

股票代號 3164

景岳生物科技(股)公司

功能性益生菌領導品牌

GenMont Biotech Incorporation

The leading brand of functional probiotics

2023年法人說明會

葉天佑 協理

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2023年12月29日



益生菌市場前景

Probiotics market outlook

- 全球益生菌市場正在快速成長

The global probiotics market is growing rapidly.

其成長的主要原因是消費者對於預防保健的意識提升

The major factor boosting the market growth is increasing concerns of consumers on preventive healthcare.



- 後疫情時代來臨，人們更積極尋求維持健康的方法

Beyond the pandemic, people have more conscious about their health and are taking proactive measures to help maintain their well-being.

隨著**COVID-19**疫情蔓延，消費者對機能性食品的長期需求增加

As the COVID-19 pandemic wears on, it increased the long-term demand for functional food/beverages and supplements in the daily behavior of consumers.



資料來源： Functional Food & Beverage 2020 Report Highlights from the Hartman Group

全球益生菌市場快速發展

Global probiotics market is growing rapidly

全球市場分析報告顯示，**預計2026年全球益生菌市場約為911億美元**。

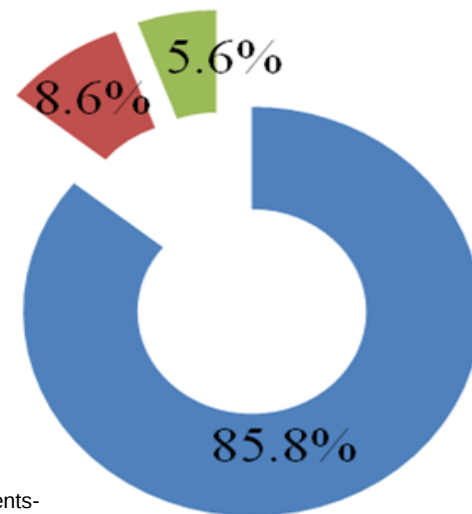
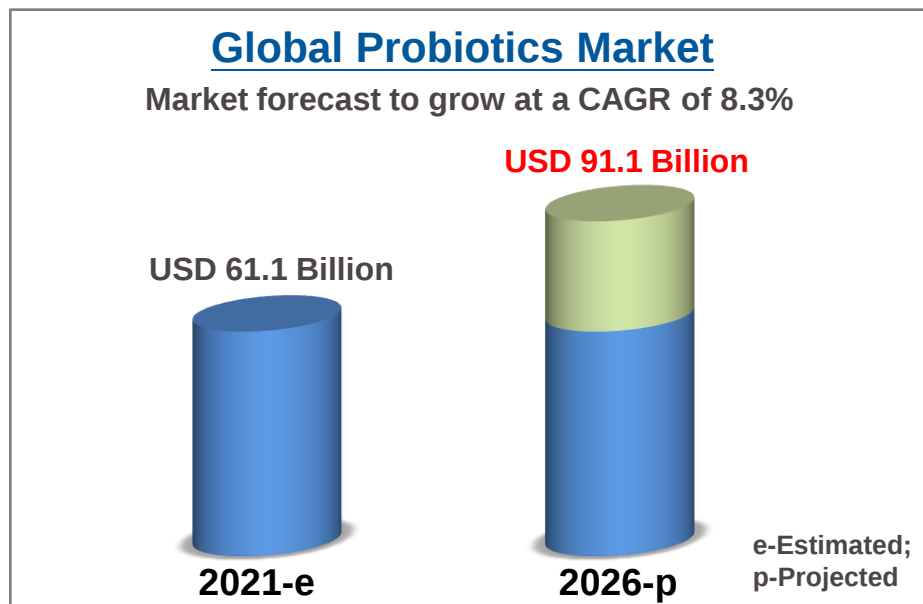
The global market analysis report shows that the global probiotic market is expected to be about 91.1 billion US dollars in 2026.

全球益生菌市場應用

Global probiotics market by product application

***市場分布 MARKET SHARE**

- 功能性食品 Functional food
- 保健食品與藥品 Health food and medicine
- 益生菌原料 Probiotics raw material



資料來源：

https://www.reportlinker.com/p05129364/Probiotics-Market-by-Application-Dietary-Supplements-Animal-Feed-Source-Form-End-User-And-Region-Forecast-to.html?utm_source=GNW;
<https://www.researchandmarkets.com/reports/5370159/global-probiotics-market-by-application>



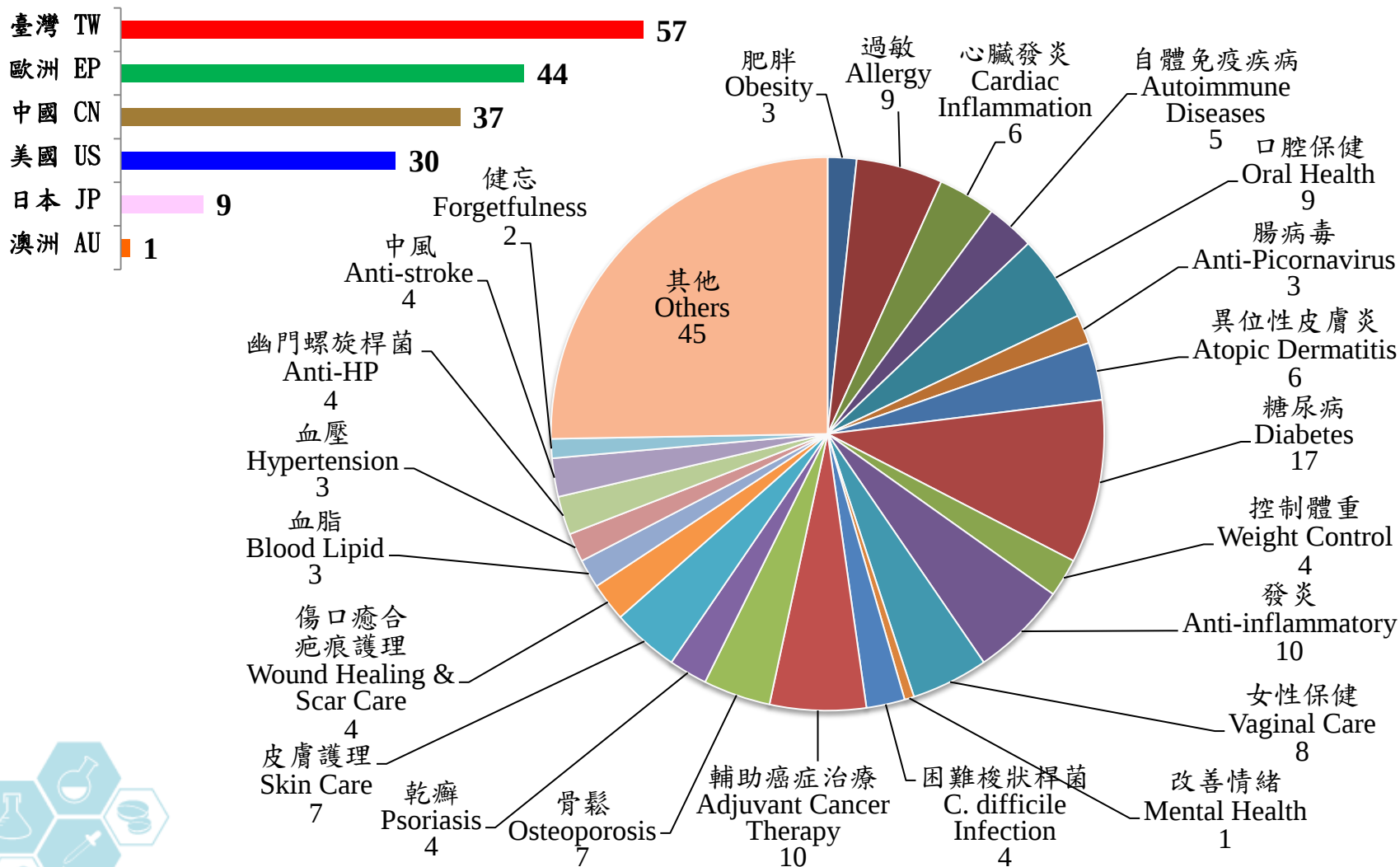
2023年度研究成果介紹

The Annual Research Presentation 2023



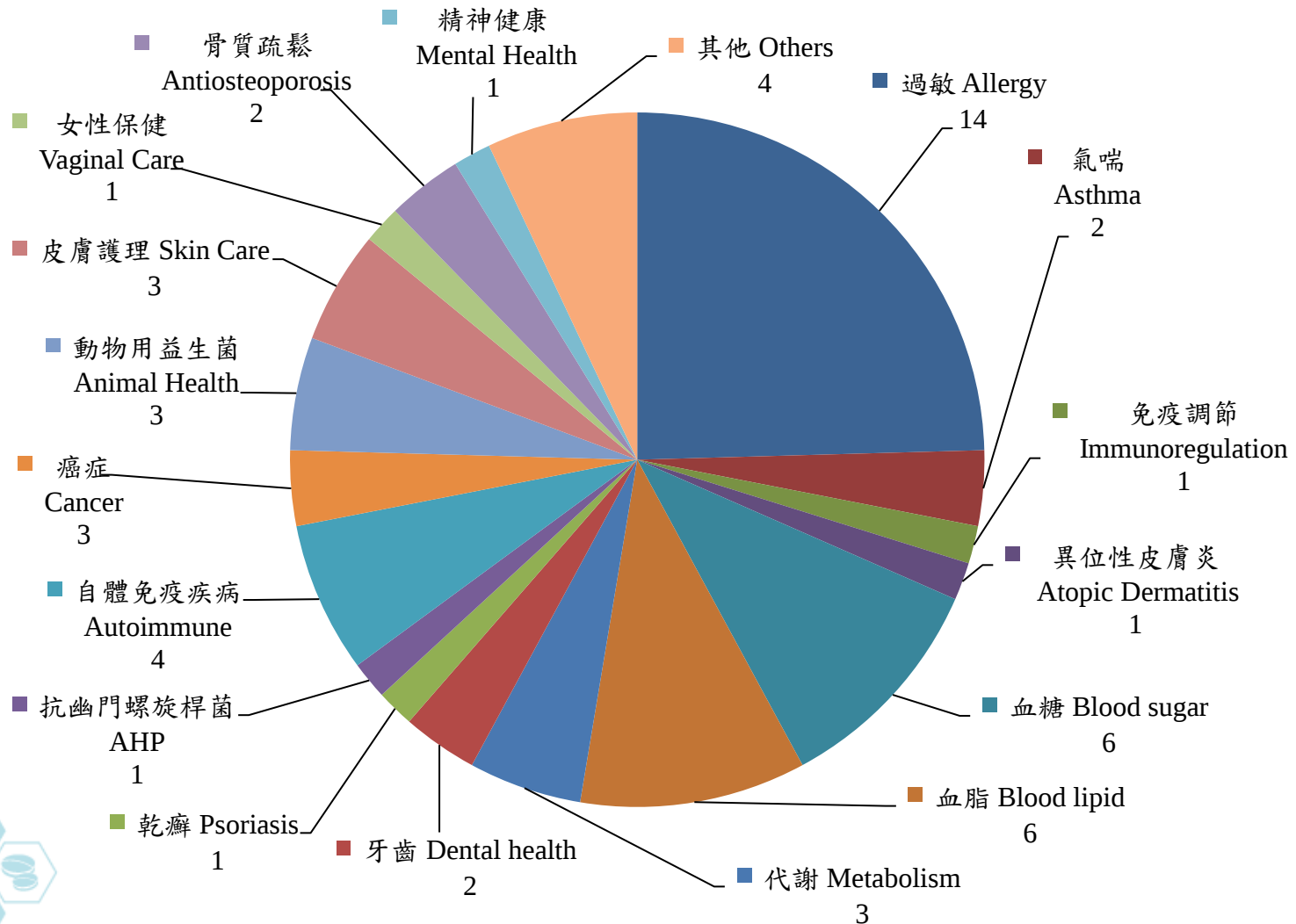
178項研發專利

Patents over the world



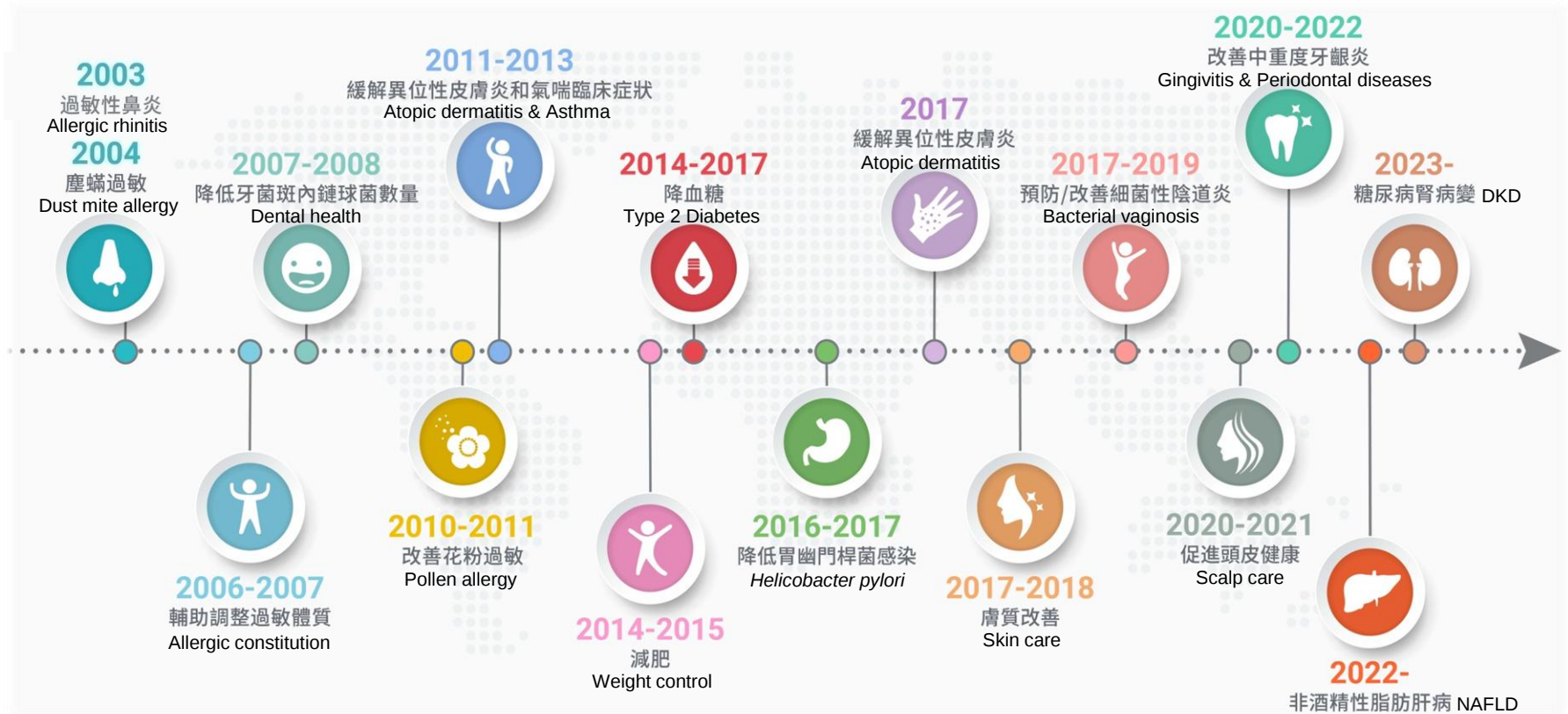
58篇文獻發表

Published Papers



人體臨床試驗列表

Human clinical trials



評估益生菌對於非酒精性脂肪肝病患者的效益以及腸道微生物所扮演的調節角色

摘要：

以早期非酒精性脂肪肝病患者食用6個月複合益生菌粉（熱滅活羅伊氏乳桿菌 GMNL-263+ 羅伊氏乳桿菌 GMNL-89+ 鼠李糖乳桿菌 GMNL-74）的臨床試驗結果，分析慢性發炎情形、全身性氧化壓力、碳水化合物和脂肪代謝，以及腸道微生態等指標，來評估益生菌對於非酒精性脂肪肝病的改善作用和預防惡化的機制。

試驗開始時間: 2022年7月14日

預計完成時間: 2024年5月31日

預計收案人數: 70人

試驗型態: 隨機分派的對照雙盲試驗

入案條件:

-20~80歲成年人/老人

-超音波診斷為非酒精性脂肪肝

-丙胺酸轉胺酶 (ALT, 肝功能指數)

檢測值為60-300 U/L

NIH National Library of Medicine
National Center for Biotechnology Information

ClinicalTrials.gov

RECRUITING

To Evaluate the Beneficial Effect of Probiotics on NAFLD Patients and the Role of Gut Microbiota Modulation

ClinicalTrials.gov ID NCT05402449

Sponsor GenMont Biotech Incorporation

Information provided by GenMont Biotech Incorporation (Responsible Party)

Last Update Posted 2023-09-07

Brief Summary

In this study, the improvement of the clinical status of early-stage non-alcoholic fatty liver disease (NAFLD) patients after the probiotic intervention will be assessed. And the mechanism of probiotics to prevent the progression of illness would be investigated. The chronic inflammation status, systemic oxidative stress, metabolism of carbohydrates and lipid, and gut microbiota of NAFLD patients will also be analyzed.

Study Start (Actual) : 2022-07-14

Study Completion (Estimated) : 2024-05-31

Enrollment (Estimated) : 70

Study Type :

Interventional (Randomized Controlled Trial)

Masking : Double (Participant, Investigator)

Dietary Supplement:

Probiotic group (Lactobacillus reuteri GMNL-263 (heat-killed) and GMNL-89 (alive) and Lactobacillus rhamnosus GMNL-74 (alive))

Other: Placebo group

Eligibility Criteria

-Ages Eligible for Study: 20 Years to 80 Years (Adult, Older Adult)

-Inclusion Criteria:

•Diagnosis of Nonalcoholic fatty liver disease (NALFD) by ultrasound.

•The range of Alanine aminotransferase (ALT) blood test is 60-300 U/L



評估益生菌對於糖尿病腎病變患者的效益以及腸道微生物發揮的調節作用

摘要：

進行為期6個月的臨床試驗，讓糖尿病腎病變患者食用複合益生菌粉（羅伊氏乳桿菌 ADR-1+ 鼠李糖乳桿菌 GM-020），並監測血糖和腎功能相關指標。預期實驗結果，複合益生菌粉將經由抑制有害菌來改變腸道微生態，減少全身性氧化壓力和平衡碳水化合物與脂肪的代謝來改善糖尿病腎病變疾病，並進一步阻止糖尿病腎病變的惡化。

試驗開始時間: 2023年4月24日

預計完成時間: 2024年1月31日

預計收案人數: 50人

試驗型態: 隨機分派的對照雙盲試驗

入案條件:

- 25~80歲成年人/老人
- 患有第2型糖尿病並穩定服藥3個月
- 餐前 HbA1c 檢測在 7 ~ 10%
- 第1-3a 期糖尿病腎病變 (eGFR > 45 mL/min)
- 微量白蛋白尿達到 30 ~ 300 mg/day

NIH National Library of Medicine
National Center for Biotechnology Information

ClinicalTrials.gov

RECRUITING 1

To Evaluate the Beneficial Effect of Probiotics on DKD Patients and the Role of Gut Microbiota Modulation

ClinicalTrials.gov ID 1 NCT05674981

Sponsor 1 GenMont Biotech Incorporation

Information provided by 1 GenMont Biotech Incorporation (Responsible Party)

Last Update Posted 1 2023-05-15

Brief Summary

To evaluate the efficacy of probiotics in the treatment of diabetic kidney disease, this study is designed to explore after consumption of probiotics lactobacillus reuteri ADR-1 and lactobacillus rhamnosus GM-020 composite strain powder sachets for 6 months, whether the improvement of blood sugar, kidney related indicators can further improve the course of diabetic kidney disease. The clinical trial predicted that probiotics can improve diabetic kidney disease by changing the intestinal flora by inhibiting harmful bacteria, reduction of systemic oxidative stress, balance carbohydrate and fat metabolism, further preventing the progress of diabetic kidney disease.

Study Start (Actual) : 2023-04-24

Study Completion (Estimated) : 2024-01-31

Enrollment (Estimated) : 50

Study Type :

Interventional (Parallel Assignment, Randomized Controlled Trial)

Masking : Double (Participant, Investigator)

Eligibility Criteria

-Ages Eligible for Study: 25 Years to 80 Years (Adult, Older Adult)

-Inclusion Criteria:

- Suffering from type 2 diabetes and stable medication for 3 months
- Detection of HbA1c before meals between 7% and 10%
- Stage 1-3a diabetic nephropathies (eGFR > 45 mL/min)
- Microalbuminuria estimated between 30 to 300 mg/day

乳酸桿菌功效研究

Efficacy studies of *Lactobacillus*

題目：植物乳桿菌調節骨頭免疫反應來減緩卵巢摘除誘發的骨質疏鬆

Article: The probiotic *Lactiplantibacillus plantarum* attenuates ovariectomy-induced osteoporosis through osteoimmunological signaling. *Food Funct.* 2023 Jul 31;14(15):6929-6940.

摘要：透過SD大鼠卵巢切除 (OVX) 的骨質疏鬆模型，進行連續14周給予植物乳桿菌GMNL-662的實驗。結果顯示，GMNL-662可降低血液中骨鈣素 (OCN) 和第一型膠原蛋白之氮端肽 (NTx) 的濃度。與去卵巢大鼠組相比，GMNL-662顯著改善股骨和腰椎骨的骨礦質密度、骨小梁區域比率、骨小梁數目，且顯著增加股骨的最大負荷、硬度和能量吸收。而從即時定量聚合酶鏈鎖反應得知，植物乳桿菌組可減少因卵巢切除引起的IL-1、IL-6、TNF α 和RANKL的基因表現和增加IL-10、TGF- β 和蝕骨細胞抑制因子 (OPG) 的基因表現。綜上所述，GMNL-662能透過調節骨頭免疫反應和影響骨頭代謝速度，發揮減緩骨質流失的作用，因此在骨質保健品的開發應用上極具潛力。

Abstract:

In this study, we utilized female Sprague–Dawley rats were ovariectomized (OVX) and orally administered *Lp. plantarum* GMNL-662 for 14 weeks. The results showed that GMNL-662 treatment group exhibited increases in the level of osteocalcin and N-terminal telopeptides. Compared with the OVX control group, the GMNL-662 treatment group exhibited marked improvements in femur bone mineral density, trabecular bone volume, trabecular number, and lumbar vertebrae. Moreover, GMNL-662 treatment group considerably higher improvements in femur maximum load, stiffness, and energy to maximum load. QPCR analysis indicated reduced expressions of OVX-induced IL-1, IL-6, TNF α , and RANKL and increased expressions of IL-10, TGF- β , and osteoprotegerin in the GMNL-662 treatment group. In summary, GMNL-662 exhibits high probiotic potential and potentially influences osteoimmunity through the modulation of proinflammatory cytokines and bone metabolism-related markers.

Food & Function

ROYAL SOCIETY OF CHEMISTRY

PAPER

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Cite this: DOI: 10.1039/d3fo00681f

The probiotic *Lactiplantibacillus plantarum* attenuates ovariectomy-induced osteoporosis through osteoimmunological signaling†

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Osteoporosis is characterized by low bone mass and bone tissue microarchitectural deterioration with increased fracture risk in numerous populations. Probiotics are reported to be a potential biotherapeutic for the prevention and treatment of osteoporosis. In this study, the IL-10 secretion properties of probiotics were simulated in vitro and the potential applications of the novel strain *Lactiplantibacillus plantarum* 622 were investigated in an in vivo osteoporosis model. Female Sprague–Dawley rats were ovariectomized (OVX) and orally administered *Lp. plantarum* GMNL-662 or alone for 14 weeks. The *Lp. plantarum* treatment group exhibited an increase in the level of fecal *Lp. plantarum*, *Lactobacillus*, and *Lachnospiraceae*. Bone marker analysis indicated improvements in the levels of osteocalcin and N-terminal telopeptides in the *Lp. plantarum* treatment group. Compared with the OVX control group, the *Lp. plantarum* treatment group exhibited marked improvements in femur bone mineral density, trabecular bone volume, trabecular number, and lumbar vertebrae. Moreover, biomechanical three-point bending testing indicated considerably higher improvements in femur maximum load, stiffness, and energy to maximum load in the *Lp. plantarum* treatment group than in the OVX control group. Quantitative polymerase chain reaction analysis indicated reduced expression levels of OVX-induced IL-1, IL-6, TNF α , and RANKL and increased expression levels of IL-10, TGF- β , and osteoprotegerin in the *Lp. plantarum* treatment group. In summary, *Lp. plantarum* GMNL-662 exhibits high probiotic potential and potentially influences osteoimmunity through the modulation of proinflammatory cytokines and bone metabolism-related markers.

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rsc.li/food-function

1. Introduction

As defined by the World Health Organization, osteoporosis is a condition in which the bone mineral density (BMD) lies 2.5 standard deviations or more below the average value. The prevalence of osteoporosis increases with age, and both older women and men are at a higher risk of fractures associated with both osteopenia and osteoporosis.¹ The population group most at risk from osteoporosis is postmenopausal women due to decreased levels of estrogen, a hormone that protects the bone in reproductive age from bone turnover regulation.^{2,3} Patients diagnosed with osteoporosis exhibit low BMD along with a compromised bone microarchitecture, resulting in a

higher risk of fractures. Among the global population, osteoporosis is especially prevalent in postmenopausal women because of lower estrogen levels. Various Food and Drug Administration-approved drugs and monoclonal antibodies are used in the treatment of osteoporosis, but all of these compounds, in addition to providing relief, also cause various side effects. The identification of safer and more cost-effective interventions, both preventative and therapeutic, for the management of osteoporosis is crucial.

The gut–bone axis has received tremendous scholarly attention.⁴ Dysbiosis in the intestinal microbiota is reported to contribute to the pathogenesis of various diseases; this can then lead to bone loss and to the development of secondary osteoporosis. Furthermore, numerous animal and small scale human studies have reported that the intake of probiotics is a potential therapy for osteoporosis.⁵ The mechanism of probiotics in bone protection may involve bacterial metabolites, such as short chain fatty acids, or the effects of probiotics on osteoimmunity.

Lactiplantibacillus is a genus of lactic acid bacteria, and *Lactiplantibacillus plantarum* is regarded as a normal and ideal

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† Electronic supplementary information (ESI) available. See DOI: 10.1039/d3fo00681f



財務狀況 Financial status

※母公司財報-景岳生技 Separate Financial Statements-GenMont

單位：千元 In Thousands of New Taiwan Dollars	109年母公司財報 (Year 2020 Single)	110年母公司財報 (Year 2021 Single)	111年母公司財報 (Year 2022 Single)
營業收入NET REVENUE	325,191	427,929	368,546
營業毛利GROSS PROFIT	215,390	299,326	258,019
營業費用OPERATING EXPENSES	(137,605)	(150,140)	(131,953)
營業利益INCOME(LOSS) FROM OPERATIONS	77,785	149,186	126,066
營業外損益NON- OPERATING INCOME AND EXPENSES	(269)	(6,231)	(50,291)
稅前淨利INCOME(LOSS) BEFORE INCOME TAX	77,516	142,955	75,775
稅後淨利NET INCOME(LOSS)	60,884	113,132	56,978



財務狀況 Financial status

※合併財報 Consolidated Financial Statements

單位：千元 In Thousands of New Taiwan Dollars	110年合併 (Year 2021 Consolidated)	111年合併 (Year 2022 Consolidated)	112年前三季合併 (Year 2023 Q1~Q3 Consolidated)
營業收入NET REVENUE	427,929	368,546	243,913
營業毛利GROSS PROFIT	299,326	256,717	158,664
營業費用OPERATING EXPENSES	(174,287)	(194,747)	(154,715)
營業利益INCOME(LOSS) FROM OPERATIONS	125,039	61,970	3,949
營業外損益NON-OPERATING INCOME AND EXPENSES	14,385	4,288	29,468
稅前淨利INCOME(LOSS) BEFORE INCOME TAX	139,424	66,258	33,417
稅後淨利NET INCOME(LOSS)	109,601	47,461	27,134
停業單位損益Income (Loss)from Discontinued Operations	0	0	0
本期淨利NET INCOME(LOSS)	109,601	47,461	27,134



風險評估 Risk Assessment

生技領域方面財務風險Financial risk in the biotech sector

- 研發期間長 Long R & D period
 - 獲利回收晚 Late profit recovery
- ➡ 可能因此導致資金不足 Which may lead to insufficient funds

益生菌市場持續成長Probiotics market continues to grow

根據Precedence Research預估，2021年至2030年全球益生菌市場年平均複合成長率(CAGR)將可達8.7%，至2030年時其規模可達1,339億美元；其中食品飲料市場的規模最大(達75%以上)，動物飼料則成長最快速。目前市場以亞太地區為主，市場占比超過七成。

According to Precedence Research estimates, the global probiotics market will reach an average annual compound growth rate (CAGR) of 8.7% from 2021 to 2030, and its scale will reach US\$133.9 billion by 2030; the food and beverage market is the largest (up to 75% or more), animal feed is the fastest growing. At present, the market is dominated by the Asia-Pacific region, accounting for more than 70% of the market.



資料來源:食品工業發展研究所/食品產業知識庫/市場資訊 (firdi.org.tw), 2022/02/28]



Thanks For Your Attention

Q & A

