. seeds or mixture thereof	KR102150114B1	2020-09-01	Republic of Korea	Anti-inflammation	Western based
Composition for preventing, improving or treating arthritis comprising extract of Ganoderma lucidum, extract of Cirsium japonicum or mixture thereof	KR102143243B1	2020-08-11	Republic of Korea	Anti-inflammation	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Traditional herbal medicine
Fermented product of lactic acid bacteria with improved physiological activity	KR1020200072619A	2020-06-23	Republic of Korea	Anti-inflammation	Western based
Composition for treatment or prevention of neuroinflammatory diseases comprising extract of <i>Carpomitra costata</i>	KR102122742B1	2020-06-15	Dongueui University Industry-Academic Cooperation Foundation	Anti-inflammation	Western based
Pharmaceutical composition for preventing or treating an inflammatory disease, comprising an extract of <i>Canarium subulatum</i> as an active ingredient	KR102153338B1	2020-09-09	Sungkyunkwan University Industry-Academic Cooperation Foundation	Anti-inflammation	Western based
Antiinflammatory composition having components extracted from lichen	KR102139600B1	2020-07-30	Sunchon National University Industry-Academic Cooperation Foundation	Anti-inflammation	Western based
<i>Tricholoma matsutake</i> mycellium extract with improved anti-inflammatory effect through plasma treatment and manufacturing method thereof	KR102138001B1	2020-07-27	Andong University Industry-Academic Cooperation Foundation Agricultural Corporation Ryu Chunghyeon Medicinal Mushroom Isome Co., Ltd.	Anti-inflammation	Western based
Composition for preventing or treating inflammatory bowel disease comprising mixture of herbal extracts of <i>indigo pulverata levis</i> , <i>broussonetia kazinoki</i> , and <i>juglans mandshurica</i>	KR102228028B1	2021-03-15	M Thera Pharma Co., Ltd.	Anti-inflammation	Traditional Herbal Medicine

Title	Publication Number	Publication Date	Owner	Health Focus	Traditional herbal medicine
A composition for preventing, improving or treating gliadin-induced inflammatory bowel disease of the comprising heat-killed lactobacillus paracasei glu70 as an active ingredient having gluten degradation activity	KR1020200143944A	2020-12-28	Medineutrol Co., Ltd.	Anti-inflammation	Western based
Anti-inflammatory composition containing medicinal herbs	KR102113431B1	2020-05-21	Missak Bio Co., Ltd.	Anti-inflammation	Traditional Herbal Medicine
the composition comprising Lactobacillus plantarum KC3 as an active ingredient for preventing or treating immune disorders, respiratory inflammation disease, allergy or asthma and the use thereof	KR102135879B1	2020-07-21	KT&G Co., Ltd. Chong Kun Dang Bio Co., Ltd.	Anti-inflammation	Western based
A pharmaceutical composition comprising natural extracts for treating inflammation by inhibiting Th17 cell differentiation	KR1020200047101A	2020-05-07	Korea Advanced Institute of Science and Technology	Anti-inflammation	Western based
Bromelain enzyme treated silkworm segment extracts having excellent vasorelaxant effect and anti inflammatory effect and use thereof	KR102161454B1	2020-10-06	Korea Food Research Institute	Anti-inflammation	Western based
Composition for prevention and treatment of inflammatory gastrointestinal disease	KR1020200047893A	2020-05-08	Korea Kolmar Co., Ltd.	Anti-inflammation	Western based
Composition for clearing throat and throat and its preparation method and application	CN108743809B	2020-12-04	Yunnan Decaitang Biomedical Technology Co., Ltd.	Anti-inflammation	Traditional Herbal Medicine

Title	Publication Number	Publication Date	Owner	Health Focus	Traditional herbal medicine
Natural biological anti-inflammatory or antimicrobial agent	CN111407773A	2020-07-14	Harbin Ruiyan Biomedical Technology Co., Ltd.	Anti-inflammation	Western based
Application of soybean seed coat polysaccharides in preparation of drugs and special medical foods for regulating intestinal flora, reducing blood sugar and blood lipid and resisting inflammation	CN111617064A	2020-09-04	Bo Hai university	Anti-inflammation	Western based
Cordyceps cicadae mycelia active substance for preventing and/or improving acute lung injury	CN111434342A	2020-07-21	Grape King Biotechnology Co., Ltd.	Anti-inflammation	Western based
Special medical food for treating inflammatory bowel diseases and preparation method thereof	CN111955719A	2020-11-20	Qilu University of Technology	Anti-inflammation	Traditional Herbal Medicine
Composition comprising corylus heterophylla extract for prevention or treatment of skin disease	WO2020138833A1	2020-07-02	HONGCHEON INSTITUTE OF MEDICINAL HERB	Anti-inflammation Skin	Western based
Composition for preventing or treating skin diseases comprising bridalwreath spirea	WO2020138834A1	2020-07-02	HONGCHEON INSTITUTE OF MEDICINAL HERB	Anti-inflammation Skin	Western based
Composition for preventing or treating skin diseases comprising euonymus alatus for. ciliatodentatus extract	WO2020138835A1	2020-07-02	HONGCHEON INSTITUTE OF MEDICINAL HERB	Anti-inflammation Skin	Western based
Pharmaceutical composition for preventing or treating atopic dermatitis comprising fraction of Pyrus ussuriensis extracts as an active ingredient	KR102184867B1	2020-12-02	Gachon University Industry-Academic Cooperation Foundation Korea (Director of National Institute of Biological Resources, Ministry of Environment)	Anti-inflammation Skin	Western based

Title	Publication Number	Publication Date	Owner	Health Focus	Traditional herbal medicine
A composition for preventing or terating atopic dermatitis comprising lycopi herba extract as an active ingredient	KR102144566B1	2020-08-13	Kyunghee University Industry-Academic Cooperation Foundation	Anti-inflammation Skin	Western based
Composition for preventing or treating dermatitis comprising mixed extracts of Astragalus membranaceus and Schizonepeta tenuifolia	KR1020210030616A	2021-03-18	Kyunghee University Industry-Academic Cooperation Foundation	Anti-inflammation Skin	Western based
Composition for preventing or treating psoriasis comprising sesquiterpenoid compounds or sesquiterpenoids enriched fraction derived from Tussilago farfara	KR102179531B1	2020-11-18	Seoul National University Industry-Academic Cooperation Foundation	Anti-inflammation Skin	Western based
Composition for preventing, ameliorating or treating atopic dermatitis comprising Apium graveolens hydrolysate as effective component	KR1020200069077A	2020-06-16	AtoQ&A Co., Ltd.	Skin	Western based
Composition for preventing, ameliorating or treating atopic dermatitis comprising Diospyros lotus hydrolysate as effective component	KR1020200069079A	2020-06-16	AtoQ&A Co., Ltd.	Skin	Western based
Papain enzyme treated silkworm segment extracts having excellent skin anti-inflammatory effect and use thereof	KR102152077B1	2020-09-07	Korea Food Research Institute	Skin	Western based
A combined product for treating dermatitis and its use	CN108392620B	2020-11-20	Sichuan Academy of Traditional Chinese Medicine	Skin	Traditional Herbal Medicine

6. THE EXTRA STUFF

6.1. 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 25 April 2020 to 6 April 2021, and with a priority date after 6 April 2018.
- From a total of 1165 raw search results, we filtered these down to 306 patent families we deemed relevant to this Immune Health HVN 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 3-5.

6.2. 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).