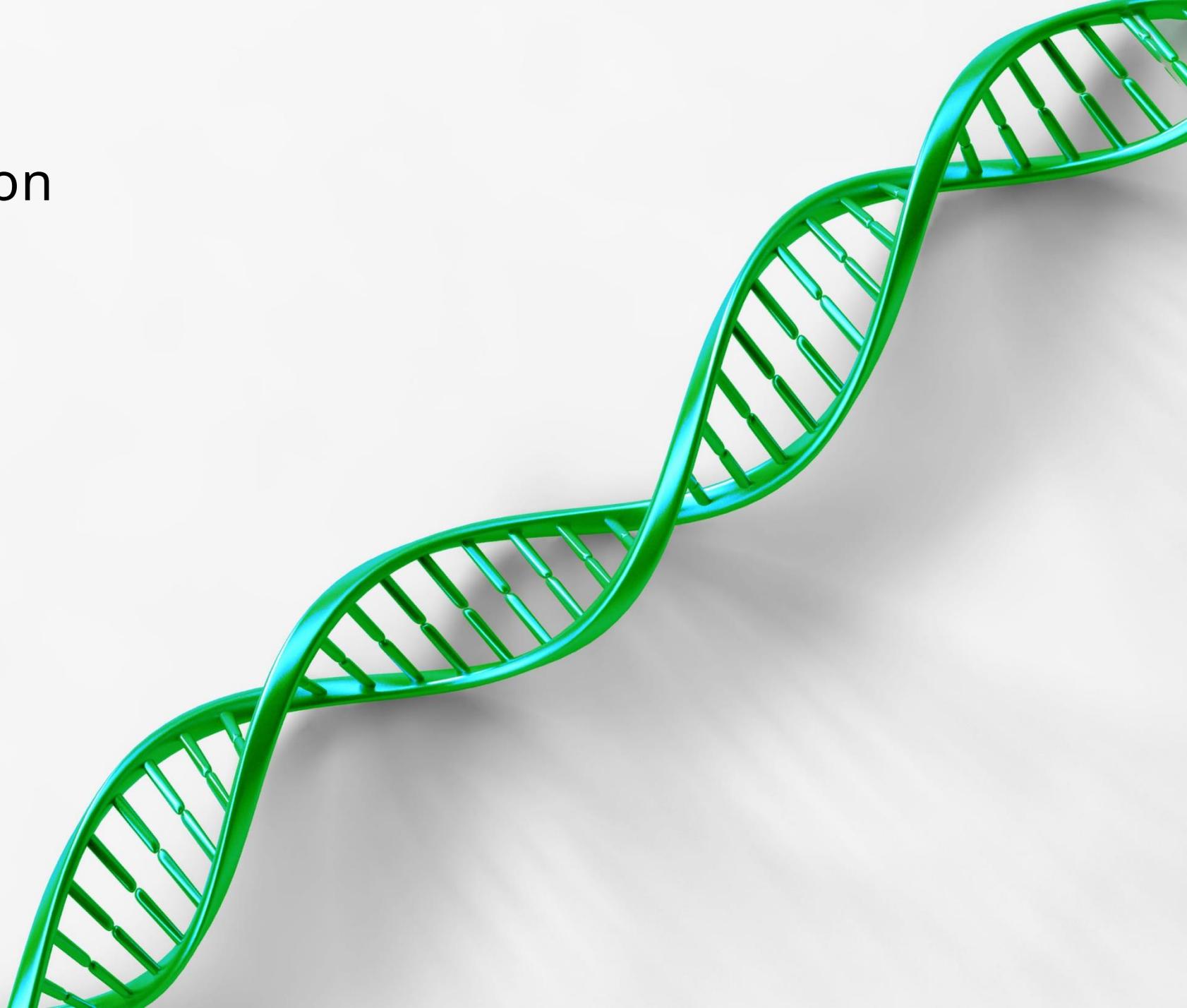


**BIONEER**

Investor Presentation



November 2024

# Disclaimer

This presentation includes forward-looking statements. The forward-looking statements in this presentation include projections and outlook of the Bioneer Corporation (the “Company” or “Bioneer”) concerning its business status and financial results, and include but are not limited to words, such as ‘expectation’, ‘forecast’, ‘plan’, ‘anticipation’ or ‘(E)’. The forward-looking statements are subject to changes in business environment and involve inherent risks and uncertainties.

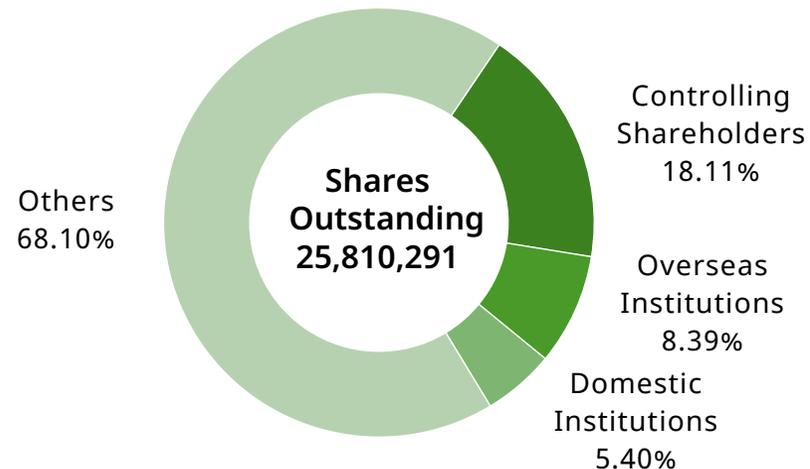
Future expectations are based on current business environment and the Company’s management direction as of the date of presentation. Future projections may differ or change due to changes in business environment or due to strategic changes by the Company. The contents in this presentation may change without any prior notification. No part of the Company or any of its respective officers assume legal responsibility for any damages or losses that may have occurred from the use of this presentation, including errors and other mistakes that may be included in this presentation.

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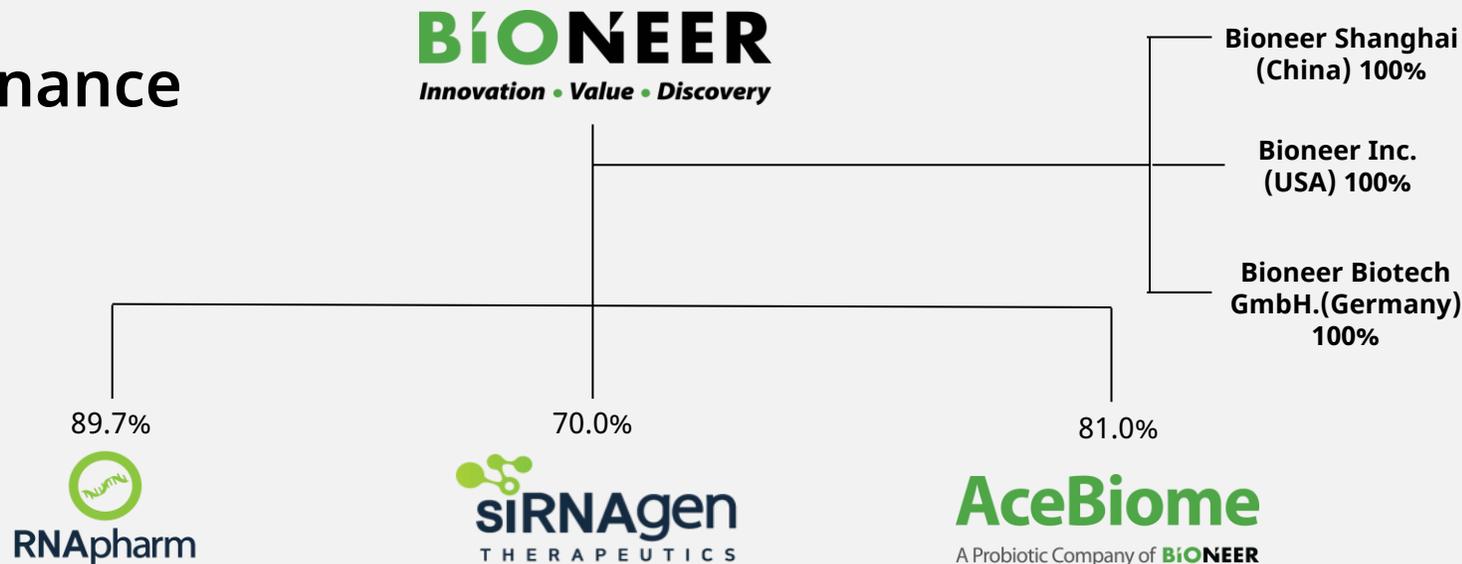
# BIONEER Corporation

# Shareholder Structures (2024.09.30)

<b>CEO</b>	Han-Oh Park
<b>Established on</b>	Aug. 28 <sup>th</sup> , 1992 (Listed on KOSDAQ : Dec. 29 <sup>th</sup> , 2005)
<b>No. of Employees</b>	587 (2024.09.30)
<b>No. of R&amp;D Employees</b>	244 (2024.09.30, 42%)



# Corporate Governance



# Commercializing 4 Nobel Prize Technologies in Life Sciences

## DNA Sequencing

Chemistry Award (1980) : Frederick Sanger

- Read the binding process of template DNA and the complementary sequence during DNA replication

Sequencing equipment, reagents,  
relevant services

## PCR

Chemistry Award (1984) : Kary Mullis

- Target gene amplification using 3-step temperature control, primer, and polymerase

Equipment and reagents for genetic  
research and molecular diagnosis

## DNA Synthesis

Chemistry Award (1993) : Robert B. Merrifield

- Development of a chemical synthesis methodology for attaching amino acids on polymer beads, which are solid substrates

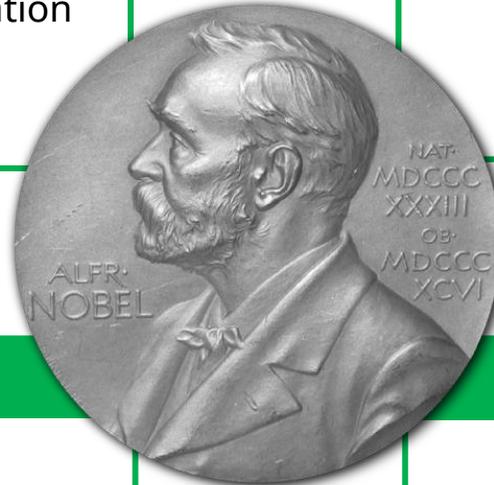
DNA, RNA oligo and synthesizer,  
synthetic raw material

## siRNA

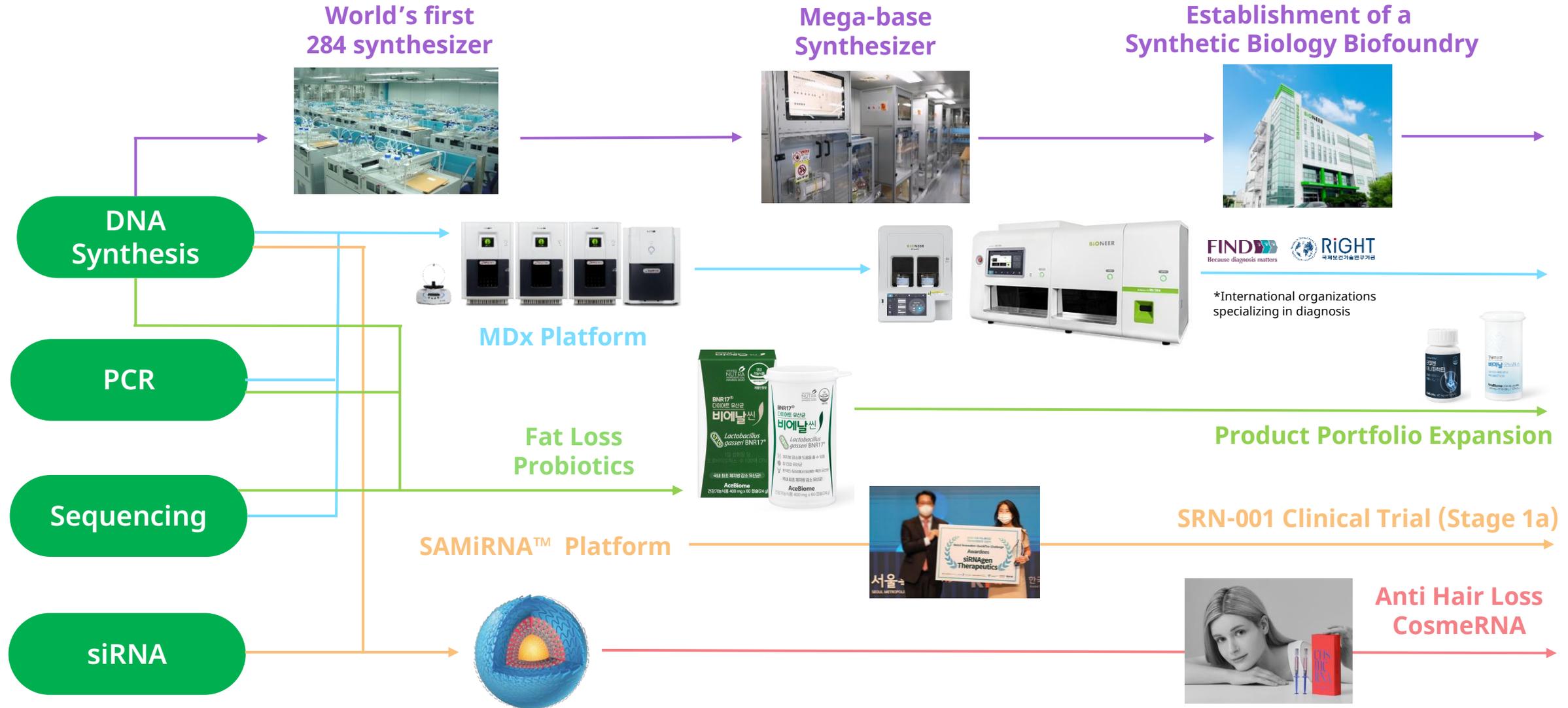
Physiology/Medicine Award (2006) :  
Andrew Fire & Craig Mello

- siRNA inhibits target protein synthesis by inducing target mRNA degradation

SAMiRNA™ Platform for drug development



# Leading the Future, From DNA Synthesis to siRNA-based Treatments

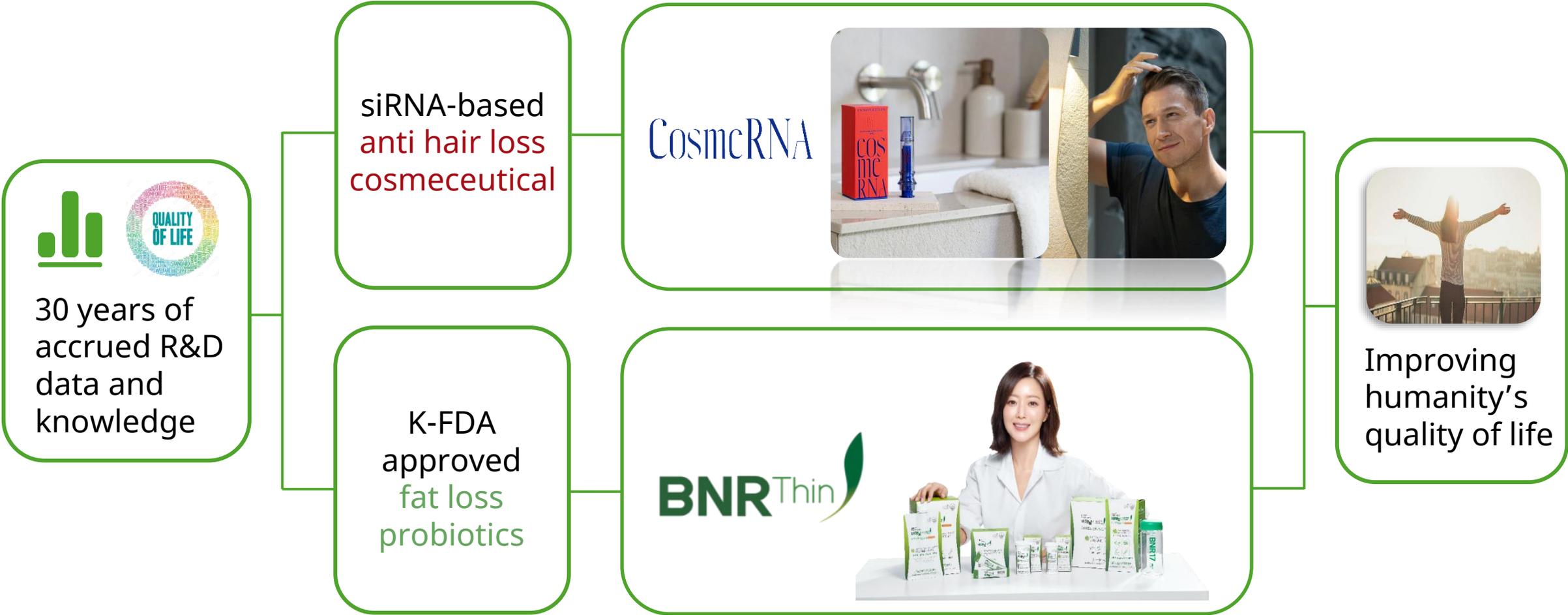


# Intellectual Property (IP) Portfolio Overview

(As of 2024.06)

Field	Domestic		Overseas	
	Applied	Registered	Applied	Registered
Oligo DNA/RNA Synthesis and Technology	0	3	1	4
Developing New Drugs	6	18	84	116
Functional Food and Beverages	4	3	10	11
Electronic Research Devices and Diagnostic Kits	4	36	9	34
Genetic Resource Systems	5	22	29	89
Nano Technology	4	28	22	52
Others	0	14	5	20
<b>TOTAL 183 Applied, 450 Registered</b>	<b>23</b>	<b>124</b>	<b>160</b>	<b>326</b>

# Transition to a Healthcare Company to Improve Quality of Life



# Probiotics\_AceBiome

# Lactobacillus gasseri BNR17®



J. Microbiol. Biotechnol. 2021. 31(9): 1281–1287  
<https://doi.org/10.4014/jmb.2105.05032>

## The Effect of *Lactobacillus gasseri* BNR17 on Postmenopausal Symptoms in Ovariectomized Rats

Sol Lee<sup>1,2</sup>, Dong Hoon Jung<sup>1,2</sup>, Miri Park<sup>1,2</sup>, Seung-Woo Yeon<sup>1,2</sup>, Sang-Hyuk Jung<sup>3</sup>, Sung-Il Yun<sup>3</sup>, Han-Oh Park<sup>1,2,3,4</sup>, and Wonbeak Yoo<sup>1,2\*</sup>

<sup>1</sup>AceBiome Inc., Seoul 06164, Republic of Korea

<sup>2</sup>R&D Center, AceBiome Inc., Daejeon 34013, Republic of Korea

<sup>3</sup>siRNAgen Therapeutics, Daejeon 34302, Republic of Korea

<sup>4</sup>Bioneer Corporation, Daejeon 34302, Republic of Korea

Clinical and preclinical studies have reported that *Lactobacillus gasseri* BNR17, a probiotic bacterial strain isolated from human breast milk, reduces body weight and white adipose tissue volume. In order to further explore the actions of *L. gasseri* BNR17, we investigated the anti-menopausal effects of *L. gasseri* BNR17 in an ovariectomized (OVX) rat model. The serum alanine aminotransferase levels of the rats in the OVX-BNR17 group were lower than those of the rats in the OVX-vehicle only (OVX-Veh) group. Upon administration of *L. gasseri* BNR17 after ovariectomy, calcitonin and Serotonin 2A levels increased significantly, whereas serum osteocalcin levels showed a decreasing tendency. Compared to the rats in the OVX-Veh group, those in the OVX-BNR17 group showed lower urine deoxypyridinoline levels, lower pain sensitivity, and improved vaginal cornification. Furthermore, *L. gasseri* BNR17 administration increased bone mineral density in the rats with OVX-induced femoral bone loss. These results suggest that *L. gasseri* BNR17 administration could alleviate menopausal symptoms, indicating that this bacterium could be a good functional probiotic for managing the health of older women.

**Keywords:** *Lactobacillus gasseri* BNR17, menopause symptoms, ovariectomized rats

## Probiotics

- ✓ The first fat loss probiotics, approved by the Korea Food and Drug Administration (K-FDA)
- ✓ A Strain derived from the breast milk of South Korean women
- ✓ Patented and trademarked in 20+ countries  
- US, Europe, China, Japan, Korea, etc.
- ✓ Published in global academic journals
- ✓ Nominated as No.1 weight-management ingredients in the US NUTRA INGREDIENTS AWARDS 2018

# More than 1,000 Citations in Global Academic Journals

(As of 2024.01)

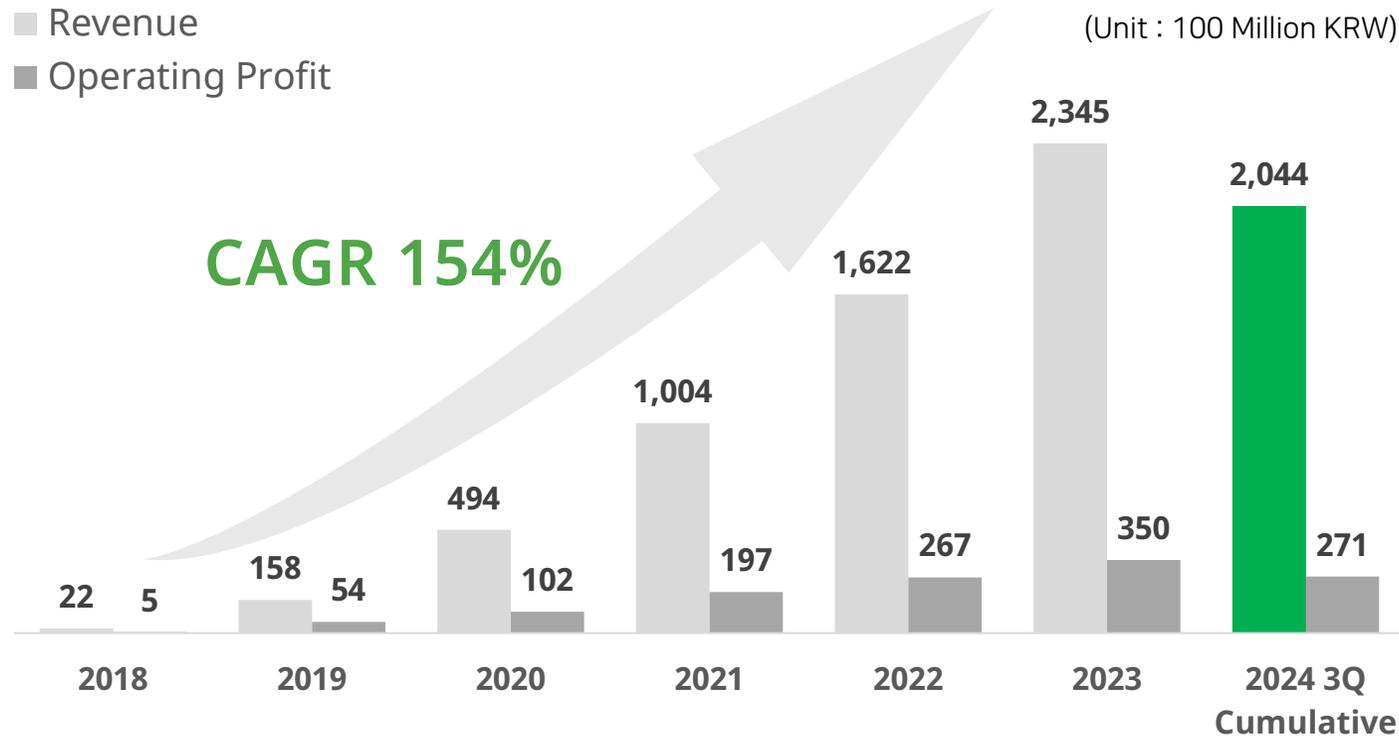
Title	Journal	Citations
Effects of <i>Lactobacillus gasseri</i> BNR17 body weight and adipose tissue mass in diet-induced overweight rats	The Journal of Microbiology. 2010; 48(5): 712-714.	163
Anti-Obesity Effect of <i>Lactobacillus gasseri</i> BNR17 in High-Sucrose Diet-Induced Obese Mice	PLOS One. 2013; 8(1): e54617.	255
Effects of <i>Lactobacillus gasseri</i> BNR17 on blood glucose levels and body weight in a mouse model of type 2 diabetes	Journal of Applied Microbiology. 2009; 107: 1681-1686.	224
Effect of <i>Lactobacillus gasseri</i> BNR17 on overweight and obese adults: A randomized, double-blind clinical trial	Korean J Farm Med. 2013; 34(2): 80-89.	159
A double blind, placebo-controlled, randomized clinical trial that breast milk derived- <i>Lactobacillus gasseri</i> BNR17 mitigated diarrhea-dominant irritable bowel syndrome	J Clin Biochem Nutr. 2018; 62(2): 179-186.	57
<i>Lactobacillus gasseri</i> BNR17 Supplementation Reduces the Visceral Fat Accumulation and Waist Circumference in Obese Adults: A Randomized, Double-Blind, Placebo-Controlled Trial	Journal of Medicinal Food. 2018; 21(5): 454-461.	179

# Strong Revenue Growth and Future Global Expansion

- ✓ Secured top-tier position in the fat loss probiotics market in Korea

## AceBiome

### AceBiome Revenue from '18 to '24



- ✓ Achieved a CAGR of 154% from 2018 to 2023, predominantly driven by the domestic market, which accounts for 95% of total sales
- ✓ From 2024 2H onwards, overseas market expansion will become new growth potential
- ✓ The size of the Korean probiotics market reached 834.8 Billion KRW in 2023 (Achieved 25% market share)  
- Source : Korea Health Functional Food Association

# Leveraging Duty-Free Channels for Global Market

## Partnership with major domestic and in-flight duty free shops

Shinsegae

SHINSEGAE  
DUTY FREE

Shilla

THE SHILLA **duty free**

Lotte

**LOTTE DUTY FREE**

Hyundai

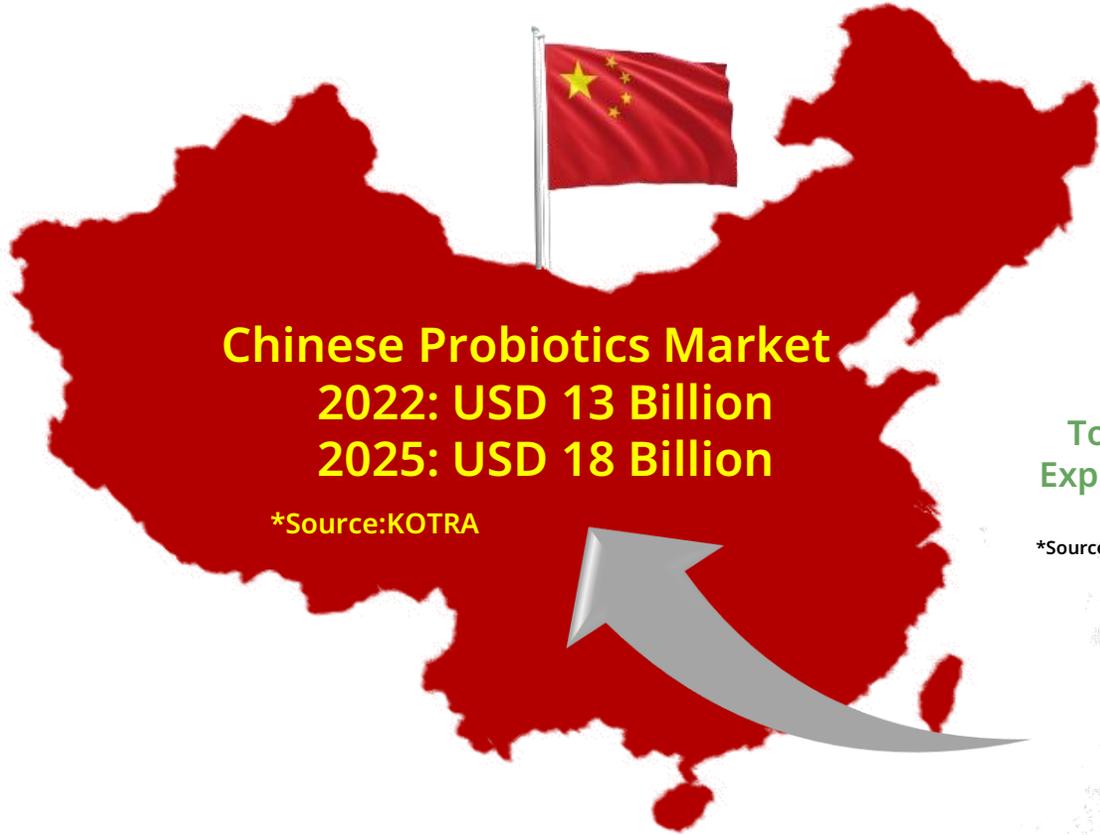
**DUTY FREE** HYUNDAI  
DEPARTMENT STORE

Korean Air

**KOREAN AIR**



# Expansion into China's USD 18 Billion Probiotics Market by 2025



Partnership with XIAOHONGSHU  
- No.1 E-commerce platform in China,  
with 312 million monthly active users



Top Ranked Purchase  
Experience Rate in South  
Korea

\*Source: KANTAR WORLD PANEL



# CosmeRNA\_Anti Hair Loss Cosmeceutical

# Globally Proven Technology based on Scientific Verifications

## scientific reports

### OPEN Weekly treatment with SAMiRNA targeting the androgen receptor ameliorates androgenetic alopecia

Sung-Il Yun<sup>1,5</sup>, Sang-Kyu Lee<sup>2,5</sup>, Eun-Ah Goh<sup>2</sup>, Oh Seung Kwon<sup>2</sup>, Woorim Choi<sup>2</sup>, Jangseon Kim<sup>2</sup>, Mi Sun Lee<sup>2</sup>, Soon Ja Choi<sup>2</sup>, Seung Sik Lim<sup>1</sup>, Tae Kee Moon<sup>3</sup>, Sin Hae Kim<sup>3</sup>, Keeyeol Kyong<sup>4</sup>, Gaewon Nam<sup>4,5</sup> & Han-Oh Park<sup>1,2,5</sup>

Androgenetic alopecia (AGA) is the most common type of hair loss in men and women. Dihydrotestosterone (DHT) and androgen receptor (AR) levels are increased in patients with AGA, and DHT-AR signaling correlates strongly with AGA pathogenesis. In this study, treatment with self-assembled micelle inhibitory RNA (SAMiRNA) nanoparticle-type siRNA selectively suppressed AR expression in vitro. Clinical studies with application of SAMiRNA to the scalp and massaging to deliver it to the hair follicle confirmed its efficacy in AGA. For identification of a potent SAMiRNA for AR silencing, 547 SAMiRNA candidates were synthesized and screened. SAMiRNA-AR68 (AR68) was the most potent and could be efficiently delivered to human follicle dermal papilla cells (HFDPs) and hair follicles, and this treatment decreased the AR mRNA and protein levels. We confirmed that 10  $\mu$ M AR68 elicits no innate immune response in human PBMCs and no cytotoxicity up to 20  $\mu$ M with HFDP and HaCaT cells. Clinical studies were performed in a randomized and double-blind manner with two different doses and frequencies. In the low-dose (0.5 mg/ml) clinical study, AR68 was applied three times per week for 24 weeks, and through quantitative analysis using a phototrichogram, we confirmed increases in total hair counts. In the 24-week long high-dose (5 mg/ml) clinical study, AR68 showed average additional hair growth of 1.3-1.9 hairs/cm<sup>2</sup> per month, which is comparable to finasteride. No side effects were observed. Therefore, SAMiRNA targeting AR mRNA is a potential novel topical treatment for AGA.

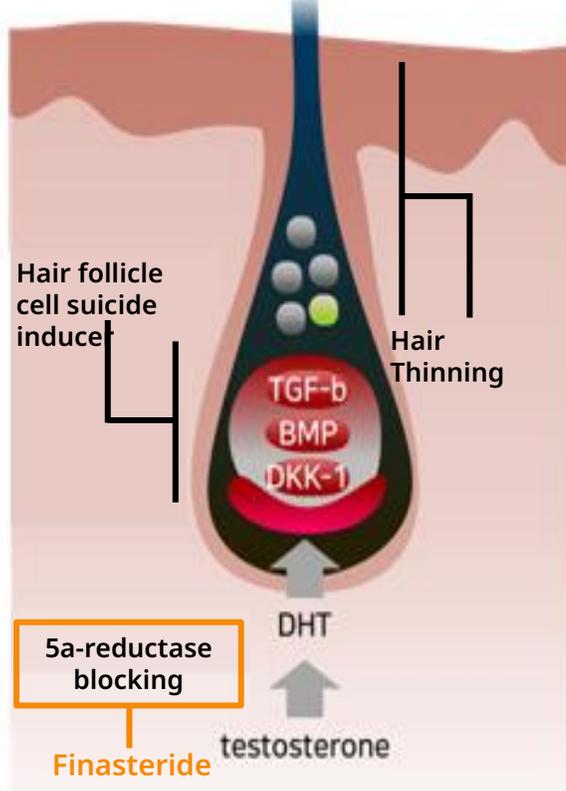
## CosmeRNA

- ✓ Successfully validated through patent portfolios and international academic journals
- ✓ Patented in 12 countries, including South Korea, Europe, and the United States
- ✓ Publication of a clinical trial paper on human application of CosmeRNA in Scientific Reports
  - Published in multiple SCI-indexed academic journals
- ✓ SAMiRNA™ platform is protected by more than 150 patents both domestically and internationally

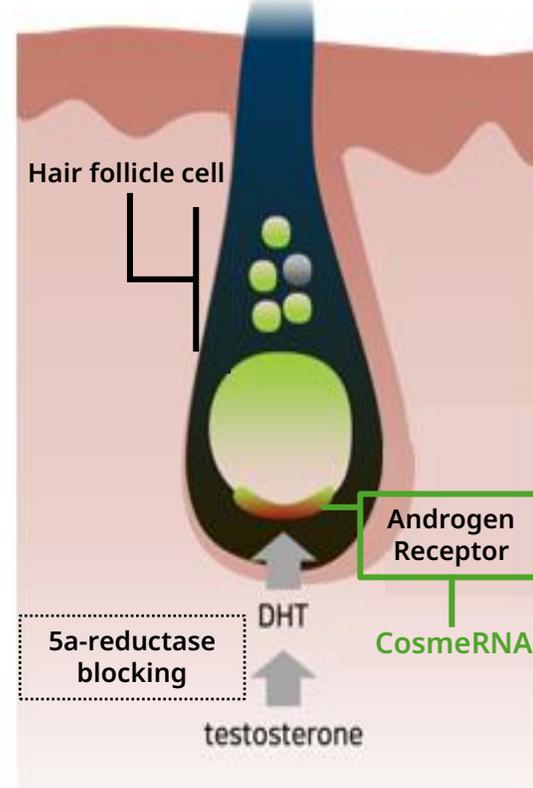
# Mechanism of CosmeRNA

✓ CosmeRNA's non-interfering mechanism with hormones results in no adverse effects

## Finasteride



## CosmeRNA



## Finasteride

Testosterone + 5α-reductase → DHT + androgen receptor → Hair loss

Finasteride

Mechanism of inhibiting DHT (male hormone) production by blocking 5α-reductase

## CosmeRNA

Testosterone + 5α-reductase → DHT + androgen receptor → Hair loss

CosmeRNA

Mechanisms that inhibit androgen receptor production without direct hormonal effects

\*5α-reductase : Enzyme in the body that combines with testosterone to produce DHT

\*DHT : Male hormone that causes hair loss when attached to the androgen receptor

# CosmeRNA Safety and Efficacy Data



**Dermatest results in Germany** (Left : Male, Right : Female)

Category	Dermatest (n=120)	Domestic Human Trials (n=60)
Participants	120	60
Female	40	24
Evaluation Methods	Once 1 week, 2 weeks, 4 weeks	Once a week
Publications	Preparing to publish at a global academic journal	Scientific Report (2022.01)
Efficacy (Hair per 1 cm <sup>2</sup> )	Better results than that of the domestic group	Response Rate: 91% After 4 months: 7.6 (1.9/month)
Adverse Reaction	None	None

Category	CosmeRNA (n=60)	Finasteride (n=3177)
Classification	Cosmetics	Prescription Drug
Drug Administration	Topical	Oral
Target	Androgen Receptor	5 $\alpha$ -Reductase
Usage Cycle	Once per week	Daily Oral Administration
Efficacy (Hair per 1 cm <sup>2</sup> )	Response Rate: 91% After 4 months: 7.6 (1.9/month)	Response Rate: 87.1% After 6 months: 9.3 (1.6/month)
Adverse Reactions	None	Decreased of sexual desire, etc

# DermaTest Safety and Efficacy Report

 signiert/signed  
DERMATEST GmbH

  
RESEARCH INSTITUTE FOR  
RELIABLE RESULTS  
TAKING YOUR SUCCESS PERSONALLY

Study number: 2207259870

**Safety Report**

<b>Product/Project</b>	CosmeRNA ARI
<b>Formula:</b>	--
<b>CPNP-Notification-No.:</b>	None
<b>Product type:</b>	Serum
<b>Manufacturer:</b>	Bioneer Co.
<b>Bottler:</b>	
<b>Distributor:</b>	
<b>Version:</b>	1

 signiert/signed  
DERMATEST GmbH  
30.01.2023  
09:20:26 +01

  
RESEARCH INSTITUTE FOR  
RELIABLE RESULTS  
TAKING YOUR SUCCESS PERSONALLY

Sponsor Study Number 2106259429

BIONEER CORPORATION  
8-11, Munpyeongse-ro, Daedeok-gu,  
Daejeon 34302  
REPUBLIC OF KOREA

  
*Innovation - Value - Discovery*

Muenster, December 16<sup>th</sup> 2022

Expert report by dermatological specialists about a  
randomised double-blind placebo controlled clinical-dermatological  
application study  
on 120 subjects with application once per week resp. once per 2 weeks resp. once per 4 weeks on scalp over  
a period of 6 months

Examination of dermal tolerability  
Quantification and differentiation of hair  
Quantification of hair loss

**CosmeRNA ARI**  
**product A, product B**

# Verification of CosmeRNA's technology

- ✓ Gaining reputations in the cosmeceutical industry through 2024 Cosmoprof Awards

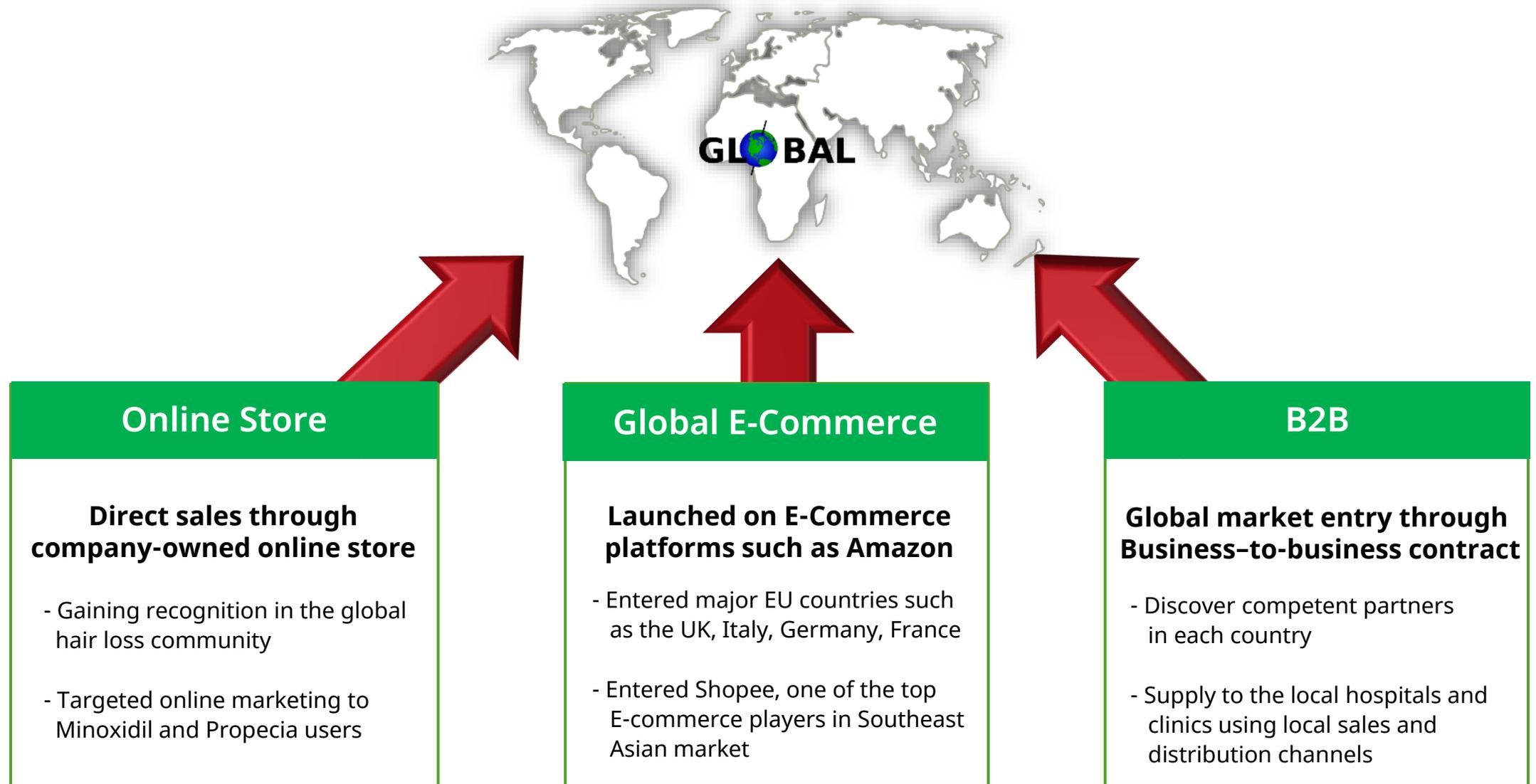


\*COSMOPROF : One of the top 3 worldwide beauty exhibition with the highest prestige and longest history since 1967

## CosmeRNA

- ✓ Winner of the 2024 Cosmoprof Awards in the Hair Products Category
- ✓ Verified in the Scientific Reports journal
- ✓ Patents rights until 2040
- ✓ The world first siRNA-based anti hair loss cosmetics
- ✓ Free from innate immune responses
- ✓ Able to store at a room temperature for 30 months
- ✓ Plan to launch various products based on the proven platform
  - Priority in the skincare and beauty sectors

# CosmeRNA's Global Sales Channels



# CosmeRNA Global Market Expansion Status



# Cost Leadership through In-House siRNA Mass Production



## Cost Advantage

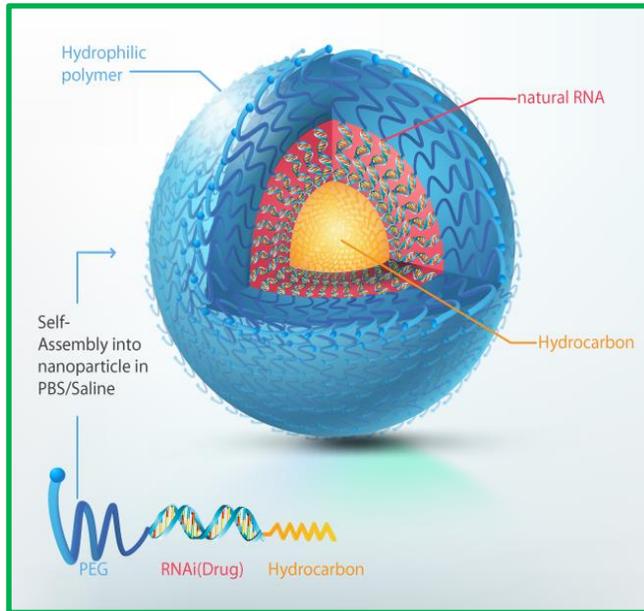
- ✓ Integrated production system
  - From raw material to large-scale DNA and siRNA production.
- ✓ Cost competitiveness
  - Unmatched ability to lower siRNA production costs.
- ✓ siRNA commercialization
  - First to successfully apply high-cost siRNA for cosmeceutical products.
- ✓ Global scale
  - Mass production capability meets global market demand.

(Unit : Million KRW)

Monthly Production	Annual Production	Conversion to mg	siRNA per package	Annual Unit Production	Annual Capacity Amount
2kg ~3kg	24kg ~ 36kg	24,000,000mg ~ 36,000,000mg	10mg	2,400,000 ~ 3,600,000	288,000 ~ 432,000

# siRNAgen Therapeutics\_New Drug

# SAMiRNA™ (Self-Assembled-Micelle inhibitory RNA)



## Delivery vectors free RNAi platform

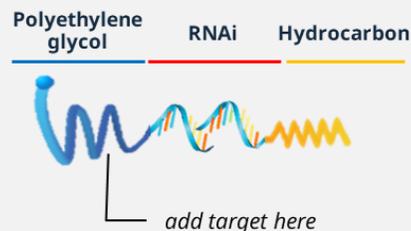
Double-links RNAi sequences with hydrophilic and hydrophobic materials

Effective for the ERP effect due to a particle size of 60-100 nm

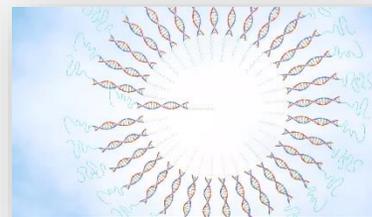
Wide range of RNAi sequences application to the platform

Absorbed selectively to target inflammatory/cancer tissues

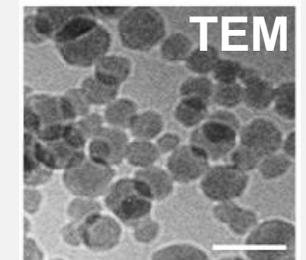
## SAMiRNA™ Platform Formation



Double bonds of PEG (hydrophilic) and Hydrocarbon (hydrophobic) substances to both ends of RNAi



RNAi double binding process



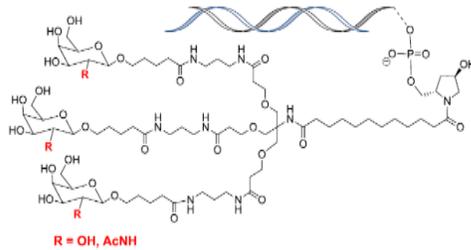
Scale bar = 100 nm

Nanoparticles forming into sphere form under the size of 100nm

# SAMiRNA™ Platform Comparison with Competitors

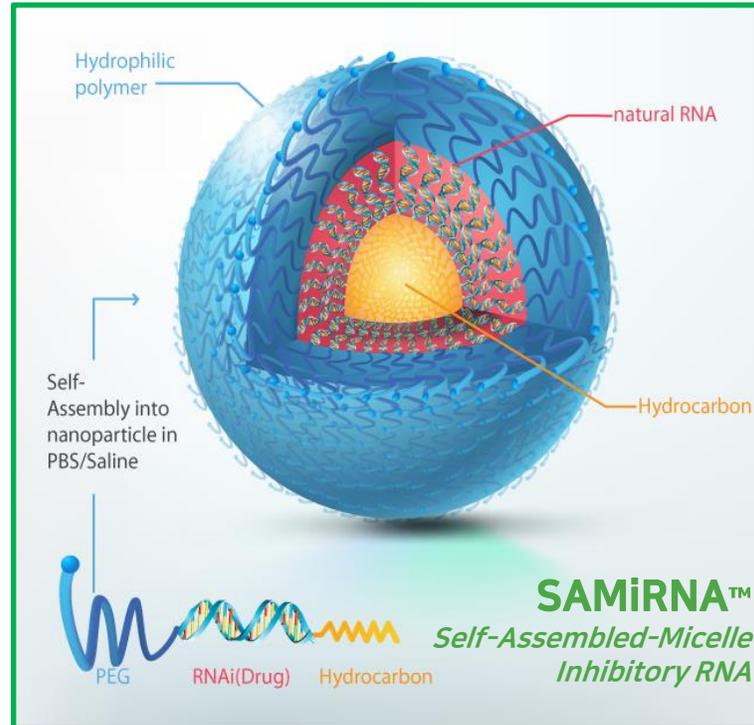
- ✓ Delivery beyond liver and does not require artificial modification or encapsulation
  - Competitors cannot deliver beyond liver and requires artificial modification or encapsulation

## Conjugated RNAi

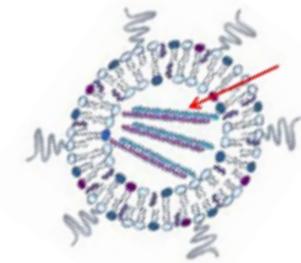


GalNAc-siRNA conjugates,  
Cholesterol, RGD, DPC2.0, PNP

## SAMiRNA™



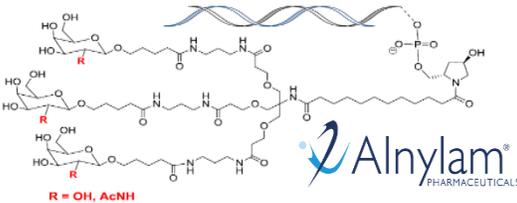
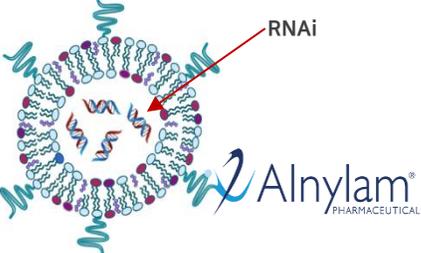
## Nanoparticle Encapsulation



Dlin-DMA, Dlin-MC3-DMA Lipid  
Nanoparticles (LNPs), Inorganic  
nanoparticles, Exosomes

# SAMiRNA™ Platform Advantages Compared to the Competitors

✓ SAMiRNA™ complements the unmet needs of Naked Oligo and LNP methods

	Conjugated RNAi	SAMiRNA™	LNP Encapsulated
			
High Target Delivery Rate	✗	✓	✓
Absence of Innate Immune Response	✓	✓	✗
Low Production Cost	✗	✓	✗
Stable quality control	✗	✓	✗

# SRN-001 Phase 1 Clinical Trail for IPF Treatment using SAMiRNA™

- ✓ Successful completion of Phase 1a clinical trial on IPF indication in Australia

<b>Clinical Trial Name</b>	A randomized, double-blind, placebo-controlled, single-dose escalation clinical trial to evaluate the safety, tolerability and pharmacokinetics of SRN-001 in healthy persons
<b>Approval Institution</b>	Australia HREC (Human Research Ethics Committee)
<b>Indication</b>	Idiopathic Pulmonary Fibrosis (IPF)
<b>Purpose</b>	Evaluation of safety, tolerability, and pharmacokinetic characteristics of step-by-step, single intravenous administration of SRN-001 in healthy adults
<b>Methods</b>	Randomization, double-blind, placebo-controlled, escalated dose, single dose
<b>Period</b>	2023 September ~ 2024 February
<b>Completion</b>	The final Clinical Study Report (CSR) for the Phase 1a clinical trial results published on 2024 September 25 <sup>th</sup>

# SRN-001 Phase 1a Clinical Trial Adverse Reaction Summary (17 participants & 8 in placebo group)

- ✓ Among the 17 participants in the drug administration group and 8 in the placebo group, no adverse reactions that required dose escalation to be halted or the study to be discontinued was observed.
- ✓ Additionally, only general symptoms were observed in all participants due to either the placebo or SRN-001, with no clinically significant abnormal responses in laboratory tests or ECG results.
- ✓ The incidence of adverse reactions in the SRN-001 group was similar to that in the placebo group, and no signs of increased adverse reactions with dose escalation were detected

Adverse Reactions	Cohort 1 (n=4)	Cohort 2 (n=4)	Cohort 3 (n=5*)	Cohort 4 (n=4)	Placebo (saline, n=8)
Adverse reactions following drug administrations (No. of subjects with symptoms/No. of occurrences)	2/10	2/2	3/15	2/5	7/18
Adverse reactions related to the drug (No. of subjects with symptoms / No. of occurrences)	1/1 <sup>1)</sup>	0	2/9 <sup>2)</sup>	1/3 <sup>3)</sup>	1/6 <sup>4)</sup>
Cases of discontinuation due to adverse reactions	0	0	0	0	0
Serious adverse reactions	0	0	1 <sup>5)</sup>	0	0
Serious adverse reactions related to the drug	0	0	0	0	0
Frequency of adverse reactions after drug administrations (subjects)	2(50%)	2(50%)	3(60%)	2(50%)	7(87.5%)

\* Cohort 3 : Due to technical issues with the drug equipment, an additional participant was recruited and administered the drug

- 1) Headache
- 2) Injection site pain/redness, paresthesia, itching, and cough with sputum
- 3) Chest discomfort, palpitations
- 4) Injection site pain, redness at the blood draw site, diarrhea, nausea, abdominal pain, and vomiting
- 5) Grade 3 back pain, and the symptoms resolved without any treatment or medication, confirming that they were unrelated to the drug

# SRN-001 Phase 1a Clinical Trial Biomarker Summary (17 participants & 8 in placebo group)

- ✓ No significant changes in cytokine levels related to the innate immune response were observed in any of the participants who received SRN-001

Biomarker	Cohort 1 (n=4)	Cohort 2 (n=4)	Cohort 3 (n=5)	Cohort 4 (n=4)	Placebo (n=8)
<b>CH50</b>	2.40 (+/-23.9)	-10.8 (+/-33.9)	9.92 (+/-44.6)	12.5 (+/-19.3)	10.8 (+/-18.5)
<b>Interferon Gamma</b>	0.136 (N/A)	0.215 (+/-0.619)	0.106 (+/-1.29)	-1.38 (+/-1.07)	-0.312 (+/-1.29)
<b>Interleukin 6</b>	1.23 (+/-1.31)	2.68 (+/-2.90)	2.12 (+/-2.09)	1.91 (+/-1.20)	2.83(+/-3.09)
<b>Interleukin 1 beta, TNF</b>	BLLOQ	BLLOQ	BLLOQ	BLLOQ	BLLOQ

## Definitions

- CH50 level: A measure indicating the activity of the immune system
- Interferon Gamma, Interleukin 6, Interleukin 1 beta, TNF : Factors that regulate inflammatory responses
- BLLOQ : Below the Limit of Qualification

# Pre-Clinical Research Data on the Anti-Obesity Efficacy

## Pre-Clinical Research Results of a Mouse with Diabetes & Obesity

Select AREG, an adipogenesis growth factor, as the target

Reduce the AREG expression to inhibit the proliferation of adipocytes

70% reduction in visceral fat compared to the control group

## Relationship between Obesity and AREG



DiabetesPro®

### Amphiregulin, a New Adipogenic Growth Factor

Year: 2006

Abstract Number: 1353-P

- **Amphiregulin, a new adipogenic growth factor can promote both proliferation and differentiation of adipocyte.**
- Amphiregulin, autocrine/paracrine growth factors within the adipose tissue itself could play a role in its expansion.
- AREG expression in human adipocytes correlates with BMI and its expression is induced in a mouse model of diet-induced obesity.
- In vitro, the expression of AREG is rapidly increased during preadipocyte to adipocyte conversion.

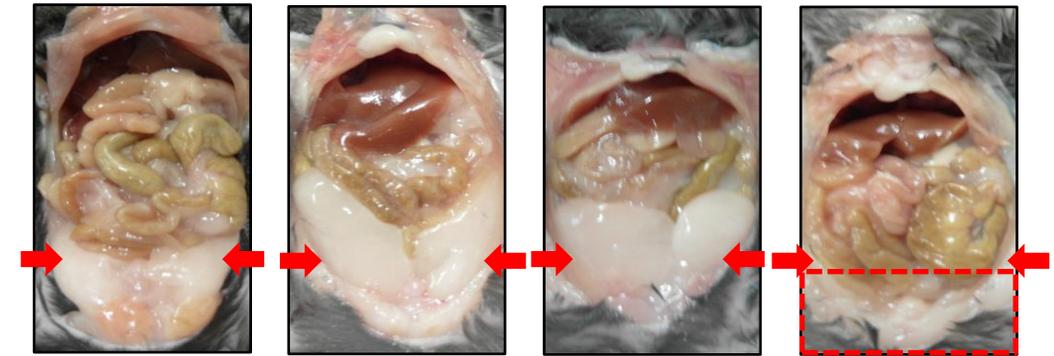
Author: JACQUES ROBIDOUX

Congress: 66th Scientific Sessions (2006)

Category: Integrated Physiology - Adipocyte Biology

\*Patent registered as a preventive and therapeutic agent for obesity in the following countries : S.Korea, Russia, Japan

\*Patent examinations are being process in the following countries : US, Europe, China, India, Brazil, Australia, Canada, etc



db/m

(Normal Mouse)

db/db  
+ PBS

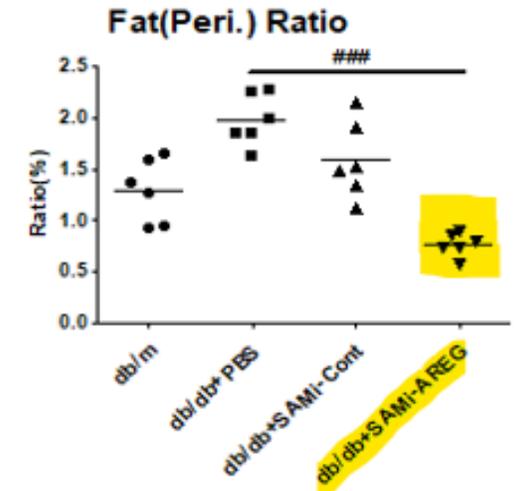
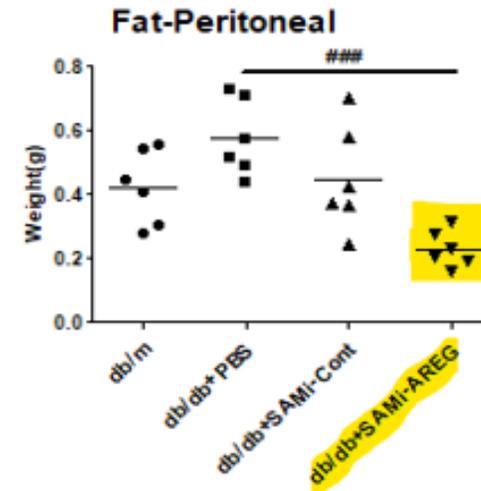
(Obese Mouse)  
\*PBS effects

db/db  
+ SAMi-Cont

(Obese Mouse)  
\*Control sample

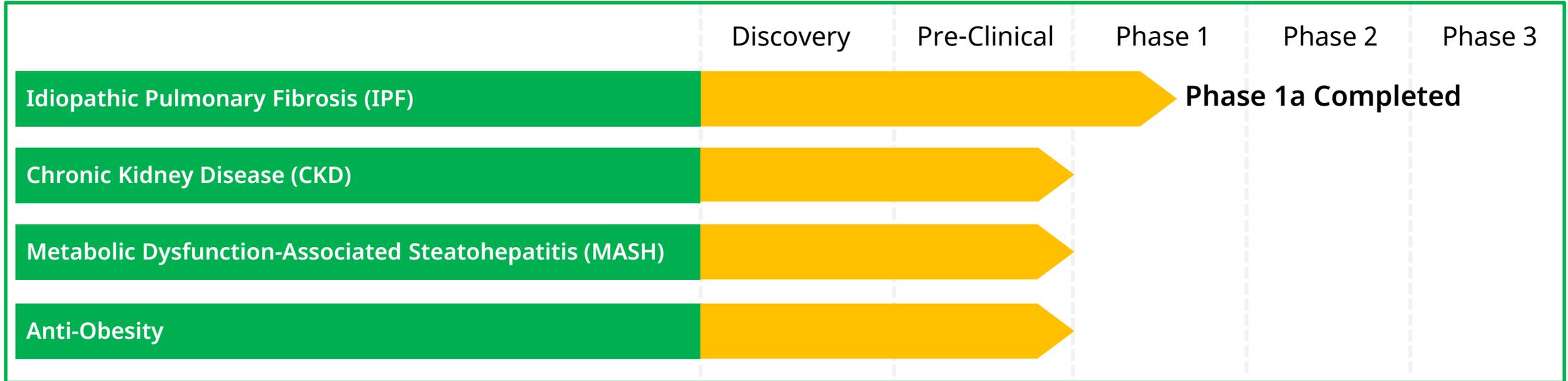
db/db  
+ SAMi-AREG

(Obese Mouse)  
\*SRN-001 applied



# siRNAgen Drug Pipeline Research Status by Indications

## SAMiRNA™ Platform Pipeline



## CNS\* Platform Pipeline



\*Modified SAMiRNA platform to penetrate the blood-brain barrier (BBB) in the central-nervous system (CNS) by replacing hydrophilic (PEG) material with BBB-targeting substances

# Molecular Diagnostics (MDx)

# Molecular Diagnostics Introduction

- ✓ Securement of the entire value chain of equipment and kits for mass production

## Bioneer Global Center



Obtained WHO PQ certification for HIV-1 diagnostic kits



- ❖ Able to participate in international procurement initiatives with WHO and UN to supply AID-related medical equipment to low and middle-income countries

Conducting simultaneous clinical trials with FIND in 4 countries



- ❖ Utilizing IRON-qPCR™ tuberculosis and multi drug-resistant tuberculosis (MDR-TB) diagnostic kits

\*FIND: Foundation for Innovative New Diagnostics (global non-profit organization for diagnostics)

4<sup>th</sup> Generation MDx System Line-up Completed

- ❖ POCT (Point-of-Care Testing) and fully automated and high-throughput molecular diagnostic instruments
- ❖ Capable of mass production due to completion of the Global Center

# Molecular Diagnostics Production and Ecosystem

## In-house Production



Competitiveness in Quality · Cost-efficiency · Capacity

### ① Mass production of raw materials

- Produces 4 tons/year of oligonucleotides raw materials
- Meets the raw material demand for global research purposes

### ② Oligo production & fully-automated process

- Produces 730,000 oligo/year
- The largest production capacity globally on a single factory standard

### ③ The only provider of MDx total solutions in South Korea

- Offers raw materials, reagents and diagnostic kits, and equipment

## Bioneer MDx Ecosystem



Reagents & Kits

Nucleic Acid Extraction System

RT-PCR System

### Complete in-house production of MDx systems

- Fully optimized nucleic acid extraction kits to the instruments
- Capable of high-purity and high-yield extraction of nucleic acid
- Possesses the specificity and sensitivity of RT-PCR tests

\*RT-PCR workflow = Nucleic Acid Extraction + Amplification

#### Nucleic Acid Extraction/Purification

- Extract DNA/RNA from the sample
- Purity· Yield are crucial

#### PCR Pre-Mix

- Extracted nucleic acids are mixed with kits' solutions
- Create PCR reaction solutions

#### Amplification

- Nucleic Acid Amplification
- Specificity· sensitivity are crucial

# 4<sup>th</sup> Generation MDx to Meet the Precision Medicine Demand

## IRON-qPCR™

Approved by the K-FDA (2022.10.07)



### ① Optimized for Syndromic Testing

- Conducts symptom-based POCT on pathogen targets such as respiratory diseases, diarrhea, and sexually transmitted infections

### ② Addresses the medical personnel shortages

- Fully automated process from diagnosis to result analysis and convenient touchscreen operation

### ③ Prevents misuse of antibiotics

- On site diagnosis on multi/extensively drug-resistant tuberculosis, antibiotic resistance gene, and pathogens

\*Simultaneously detect 40 pathogens in 2 samples under 40 minutes

## ExiStation™ FA 96/384

Approved by the K-FDA (2023.01.18)



### ① World's first full scale automation process

- Performing the entire process from sample handling to conducting qPCR

### ② Leader of the global MDx market

- Large hospitals and institutions (molecular diagnostic testing centers, blood banks, etc)

### ③ Built-in negative pressure chamber & sterilization units

- Bio-Safety Cabinet are unnecessary and minimizing the potential for sample & reagent contamination

\*Simultaneously detect 20 pathogens in 94 samples under 90 minutes

# Financial Highlights

# Summarized Income Statement (K-IFRS Consolidated)

(Unit : Million KRW)

	FY '23					FY '24			QoQ	YoY
	Q1	Q2	Q3	Q4	SUM	Q1	Q2	Q3		
Revenue	56,030	69,349	73,741	64,117	263,237	79,216	78,444	65,882	-16.0%	-10.7%
└ Bioneer	7,198	8,604	5,678	6,505	27,985	5,988	6,464	6,156	-4.8%	8.4%
└ AceBiome	48,832	60,745	67,551	57,462	234,590	72,606	71,967	59,671	-17.1%	-11.7%
└ siRNAgen	-	-	512	150	662	622	13	55	331.2%	-89.3%
Gross Income	43,394	55,456	59,227	44,930	203,008	63,070	58,824	48,932	-16.8%	-17.4%
(%)	77.4%	80.0%	80.3%	70.1%	77.1%	79.6%	75.0%	74.3%	-0.7%p	-6.0%p
SG&A Expenses	43,498	50,324	55,198	53,196	202,216	60,293	59,419	57,104	-3.9%	3.5%
Operating Income	-103	5,132	4,029	-8,266	792	2,777	-595	-8,172	Continued Deficit	Turned to Deficit
(%)	-0.2%	7.4%	5.5%	-12.9%	0.3%	3.5%	-0.8%	-12.4%	-11.6%p	-17.99%p
└ Bioneer	-7,267	-3,696	-6,392	-11,903	-29,258	-8,675	-9,510	-11,295	Continued Deficit	Continued Deficit
└ AceBiome	7,925	10,073	11,020	6,041	35,059	12,603	10,297	4,183	-59.4%	-62.0%
└ siRNAgen	-761	-1,245	-599	-2,404	-5,009	-1,151	-1,382	-1,060	Continued Deficit	Continued Deficit
N-Operating P/L	2,039	-684	308	-2,521	-859	717	176	-1,007	Turned to Deficit	Turned to Deficit
Profit Before Tax	1,935	4,448	4,337	-10,787	-67	3,495	-419	-9,179	Continued Deficit	Turned to Deficit
Net Income	400	3,477	2,241	-13,036	-6,919	746	-1,936	-9,619	Continued Deficit	Turned to Deficit
(%)	0.7%	5.0%	3.0%	-20.3%	-2.6%	0.9%	-2.4%	-14.6%	-12.2%p	-17.6%p

# Summarized Balance Sheet (K-IFRS Consolidated)

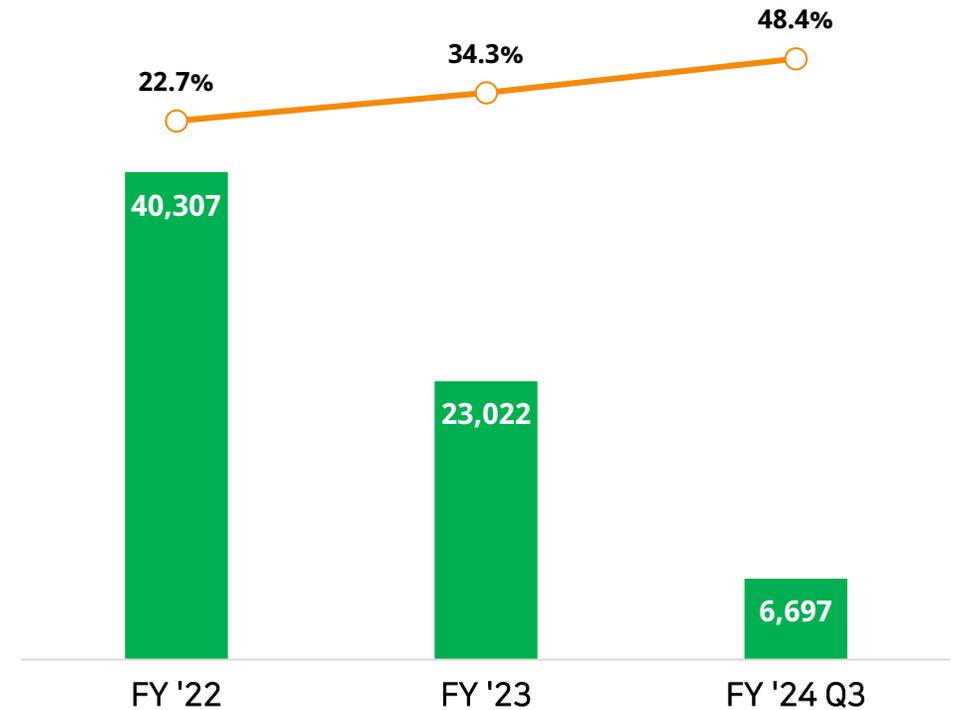
(Unit : Million KRW)

	FY '24 Q3	FY '23	FY '22
Current Assets	167,973	147,680	134,086
└ Cash Equival.	47,082	48,548	43,845
Non-Current Assets	164,236	167,807	164,651
└ Tangible Assets	148,793	151,918	151,534
<b>Total Assets</b>	<b>332,809</b>	<b>315,487</b>	<b>298,737</b>
Current Liabilities	69,871	53,739	36,237
Non-Current Liabilities	38,416	26,871	18,960
<b>Total Liabilities</b>	<b>108,287</b>	<b>80,610</b>	<b>55,197</b>
Equity	12,905	12,905	12,905
Retained Earnings	(42,892)	(29,053)	(16,873)
<b>Total Equity</b>	<b>223,922</b>	<b>234,877</b>	<b>243,540</b>

## Net Cash and Debt Ratio

Net Cash\* Debt Ratio

(Unit : Million KRW)



\*Net Cash : Cash Equivalents + Short-term financial instruments - Short/Long-term Borrowings

# **BIONEER**

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