IR Book | May. 2025

# ST PHARM

Technology Driven Gene Therapy CDMO
From Oligonucleotide to xRNA

# Cautionary Statement regarding Forward-looking Statement

This presentation contains forward-looking statements from Dong-A Socio Group (“the Group”) that include, but are not limited to, statements regarding our future financial performance, business strategies, market opportunities, product development, and operational plans. Words such as “anticipate,” “believe,” “estimate,” “expect,” “intend,” “may,” “plan,” “project,” “will,” and similar expressions are intended to identify such forward-looking statements.

These forward-looking statements are based on our current expectations and beliefs concerning future developments and their potential effects on the Group. Such forward-looking statements are inherently subject to risks, uncertainties, and assumptions that could cause actual results to differ materially from those expressed in these forward-looking statements.

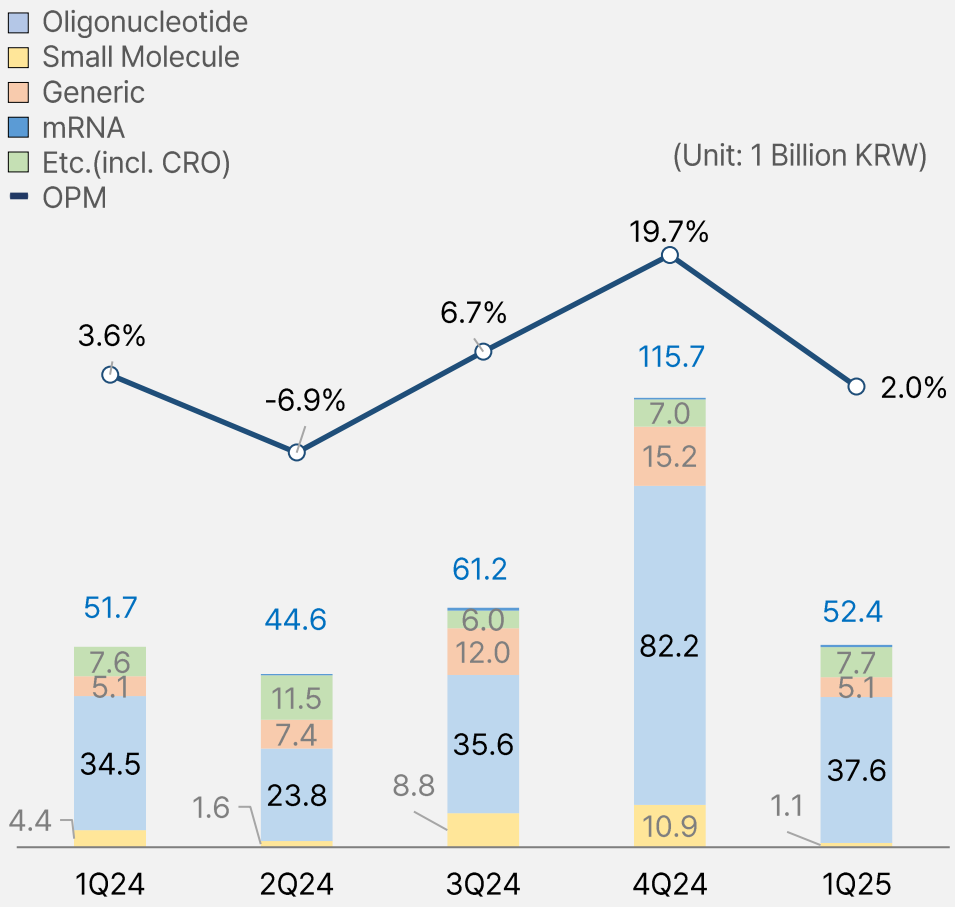
We caution investors not to place undue reliance on any forward-looking statements. These statements speak only as of the date they are made, and we undertake no obligation to publicly update or revise any forward-looking statements, whether as a result of new information, future events, or otherwise, except as required by law. Additionally, please note that the financial figures and metrics presented in these Investor Relations materials are preliminary and have not yet been audited by an independent auditor. These numbers may be subject to change in future finalized disclosures.

# Earning Result

2025 1Q Financial Statement

## ▪ Consolidated Financial Results

### *Quarterly Performance Trend*




## ▪ Financial Statement

**1Q Revenue ₩52.4B, Operating Profit ₩1.0B, Net Profit ₩0.7B**

1) Margins declined from increased cost (R&D expense, etc.)
2) Subsidiaries reported losses of 1.7B KRW, reducing losses from 3.6B KRW in 1Q.24

(Unit: 1 Billion KRW)

| Category | '25.1Q | '24.1Q | 2024 | YoY |
|---|---|---|---|---|
| **Revenue** | **52.4** | **51.7** | **273.8** | **1.4%** |
| Cost of Goods Sold | 33.2 | 32.7 | 177.6 | 1.3% |
| Gross Profit | 19.3 | 19.0 | 96.2 | 1.4% |
| SG&A Expenses | 18.2 | 17.1 | 68.5 | 6.5% |
| R&D Expenses | 5.5 | 5.0 | 22.1 | 11.2% |
| **Operating Profit** | **1.0** | **1.9** | **27.7** | **-45.5%** |
| **Net Profit** | **0.7** | **5.4** | **32.5** | **-86.9%** |
| *Gross Profit Margin* | *36.8%* | *36.7%* | *35.1%* | *0.1%p* |
| *Operating Profit Margin* | *2.0%* | *3.6%* | *10.1%* | *-1.7%p* |
| *Net Profit Margin* | *1.4%* | *10.5%* | *11.9%* | *-9.1%p* |

# Earning Result

2025 1Q Financial Results by Segments

## ▪ Business Segment Breakdown

(Unit: 1 Billion KRW)

| Sector | | '24.1Q | '24.2Q | '24.3Q | '24.4Q | '25.1Q | YoY |
|---|---|---|---|---|---|---|---|
| **Oligo. CDMO** | **Subtotal** (% of Revenue) | **34.5** (66.8%) | **23.8** (53.3%) | **35.6** (57.6%) | **82.2** (71.0%) | **37.6** (71.7%) | **8.9%** |
| | Commercial | 7.9 | 13.1 | 29.6 | 62.9 | 32.4 | 321.7% |
| | Clinical | 26.7 | 10.7 | 5.9 | 19.3 | 5.1 | -80.7% |
| Small Molecule API (SMA) | | 4.4 | 1.6 | 8.8 | 10.9 | 1.1 | -73.6% |
| mRNA | | 0.0 | 0.3 | 0.8 | 0.4 | 0.6 | 1184.9% |
| Generic API (GA) | | 5.1 | 7.4 | 12.0 | 15.2 | 5.3 | 5.5% |
| Others | | 0.0 | 0.5 | 0.0 | 0.4 | 0.0 | -47.6% |
| **Separate Revenue** | | **44.1** | **33.6** | **57.2** | **109.1** | **44.7** | **1.5%** |
| Subsidiaries (CRO) | | 7.6 | 10.9 | 4.5 | 6.6 | 7.7 | 0.7% |
| **Consolidated Revenue** | | **51.7** | **44.6** | **61.7** | **115.7** | **52.4** | **1.4%** |

## ▪ Comments

**Oligo API CDMO business sales increased 8.9% YoY**

- Oligonucleotide API
  Backlog status: $232.7M (+$78.5M in 2025)
  Stable sales growth from commercial projects continues
  Anticipating sales growth in clinical projects
- Small Molecule API & Generic API
  [SM] Absence of mitochondrial deficiency project sales compared to 1Q.24 main reason for sales contraction
  Full-year expectations unchanged
- CRO Subsidiaries
  New order growth signal steady recovering demand (25.2B KRW (2023) → 40.1B KRW (2024))
- Anticipated Events in 2025
  [Oligo] HAE project (NDA), FCS/sHTG project (P3 results)
  [SM] Mitochondrial deficiency project (NDA)
  [Pipeline] Pirmitegravir (P2 interim results)

PART 01

# Introduction

# Overview

Introduction

## Summary

(By end of 2024)

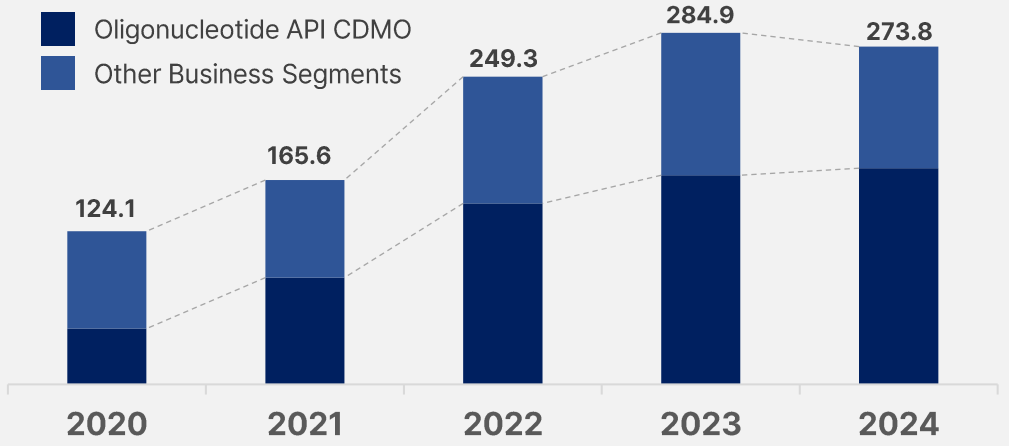
| | |
|---|---|
| **Establishment** | 1983 |
| **Equity** | 503 Billion KRW |
| **Employees** | 664 |
| **Revenue** | 274 Billion KRW (Overseas 79%, Domestic 18%) |
| **Shareholders** | Affiliated / Affiliated Persons hold 38.7% |

### API CDMO specializing in xRNA Therapies

- Major global player in Oligonucleotide API CDMO
- CDMO service ranging from Small Molecule to xRNA
- Solid records in both CDO and CMO areas

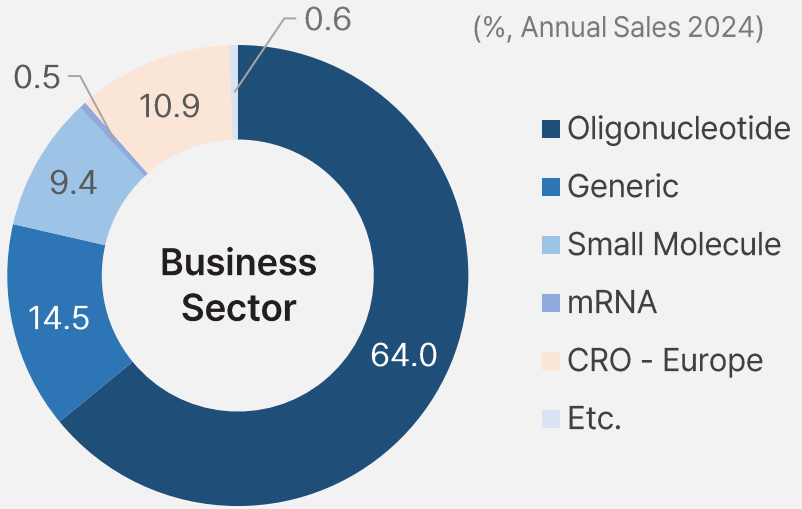
## Consolidated Annual Revenue

(Unit: 1 Billion KRW)




## Revenue Breakdown

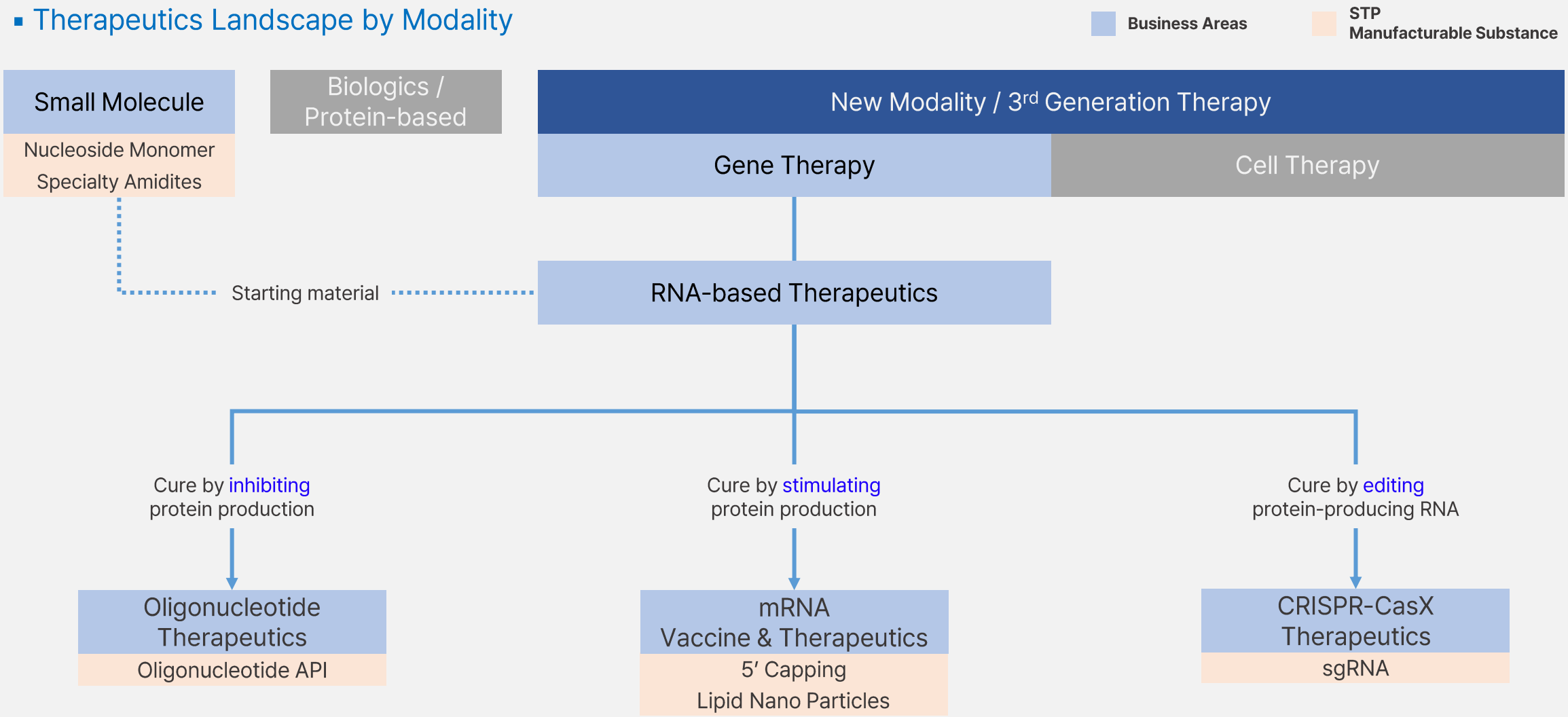
(%, Annual Sales 2024)



# Overview

## Introduction to Core Business Areas

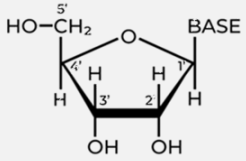
### ▪ Therapeutics Landscape by Modality



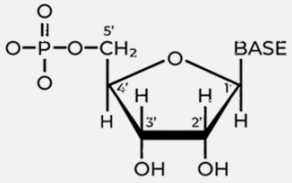
# Overview

History & CDMO Records

## Nucleosides API



Nucleoside



Nucleotide

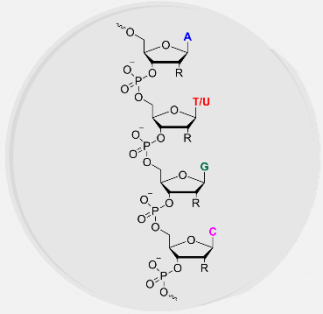
CDMO specializing in small-molecule nucleoside APIs for anti-viral medications

**API Supplier of**

**GSK** Thymidine
**GSK** Zidovudine
**Novartis** Telbivudine
**Gilead** Sofosbuvir

Integrated value chain from nucleosides to phosphoramidites

## Oligonucleotide API




Oligonucleotide (Single-strand)

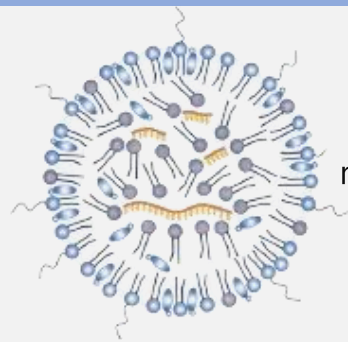
**2018**
- First commercial-scale Oligo Plant

**2022**
- NAI grade from US FDA PAI Inspection

**2023**
- US FDA Inspection for Banwol Site
- 2nd commercial-scale plant (under construction)

**2024**
- 3rd Commercialized Oligo CDMO received US FDA Approval

## xRNA CDMO Platform


mRNA-LNP

**2023**
- Commercial-scale mRNA production facility

**2024**
- Application of STLNP® Patent(PCT)
- Supply Agreement with Quantoom Bio.
- Completion of in-house developed 5′-Capping (SmartCap®)

**2025**
- mRNA Partnership with Evonik AG (SmartCap®)

[Source: Difference Between Nucleotide and Nucleoside - GeeksforGeeks
Linde Schoenmaker, Dominik Witzigmann, Jayesh A. Kulkarni, Rein Verbeke, Gideon Kersten, Wim Jiskoot, Daan J.A. Crommelin. (2021) mRNA-lipid nanoparticle COVID-19 vaccines: Structure and stability, International Journal of Pharmaceutics]

# Market

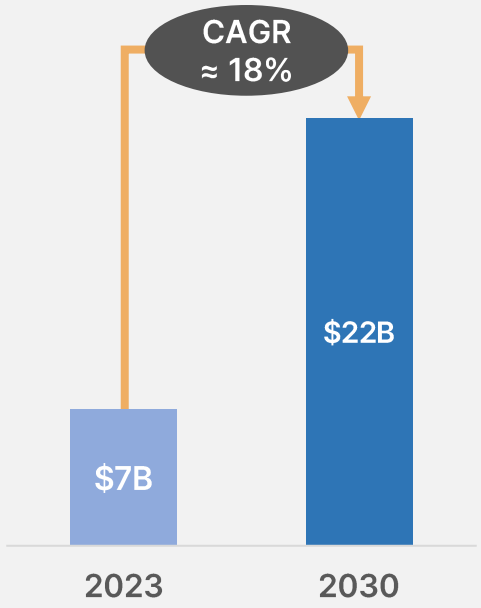
## Oligonucleotide Therapeutics & CDMO Market

- Oligonucleotide Market Growth Forecast

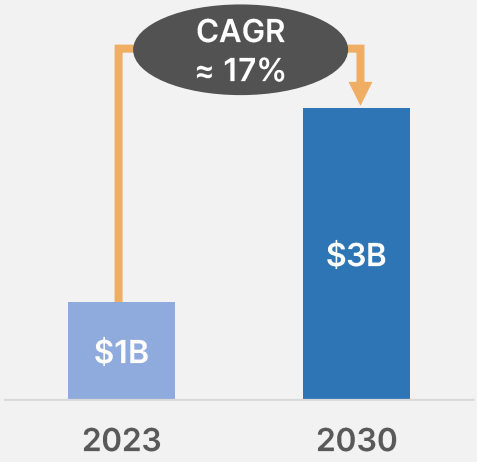
Therapeutics market size to achieve **double-digit growth** through 2030, with CDMO market reflecting ≈15% of downstream market

R&D landscape expanding to target diseases with larger population → **from rare & hereditary to chronic diseases (CVD, metabolic, etc.)**

**Global Oligo Therapeutics Market**

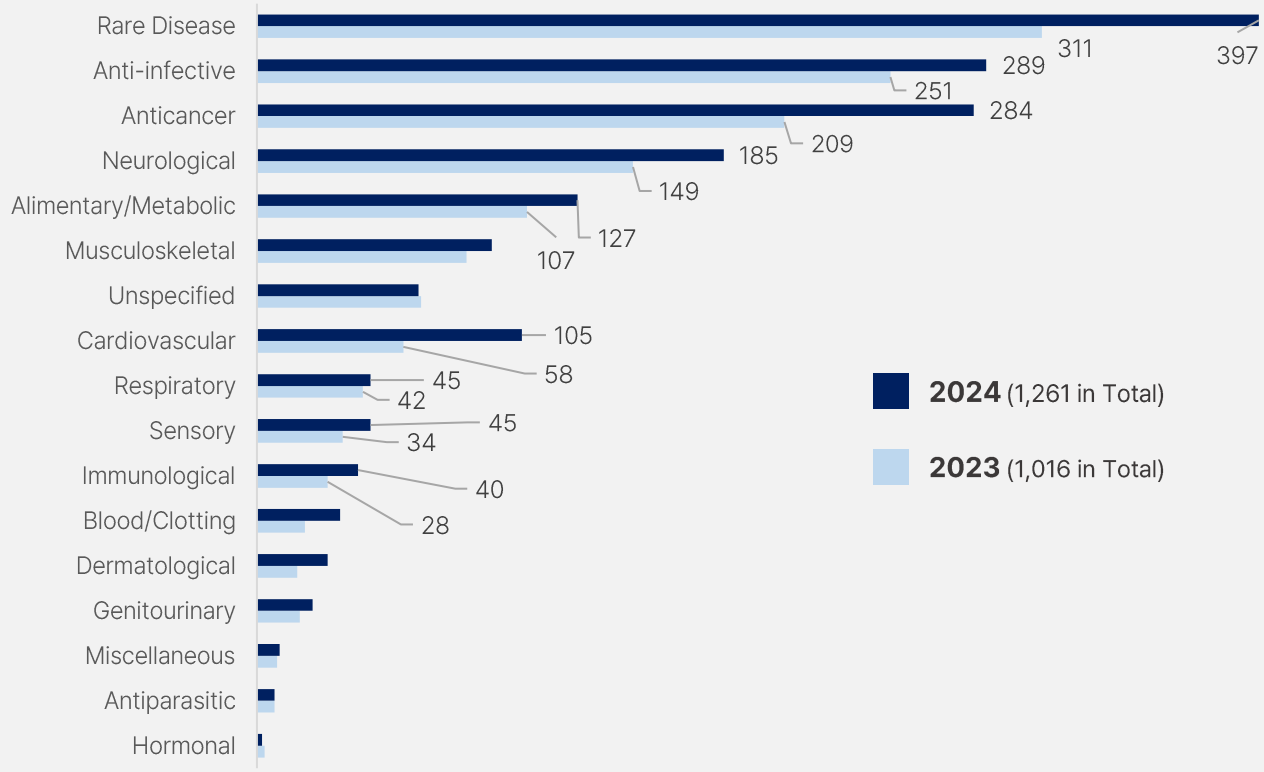



**Global Oligo CDMO Market**




[Referred Source: Cortellis, LS Securities, 2023]

[Pipelines targeting diseases with larger population increasing]




[Referred Source: American Society of Gene and Cell Therapy]

PART 02

# Business Overview

# Business

## Production Facility (GMP)

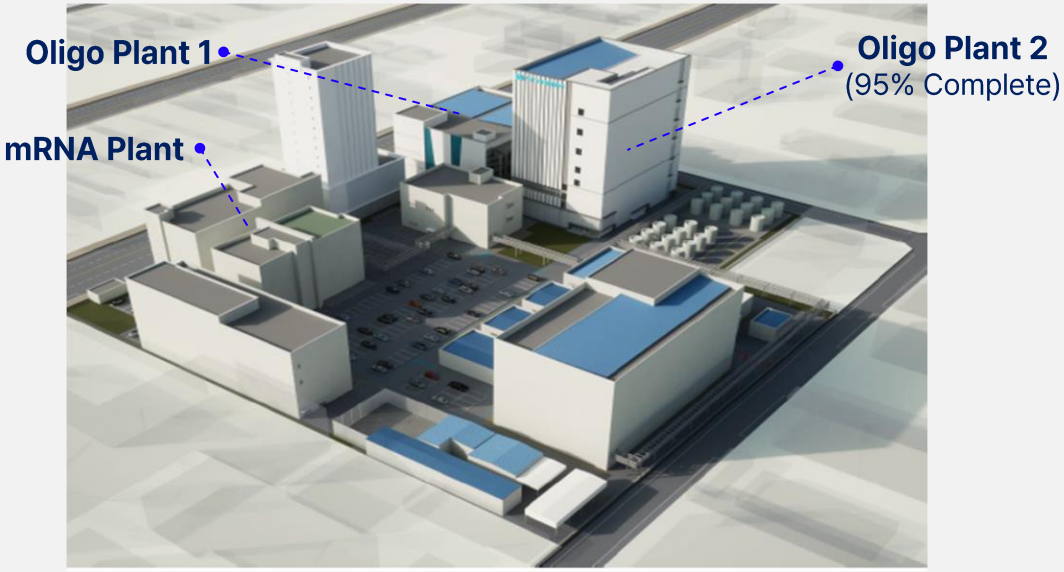
### ▪ Overall Capacity

| Facility | Chemical Plant | Oligo Plant | mRNA Plant |
|---|---|---|---|
| | SM, Generic, Monomer | Oligonucleotide API | mRNA, Lipid Nano Particles |
| Equipment Status | 96 (Reactors) | 4 (Lines)* | - |
| Total Capacity | 376,250 L | 6.4 mole (≈ 2.2T)** | Max. 100M Dose/Year |

* No. of Lines based on installed synthesizers
** 1 mole ≈ 167kg ~ 500kg

### ▪ View of Siwha Campus


### ▪ View of Banwol Campus



# Business

## CDMO Business – New Drug API

### ▪ Major CDMO Projects

| # | Client | Indication / Target Disease | Stage | | | |
|---|---|---|---|---|---|---|
| | | | P1 | P2 | P3 | Approved |
| **Oligonucleotide API** | | | | | | |
| 1 | Client A | Hyperlipidemia | | | | |
| | | CVRR | ↳ Indication expansion | | | |
| 2 | Client B | Spinal Muscular Atrophy (SMA) | | | | |
| 3 | Client C | Myelodysplastic Syndrome (MDS) | | | | |
| | | Myelofibrosis (MF) | ↳ Indication expansion | | | |
| 4 | Client D | Familial Chylomicronaemia Synd. | | | | |
| | | Severe Hyper-triglyceridema | ↳ Indication expansion | | | |
| 5 | Client D | Hereditary Angioedema | | | | |
| 6 | Client A | Atherosclerosis | | | | |
| 7 | Client F | IgA Nephropathy | | | | |
| 8 | Client E | Chronic Hepatitis B | | | | |
| 9 | Client F | Chronic Hepatitis B | | | | |
| 10 | Client F | Huntington's Disease | | | | |
| **Small Molecule API** | | | | | | |
| 11 | Client G | Not disclosed | | | | |
| 12 | Client H | Mitochondrial Dysfunction | | | | |

### ▪ Capacity Expansion Schedule (Oligo Plant)

| Facility | Operation starting by **25.Q4** | **2028 ~** |
|---|---|---|
| | **Plant 2** | **Plant 2 Expansion** |
| Total Lines | 7 | ~ 10 |
| Total Capacity | 8 mole | TBD |
| CAPEX (KRW) | 110 Billion | ~ 40 Billion |

### ▪ Oligo CDMO Project Backlog Status (as of Apr. 25)

[Unit: 1 Million USD]

| Category | End of 2022 | End of 2023 | End of 2024 | Newly Added in 2025 |
|---|---|---|---|---|
| Commercial | 13.2 | 36.1 | 106.5 | 44.7 |
| Clinical | 67.2 | 81.4 | 47.7 | 37.4 |
| **Total (Accumulated)** | **80.4** | **117.4** | **154.2** | **236.3** |

* Backlog status based on date of Product Order receival
** Commercial/Clinical project determined based on date of pipeline's new drug approval
*** CHF/USD = 1.20 for "Newly Added in 2025"

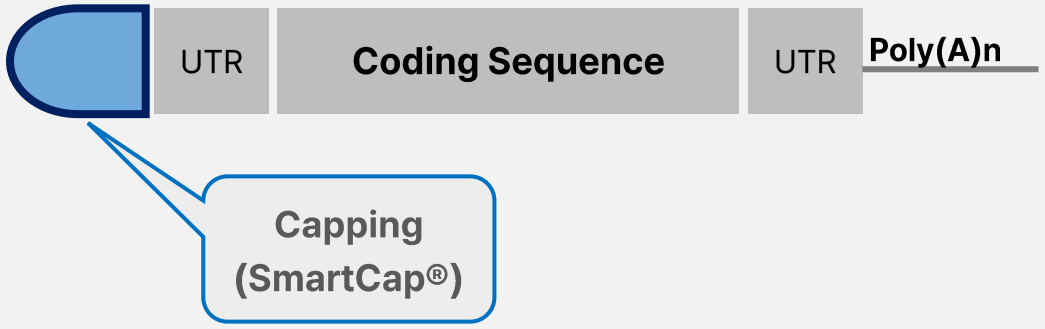
# Business

## CDMO Business – mRNA Platform

- In-house Platform Technologies

**SmartCap®** (Stability)

- Registered patent in Korea
- Ongoing PCT International Patent Publication
- Over 30 capping analogues → highly customizable
- Efficacy & Safety data through STP-2104 clinical trial

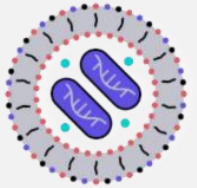



Supply Agreements & Partnerships:

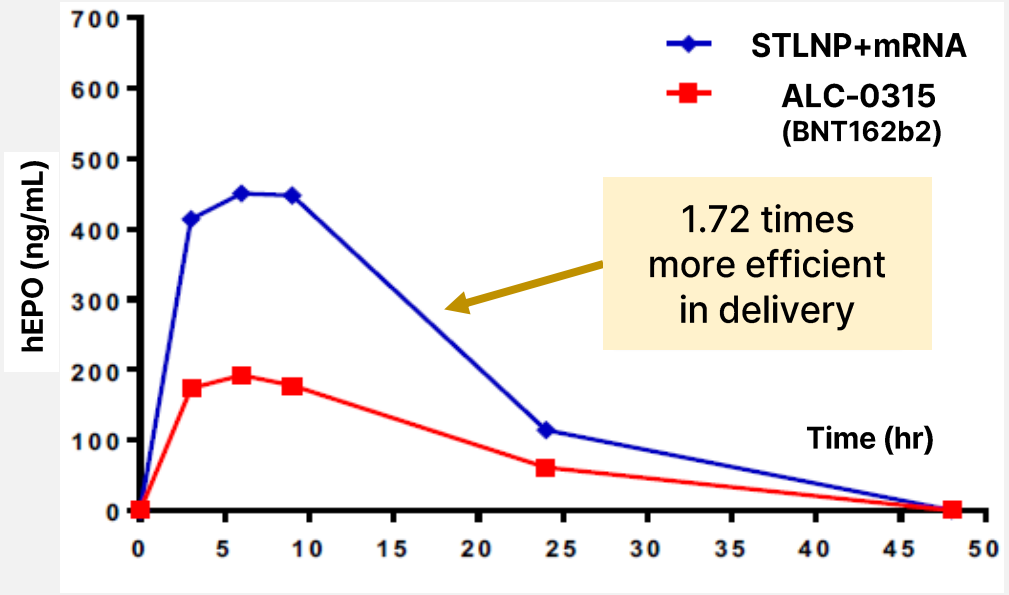
Quantoom Biosciences — Aug. 2024

EVONIK Leading Beyond Chemistry — Jan. 2025

**STLNP®** (Delivery)



- Ongoing PCT International Patent Publication
- Delivery efficacy data observed from nonclinical study



PART 03

# Technology & Pipeline

# Technology

## Enzymatic Ligation for Oligonucleotide CDMO

- Development of **Enzymatic Ligation** approach to revolutionize API production at scale…

Our Approach

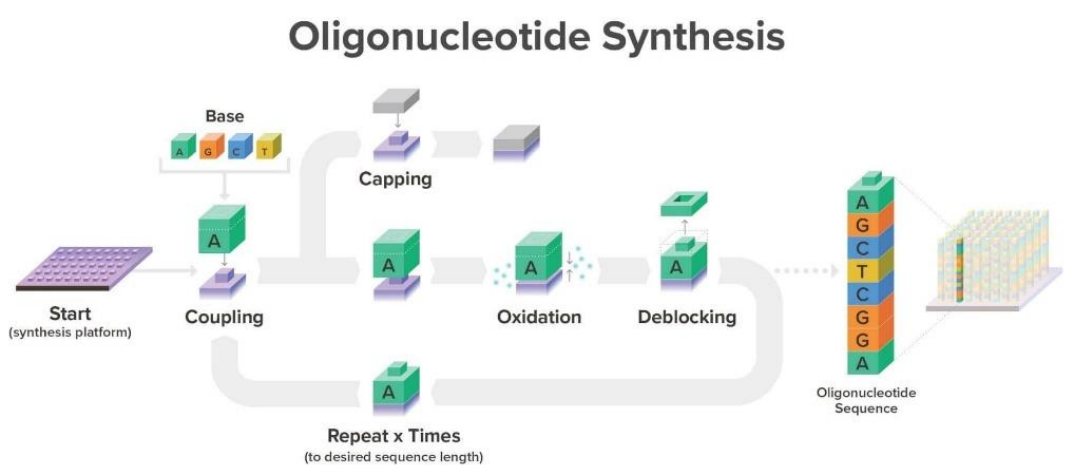
1) Synthesize monomers into shortmers instead of phosphoramidites as individual building blocks
2) Synthesize shortmers into full-length oligo APIs through enzymatic ligation

** Ongoing joint research with global pharmaceuticals/clients for commercialization of technology*

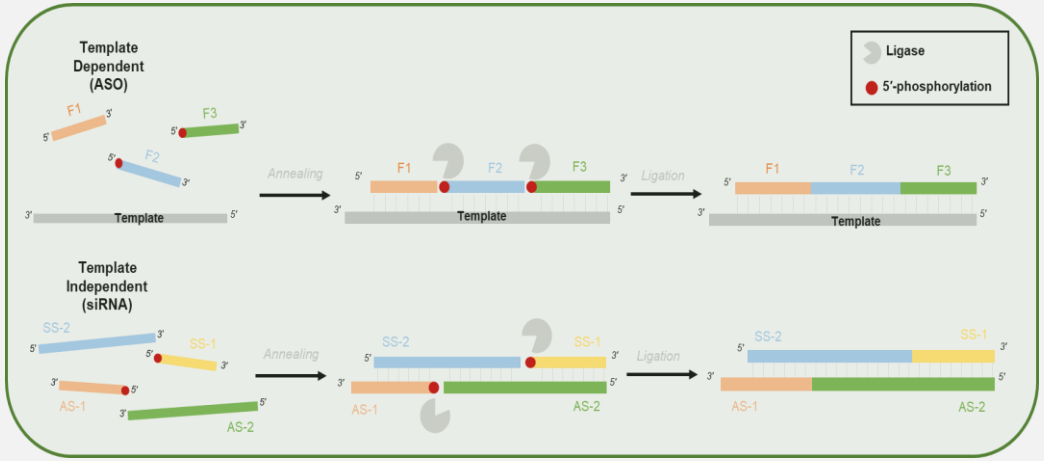
**Why it matters**

- Improves scalability & lowers production cost
- Eco-friendly, by using non-chemical organic solvents (ex. water)
- Allow efficient synthesis of longer-length oligomers/oligonucleotides

[Solid Phase OS]




[Enzymatic Ligation OS]




[Source: Twist Bioscience]

# Technology

## LPOS for Shortmer Production

- combined with **Liquid Phase Synthesis** for mass production of shortmers

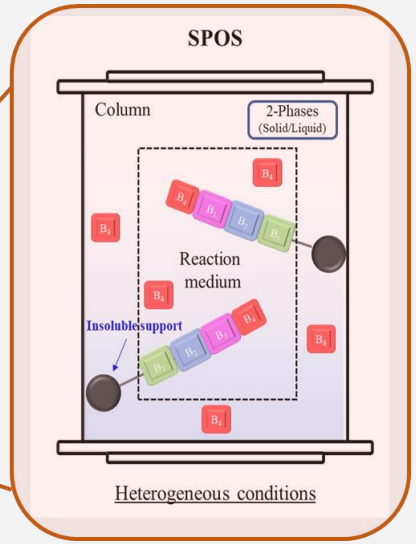
Our Approach

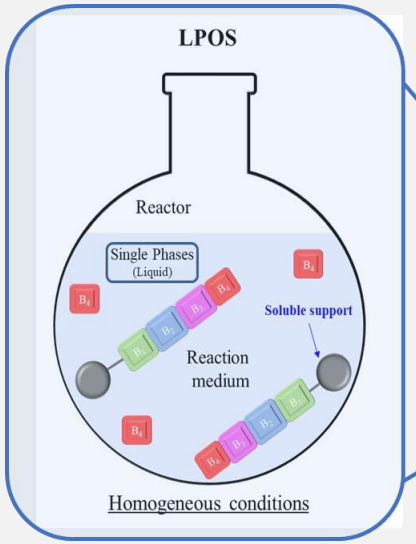
1) Mass produce shortmers through Small Molecule-like liquid phase synthesis
2) Synthesize LPOS-made shortmers into full oligo APIs through ligation

** Acquired global (excl. Japan) license of LPOS-enabling liquid resin from Fujimoto Chemical*

**Why it matters**

- Greatly enlarges batch size compared to SPOS-made shortmers (x10 of current SPOS batch size)
- Improve synthesis efficiency and shorten production lead time, resulting in cost optimization
- Eco-friendly; LPOS require less chemical solvents than SPOS




# Technology

## sgRNA Chemical Synthesis for CRISPR-Cas CDMO Service

- sgRNA synthesis in response to CRISPR-Cas demands

Successful manufacturing of 100-mer sgRNA

- Backed by +20 years of expertise in oligo./nucleotide synthesis and development of analytical methods
- In-house capability from synthesis-purification to analysis

Ongoing developments and production augmentation

- 130-mer sgRNA development work-in-progress
- On schedule for installing dedicated line during 1Q.2025

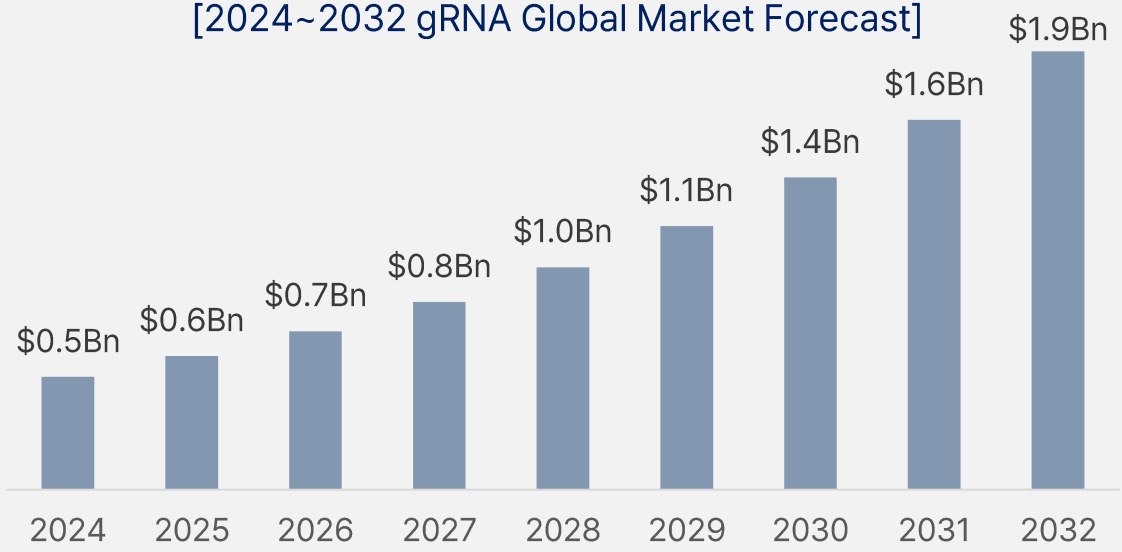
[100-mer sgRNA Purification Results]

As of Oct. 2024

| Length | Modification | Crude (Pre-Purification) | Post Purification |
|---|---|---|---|
| 100 mer | 2′-OH | 7~17 % | 79~87%* |

* Major competitor Target purification ≥ 80% (100-mer)

[2024~2032 gRNA Global Market Forecast]




[Source: AnalystView Market Insight]

[Production Facility Status (GMP)]

| Status | Line | Capability |
|---|---|---|
| Installed | R&D Lab Line* (non-GMP) | 50 µmol ~ 1.2 mmol |
| Installed | Small-scale Line* | 1.2~20 mmol |
| **Planned** | Small-scale Line **[sgRNA-dedicated]** | 1.2 mmol scale |

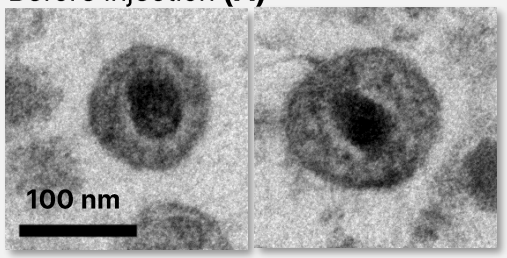
* Currently utilizing two installed lines for both oligonucleotide & sgRNA synthesis

# Pipeline

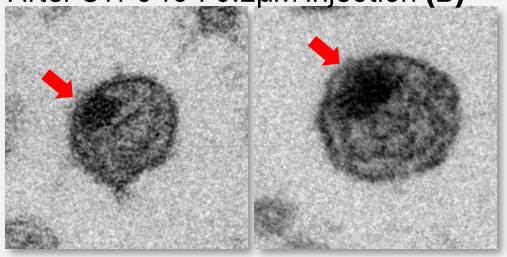
## STP0404 - ALLINI Mechanism (New Mechanism)

### ▪ STP0404 Mechanism of Action

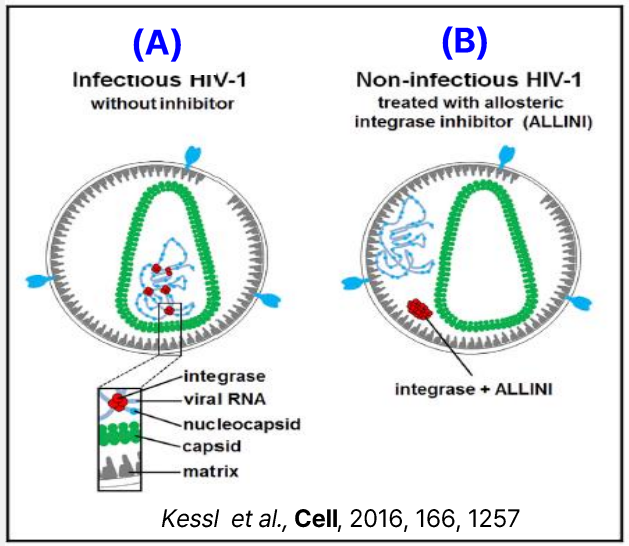
Before Injection **(A)**




After STP0404 0.2µM Injection **(B)**

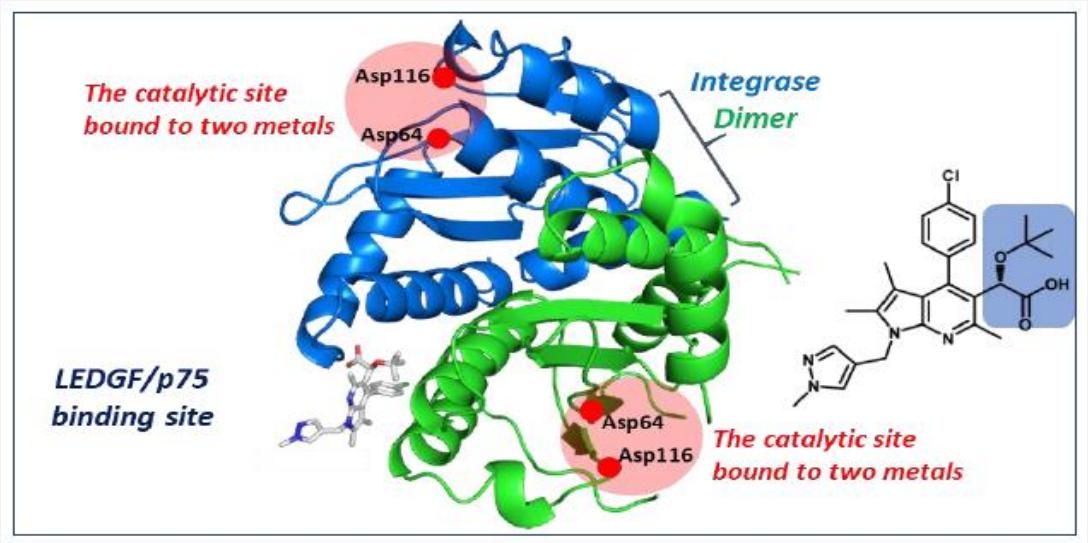


*TEM study in Emory Univ.*




*Kessl et al.*, **Cell**, 2016, 166, 1257

### ▪ STP0404 X-ray Structure




- New mechanism ALLINI (Allosteric integrase inhibitor) founded by Prof. M. Kvaratskhelia (Univ. of Colorado) in 2016
- HIV-1 integrase binds the viral RNA genome and plays an essential role during virion morphogenesis **(A)**
- ALLINI induces aberrant integrase(IN) multimerization and binds to viral RNA, leading to mislocalization of viral RNA **(B)**
- STP0404 leads to mislocalization of vRNP* complexes outside the viral capsid, allowing the formation of non-infectious HIV-1 **(B)**
- New MOA for HIV-cure as "maturation inhibitor" - "Divide and Conquer", not 'Shock & Kill' or 'Block & Lock''
- Identification of ALLINI mechanism supported by US NIH grants in 2018. Collaboration with Emory University & University of Colorado Boulder

* Viral ribonucleoprotein

PART 04

# Appendix

# Appendix

## Summarized Consolidated Balance Sheet

[Unit : 1 Billion KRW]

| | 1Q24 | 2Q24 | 3Q24 | 4Q24 | 1Q25 |
|---|---|---|---|---|---|
| **Asset** | 675.8 | 666.2 | 691.6 | 721.9 | **742.2** |
| Current Asset | 341.4 | 324.4 | 323.5 | 330.1 | **336.7** |
| Cash and Cash Equivalent | 71.1 | 29.5 | 41.0 | 63.4 | **24.8** |
| Account Receivables | 72.8 | 44.6 | 50.5 | 67.8 | **56.6** |
| Inventory | 133.8 | 154.7 | 158.6 | 127.0 | **146.6** |
| Non-current Asset | 334.4 | 341.8 | 368.1 | 391.8 | **405.4** |
| **Liabilities** | 284.4 | 238.0 | 203.1 | 218.9 | **247.9** |
| Current Liabilities | 88.5 | 76.3 | 80.9 | 133.3 | **162.1** |
| Non-current Liabilities | 195.9 | 161.7 | 122.1 | 85.6 | **85.7** |
| Short & Long-term Borrowings | 180.8 | 156.1 | 118.6 | 115.5 | **74.4** |
| **Equity** | 391.4 | 428.2 | 488.5 | 503.0 | **494.3** |
| | | | | | |
| ***Current Ratio*** | *385.8%* | *425.1%* | 399.7% | 247.7% | ***207.7%*** |
| ***Debt-to-Equity Ratio*** | *72.7%* | *55.6%* | 41.6% | 43.5% | ***50.1%*** |
| ***Borrowings / Equity*** | *46.2%* | *36.5%* | 24.3% | 14.6% | ***15.0%*** |
| ***Borrowings*** *(excl. Cash)* ***/ Equity*** | *28.0%* | *29.6%* | 15.9% | 2.0% | ***10.0%*** |

# Appendix

## Summarized Consolidated Income Statement

[Unit : 1 Billion KRW]

| | 1Q24 | 2Q24 | 3Q24 | 4Q24 | 2024 | 1Q25 |
|---|---|---|---|---|---|---|
| **Revenue** | 51.7 | 44.6 | 61.7 | 115.7 | 273.8 | **52.4** |
| Cost of Goods Sold | 32.7 | 29.3 | 39.2 | 76.3 | 177.6 | **33.2** |
| Gross Profit | 19.0 | 15.3 | 22.5 | 39.4 | 96.2 | **19.3** |
| SG & A Expenses | 17.1 | 18.3 | 16.4 | 16.6 | 68.5 | **18.2** |
| R&D Expenses | 5.0 | 6.1 | 5.6 | 5.5 | 22.1 | **5.5** |
| **Operating Profit** | 1.9 | -3.1 | 6.1 | 22.8 | 27.7 | **1.0** |
| Non-operating Income | 0.0 | 0.0 | 0.0 | 0.6 | 0.6 | **0.1** |
| Non-operating Cost | 1.4 | 0.2 | 0.1 | 0.6 | 2.3 | **0.1** |
| Financial Income | 10.3 | 7.3 | 14.0 | 3.7 | 35.3 | **2.2** |
| Financial Cost | 3.2 | 3.2 | 5.2 | 7.0 | 18.6 | **1.7** |
| **EBT** | 7.5 | 0.9 | 14.9 | 19.1 | 42.7 | **1.6** |
| **Net Profit** | 5.4 | 0.9 | 13.7 | 12.1 | 32.5 | **0.7** |
| | | | | | | |
| ***Gross Profit Margin*** | *36.7%* | *34.3%* | 36.4% | *34.0%* | *35.1%* | ***36.8%*** |
| ***Operating Profit Margin*** | *3.6%* | *-6.9%* | 9.9% | *19.7%* | *10.1%* | ***2.0%*** |
| ***EBT Margin*** | *14.5%* | *2.0%* | 24.1% | *16.8%* | *15.6%* | ***3.0%*** |
| ***Net Profit Margin*** | *10.5%* | *2.0%* | 22.2% | *10.8%* | *11.9%* | ***1.4%*** |

Thank You

# ST PHARM

Technology-Driven Gene therapy CDMO
From Oligonucleotide to xRNA