ST PHARM:

Endless Challenge Toward Becoming a Global xRNA CDMO

2025. 12

ST PHARM

Disclaimer

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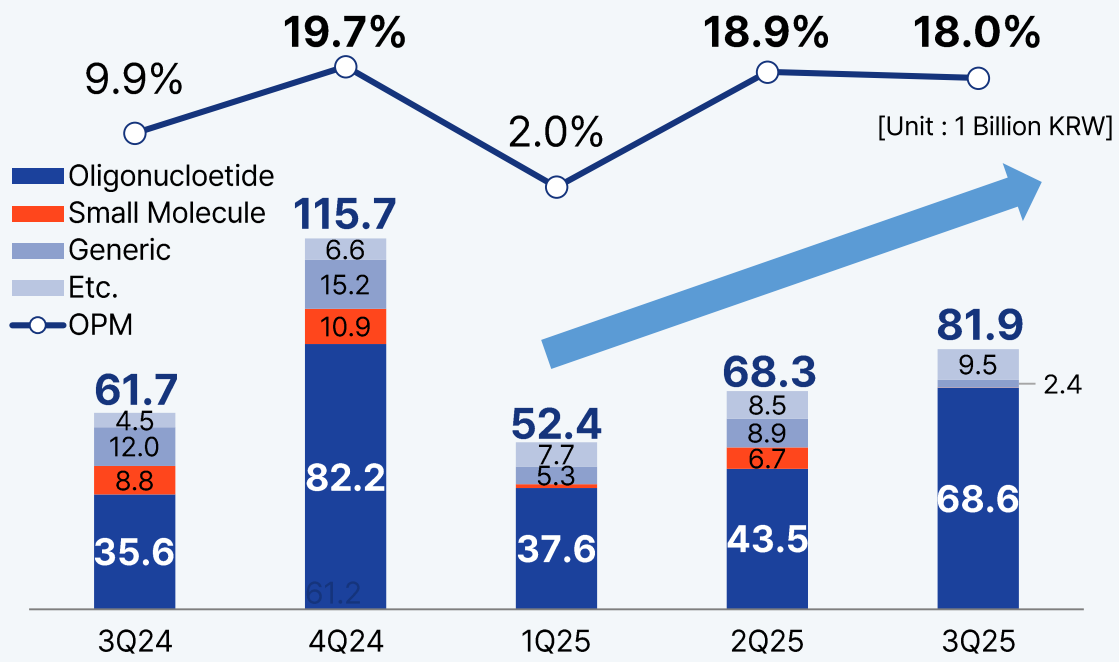
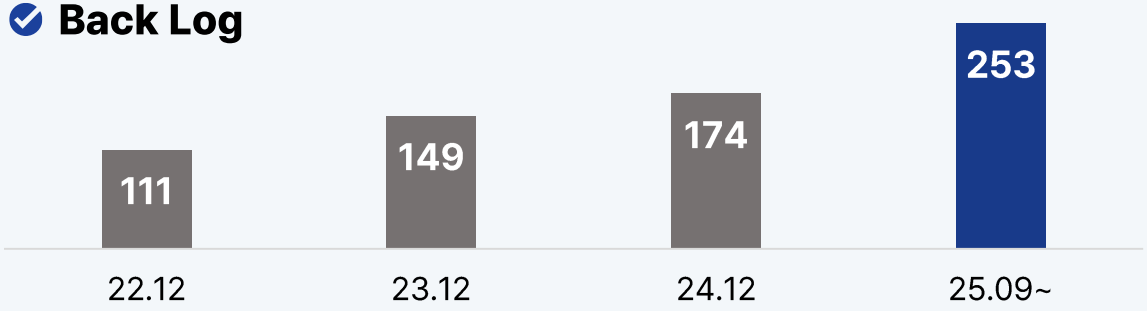
Additionally, the financial figures and indicators presented in this IR material are preliminary and have not been audited by an independent auditor. Please note that these figures may change in future official disclosures.

Q3 2025 Performance Review

Earnings



Back Log



Statement

Q3 2025 Sales: KRW 81.9 billion
Operating Profit: KRW 14.7 billion
Net Profit: KRW 17.5 billion

1) Successful progress of CDMO projects, diversification of sales portfolio, and establishment of a stable, high-growth business foundation
2) Increase in oligonucleotide sales led to a rise in operating profit margin

[Unit : 1 Billion KRW]

Account	'25.3Q	'24.3Q	2024	YoY
Revenue	**81.9**	**61.7**	**273.8**	**+32.7%**
Cost of Sales	44.9	39.2	177.6	+14.4%
Gross Profit	37.0	22.5	96.2	+64.6%
SG&A Expenses	22.3	16.4	68.5	+35.9%
R&D Expenses	6.7	5.6	22.1	+20.2%
Operating Profit	**14.7**	**6.1**	**27.7**	**+141.6%**
Net Profit	**17.5**	**13.7**	**32.5**	**+27.5%**
GPM	*45.2%*	*36.4%*	*35.1%*	*+8.8%p*
OPM	***18.0%***	***9.9%***	***10.1%***	***+8.1%p***
NPM	*21.3%*	*22.2%*	*11.9%*	*-0.9%p*

Q3 2025 Performance Review

Sales Breakdown

[Unit : 1 Billion KRW]

Category		'24.3Q	9-Months	'25.3Q	9-Months	YoY	9-Months YoY
Oligo	**Total**	**35.6**	**93.9**	**68.6**	**149.7**	**+92.9%**	**+59.5%**
	Comm.	29.6	50.6	34.1	103.8	+15.1%	**+105.1%**
	Non-Comm.	5.9	43.3	34.5	45.9	+482%	+6.2%
Small Molecule		8.8	14.8	0.1	7.9	-99.1%	-46.7%
mRNA		0.8	1.1	1.4	2.7	+82.2%	**+151.3%**
Generic		12.0	25.1	2.5	16.7	-79.9%	-32.1%
Separate		**57.2**	**134.9**	**72.6**	**177.1**	**+26.9%**	**+31.3%**
CRO, etc.		4.5	23.1	9.3	25.5	+106.9 %	+10.3%
Consolidated		**61.7**	**158.0**	**81.9**	**202.6**	**+32.7%**	**+28.2%**

Comments

Oligonucleotide sales increased by 92.9% YoY, cumulative increase of 59.5%

New drug CDMO projects increased by 43% (30 projects in 2024, 43 in 2025)

- Oligo: KRW 68.6 billion, cumulative KRW 149.7 billion
  (74% of sales, 69% from commercial projects)
  - Hyperlipidemia: KRW 43.2 billion, MDS: KRW 28.6 billion, CVD: KRW 25.8 billion, Hepatitis B: KRW 22.7 billion, etc.
  - Oligo portion of sales: **59.5%('23) → 64.3% → 73.9%**
- mRNA: mRNA CDMO sales of KRW 2 billion
- **Total order backlog: over KRW 354 billion (KRW 340 billion at end of Q3)**
  - Oligo backlog: KRW 301 billion, SM backlog: KRW 53 billion
  - **New orders in Q4: 8 contracts from 5 global pharma companies, USD 9.5 million (approx. KRW 14 billion)**

INTRODUCTION

Overview

ST Pharm: CDMO company for new drug APIs ▶ Global xRNA gene therapy CDMO company

Business Highlight

Experience

- Supplied APIs for over 200 pharmaceuticals
- Successfully commercialized 15 new drugs

200+/15 by Y2025

cGMP

- Over 29 global cGMP certifications
- FDA NAI rating in 2022

+29 **NAI**

Business Area

- From small molecule drugs to gene therapies

All about **RNA & SM**

Sustainability

- EcoVadis ESG rating: Gold
- Korea ESG Standards Institute: A
- Sustinvest: AA

Gold (Top 5%) **A**

ROE	Overseas Sales Ratio	Five-Year Sales Growth Rate	Three-Year Average R&D Ratio
'24 7.8% → '25(E) **9.1%**	'24 91% → '25. 3Q **96%**	Total 22%, Oligo **39%**	'23 ~ '25. 3Q **10%**

Business Area Overview

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Business Expansion

Since late 1980s

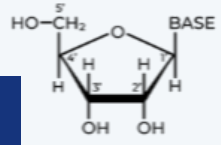
Small Molecules

2-'dT (RSM)

Azido-dT (API)

SOF (API)

SM API



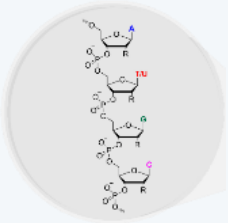
Nucleoside

Since late 1990s

Nucleosides >> Amidites

Since mid 2000s

Oligonucleotides



Oligo CDMO
(+30 pipelines)

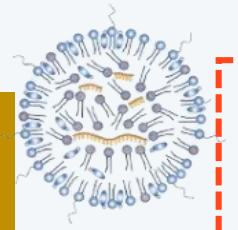
Guide RNA

GOC
(GalNAc-Oligo)
AOC
(AB-Oligo)
POC

Conjugation Linkers

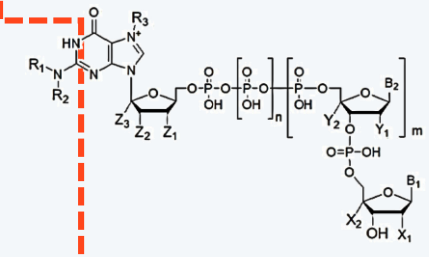
Since 2018

mRNA



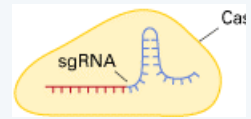
CDMO

circRNA



5'-Cap

Gene Editing
CRISPR/Cas



CDMO

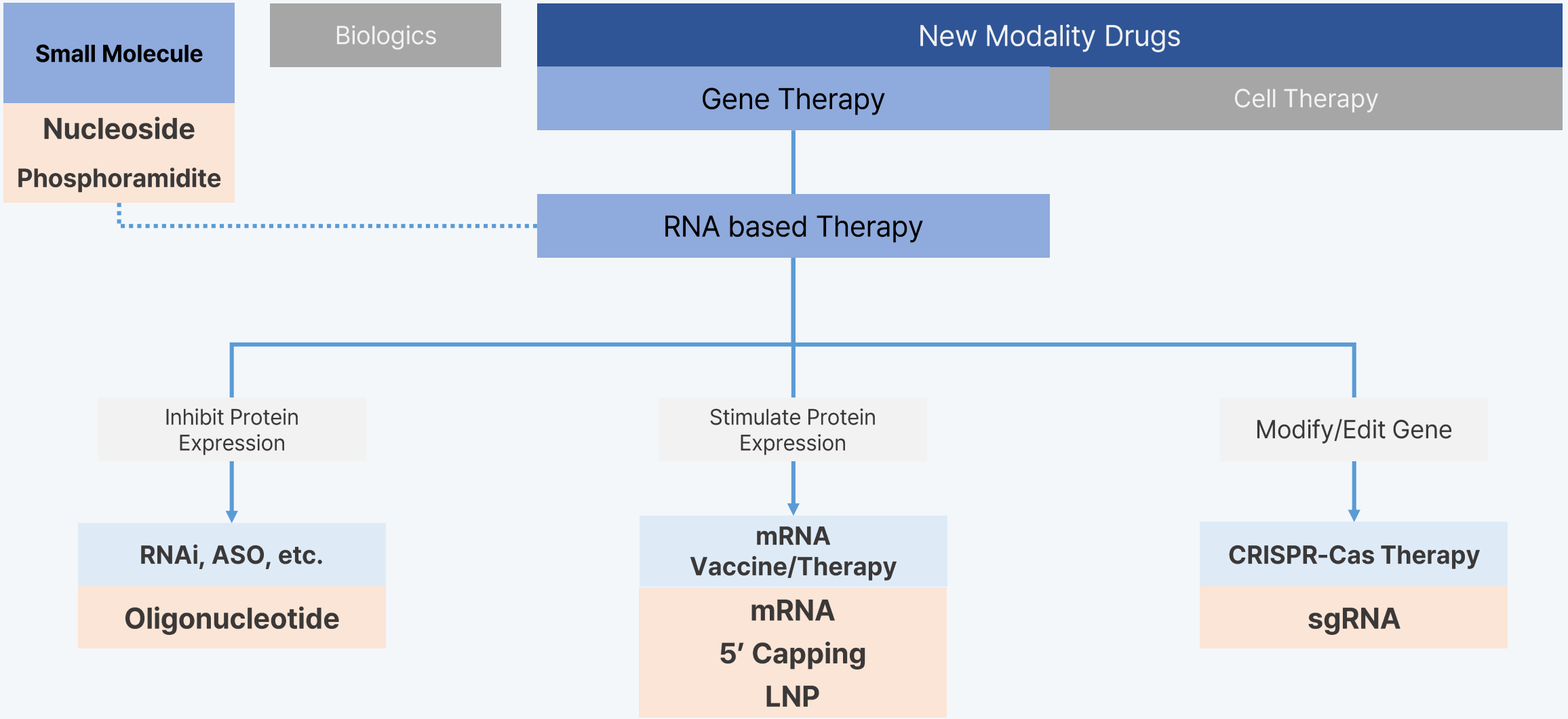
LNP
delivery

Since 2019

Lipids (Ionizable and PEGs)

Business Area Overview

Business Expansion



BUSINESS & TECHNOLOGY

Concept of Oligonucleotide Therapeutics

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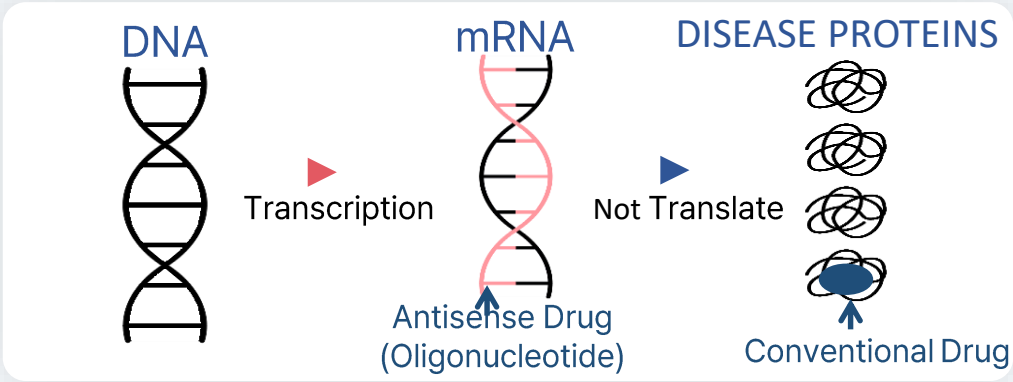
Oligonucleotide therapeutics, RNA therapeutics

- ✓ Oligo: Drugs using oligonucleotides (Oligonucleotide), DNA, RNA
- ✓ RNA: Drugs that treat diseases at the RNA level
- ✓ **Enables fundamental treatment by blocking the production of disease-causing proteins**

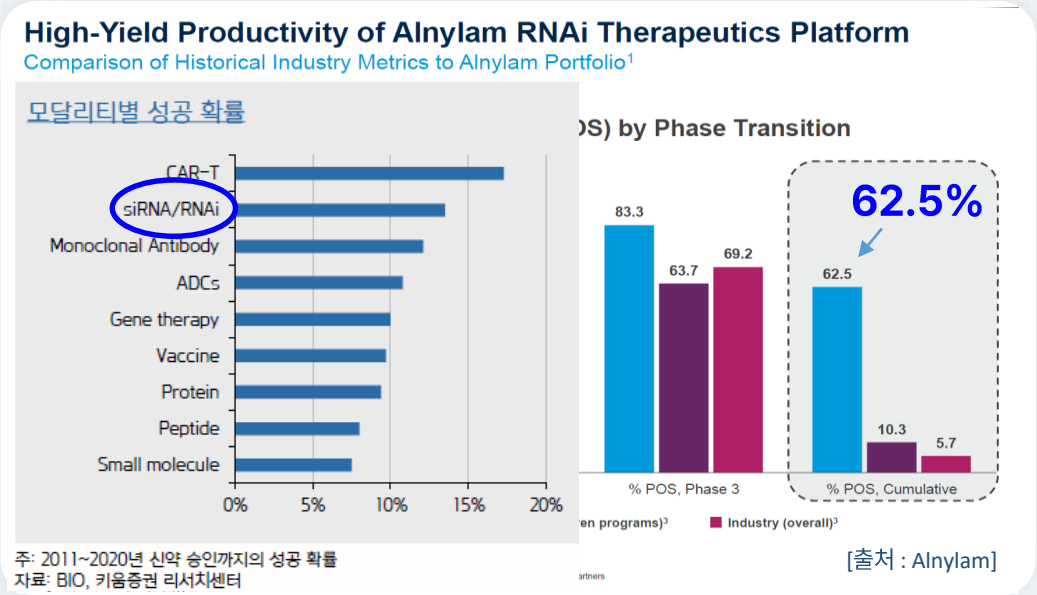
Features of Oligonucleotide Therapeutics

- ✓ **Strengths** :
  - High selectivity for disease (target proteins)
  - **Rapid development (preclinical shortened to within 2 years), high clinical success rate**
  - Low resistance due to minimal protein interactions
  - Administered via subcutaneous injection; excellent drug persistence
- ✓ **Weaknesses** :
  - Low selectivity for tissues (target organs)
  - Development of various delivery technologies
  - High difficulty in mass production

Central Principle



High Success Rate of Oligo Pipeline Development



Expansion of the Oligonucleotide Therapeutics Market

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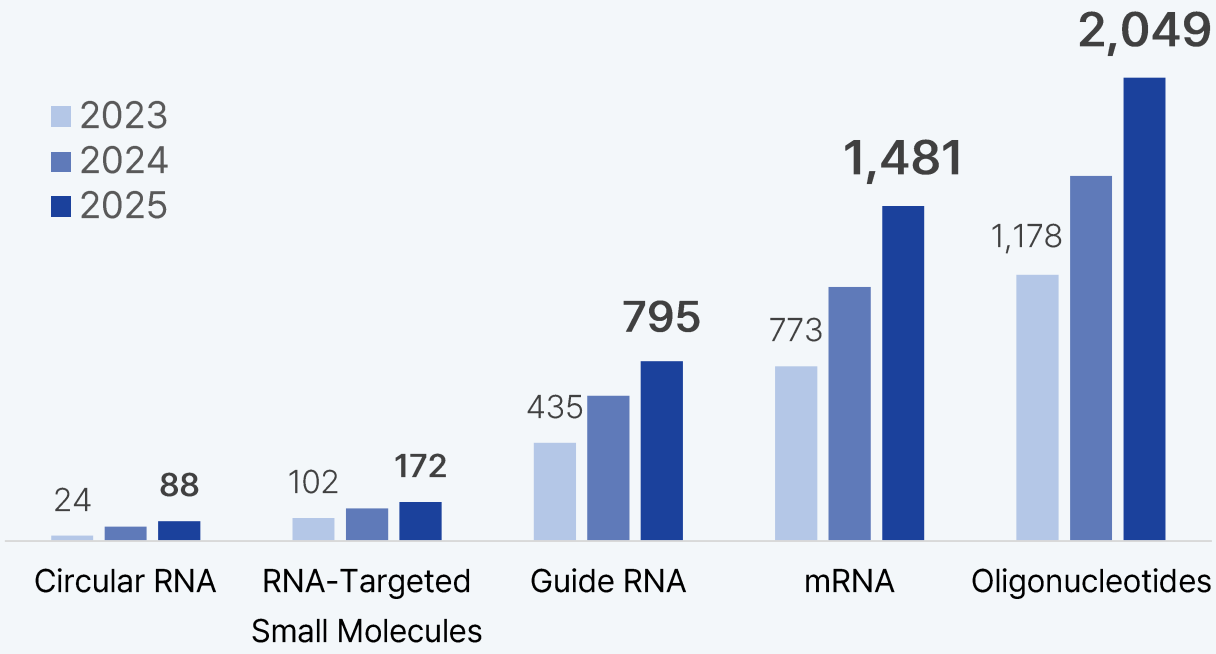
Growth and emergence of the oligonucleotide therapeutics market

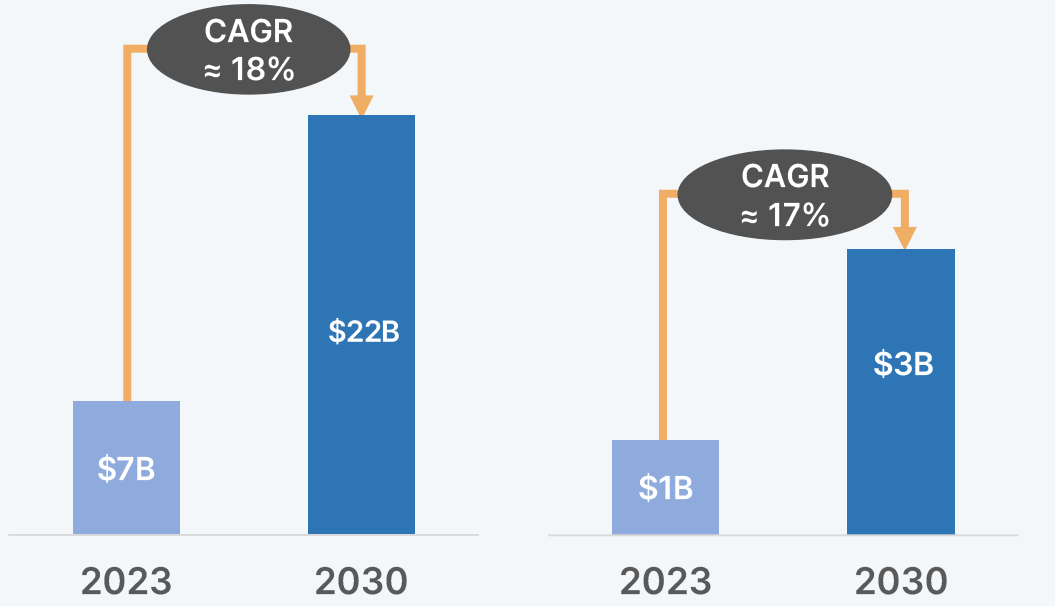
- ✓ Initially developed for untreatable rare genetic diseases now rapidly expanding into chronic diseases such as obesity, hyperlipidemia, and oncology
- ✓ Improved delivery technologies expanding target organs (Gal-Nac: liver, C16: brain, CNS)
- ✓ **Various studies on conjugation technology to enhance delivery (oligo+antibody, oligo+peptide, oligo+mRNA, oligo+oligo, etc.),**

Global RNA-based New Drug Candidates



[Source: 2024 RNA Landscape Review, Beacon]

Oligo Therapeutics/CDMO Market Outlook



[Source: Cortellis, LS Securities]

Arrival of the Second RNAssance

Investment from the early stages of Development

- ✓ Big Pharmas expanding early investments in Oligo
- ✓ Full-scale RNA deals expected in 2026
- ✓ 80% of oligonucleotide L/O deals during at early stages
- ✓ Acceleration of DDS → Expansion of target diseases and pipelines

RNA Tx. Licensing & Acquisition Deals ('25.1~9)

날짜	구분	분야	대상 기업	투자 기업	금액
25.01.08	Collaboration	ASO	Alloy Tx.	Sanofi	$400 Mil. ~
25.02.07	License Deal	siRNA/RNAi	OliX	Eli Lilly	~ $630 Mil.
25.02.10	License Deal	siRNA/RNAi	Arrowhead	Sarepta Tx.	~ $825 Mil.
25.04.30	Acquisition	microRNA	Regulus Tx.	Novartis	~ $1.8 Bil.
25.05.14	License Deal	siRNA/RNAi	ADARx	AbbVie	$335 Mil. ~
25.05.15	License Deal	RNA Editing	Rznomics Bio.	Eli Lilly	~ $1.3 Bil.
25.05.27	License Deal	siRNA/RNAi	City Tx.	Biogen	~ $1 Bil.
25.06.12	Acquisition	mRNA	CurVac	BioNTech	$1.25 Bil.
25.06.17	Acquisition	RNA Editing	Verve Tx.	Eli Lilly	$1.3 Bil.
25.06.30	Acquisition	RNA Delivery	Capstan Tx.	AbbVie	$2.1 Bil.
25.08.18	Collaboration	RNA Splicing	Skyhawk Tx.	Merck KGaA	~ $2 Bil.
25.08.28	Collaboration	srRNA	Replicate Bio.	Novo Nordisk	~ $550 Mil.
25.09.02	License Deal	siRNA/RNAi	Arrowhead	Novartis	~ $2 Bil.
25.09.03	License Deal	siRNA/RNAi	Argo Biopharma.	Novartis	~ $5.2 Bil

The Second RNAssance

- ✓ **3 major L/Os from Korean biotechs related to RNA**
  - OliX: KRW 910 billion L/O to Lilly (siRNA)
  - ABL Bio: KRW 4 trillion L/O to GSK (brain-targeted RNA new drug development)
  - Rznomics: KRW 1.9 trillion L/O to Lilly (RNA editing)
- ✓ **Expansion into chronic diseases such as obesity**
  - Wave: Positive Phase 1 clinical results for siRNA obesity treatment
  - 1–2 doses per year, weight loss without severe muscle loss

Oligo Demand Projection

Drug Name	Sponsor	Therapeutic Area	Stage	2024e Annual Demand (KG)	2030e Annual Demand (KG)
Inclisiran	Alnylam/Novartis	Cardiovascular	Commercial	140	600
Pelacarsen	Ionis/Novartis	Cardiovascular	Phase III		700
Solbinsiran	Eli Lilly	Cardiovascular	Phase II		600
Lepodisiran	Eli Lilly	Cardiovascular	Phase III		300
Zilebesiran	Alnylam	Cardiovascular	Phase II		400
Olpasiran	Amgen/Arrowhead	Cardiovascular	Phase III		100
Zodasiran (ARO-ANG3)	Arrowhead	Various Diseases, inc. Dyslipidemia	Phase II		1,000
Plozasiran (AROAPOC-3)	Arrowhead	Various Diseases, inc. Dyslipidemia	Phase III		150
Rapirosiran (ALN-HSD)	Alnylam/Regeneron	Nonalcoholic Steatohepatitis (NASH/MASH)	Phase II		250
ARO-HSD / GSK4532990	Arrowhead/GSK	Nonalcoholic Steatohepatitis (NASH/MASH)	Phase II		175
ION-839 / AZD2693	Ionis/AstraZeneca	Nonalcoholic Steatohepatitis (NASH/MASH)	Phase II		150
Bepirovirsen	Ionis/GSK	Hepatitis B	Phase III		625
			Total	**140**	**5,050**

[Source: Company Data, Clinicalstrials.gov]

New Drug CDMO Business Portfolio

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Favorable Environment for CDMO

- ✓ FDA: New drugs can be approved based on "reasonable mechanism elucidation"
- ✓ Strategic materialization of APIs, global supply chain restructuring to reduce dependence on China
- ✓ US Biosecure Act likely to pass within the year

Production Facilities

Facility	Chemical Plant	Oligo Plant	mRNA Plant
	SM, Generic, Monomer, Capping, LNP, Linker	Oligo	mRNA, sgRNA
Capacity	376,250 L	6~8 mole	100M Doses/Yr

Banwol Site (28,220 sqm)

Siwha Site (16,400 sqm)

Major CDMO Projects

#	Category	Indication	Stage
1	Oligo	Hyperlipidemia	P1
		CVRR	Indication Expansion
2	Oligo	SMA	P1
3	Oligo	MDS	P1
		MF	Indication Expansion
4	Oligo	FCS	P1
		sHTG	Indication Expansion
5	Oligo	HAE	P1
6	Oligo	Atherosclerosis	P1
7	Oligo	IgA Nephropathy	P1
8	Oligo	Chronic Hepatitis B	P1
9	SM	Undisclosed	P1
10	SM	Mitochondrial Dysfunction	P1

* SMA: Spinal Muscular Atrophy, MDS: Myelodysplastic Syndrome, MF: Myelofibrosis, FCS: Familial Chylomicronaemia Syndrome, sHTG: Severe Hyper-triglyceridema, HAE: Hereditary Angioedema

Hybrid Enzymatic Ligation for Oligo Production

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Development of Hybrid Approach

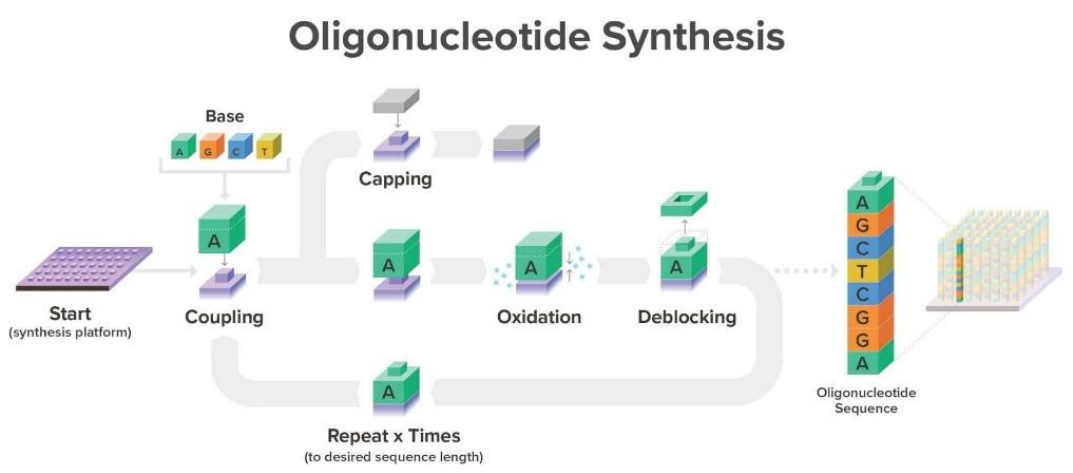
- Synthesize shortmers or fragments using phosphoramidites chemistry
- Convert shortmers into full-length oligo APIs through enzymatic ligation

** Ongoing joint research with 3 global clients for commercialization of technology*

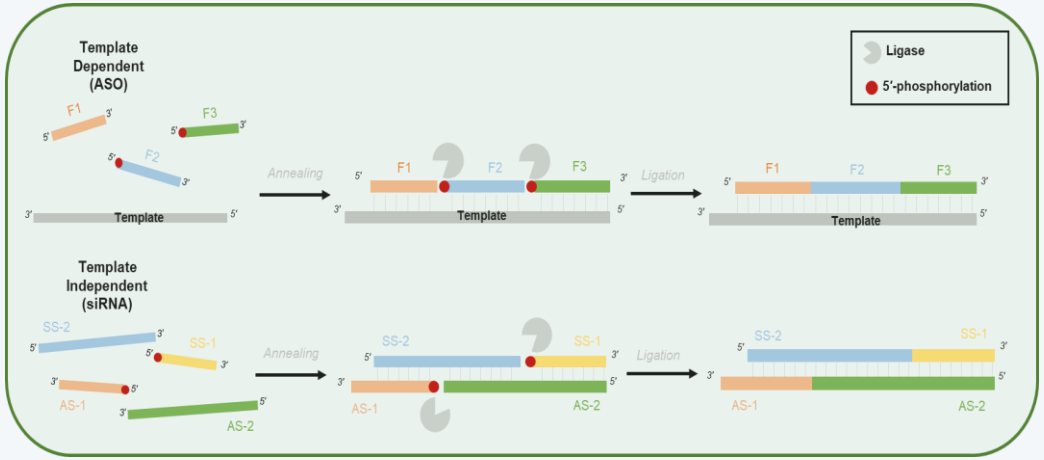
Key Distinctions from Conventional Method

- Improved productivity and cost efficient
- More compatible for large productions due to larger batch size (>2x)
- Enables higher-yield synthesis for longer-length oligomers

Solid Phase Oligonucleotide Synthesis



Enzymatic Ligation of Full-Length Oligos



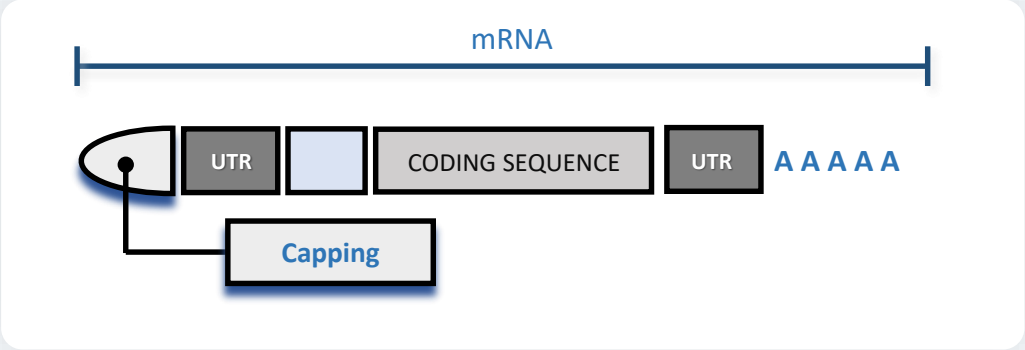
[출처: Twist Bioscience]

mRNA CDMO Platform – 5′-Capping

SmartCap® (5′-Capping)

- Registered Patent in Korea
- Registered PCT International Patent (Registered in Japan & China)
- Over 30 capping analogues → highly customizable for clients
- Confirmed safety on humans through STP2104(P1) trial

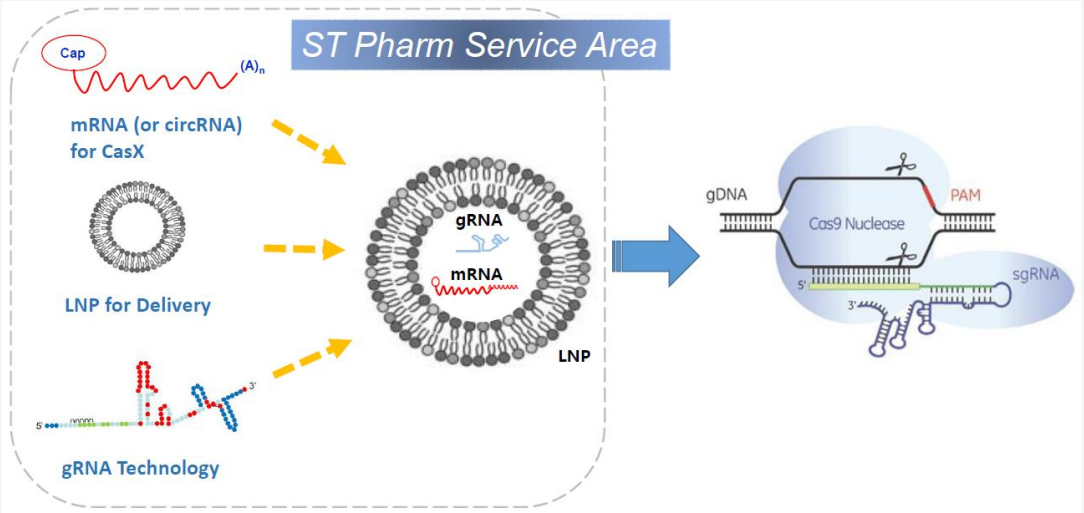
mRNA Structure



Supply Agreements & Partnerships

Date	Company	Content
24.08.20	Quantoom Biosciences	First Supply Agreement of SmartCap® under Extended Collaboration to Advance RNA Manufacturing
25.01.08	Evonik Industries	Evonik partners with ST Pharm to increase its offerings for RNA and nucleic acid delivery
25.12.09	CEPI – IVI	SFTS mRNA CDMO
Domestic mRNA vaccine development + multiple national projects as CDMO Collaboration with overseas pharma/biotechs for animal mRNA vaccine CDMO		

mRNA & CRISPR-CasX



* Source: Vishweshwaraiah YL and Dokholyan NV (2022) mRNA vaccines for cancer immunotherapy. Front. Immunol. 13:1029069. doi: 10.3389/fimmu.2022.1029069
Oligonucleotides for synthesizing 5'-capped RNA, KR102366490B1, Google Patent

Development of RNA Editing CDMO Platform

sgRNA in response to CRISPR/Cas Development

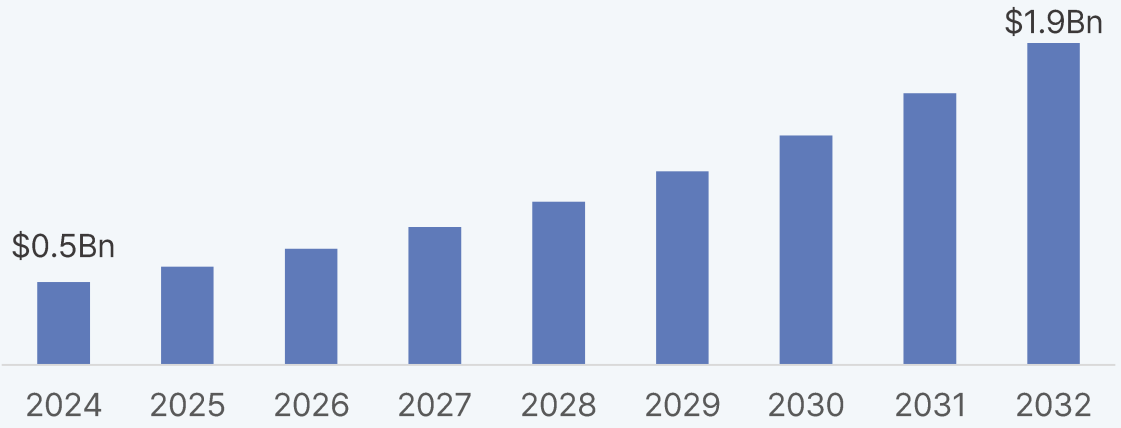
Successful manufacturing of 100-mer sgRNA

- +20 years of expertise in Oligo-/nucleotide synthesis supported high-purity
- Established in-house capability chain of synthesis-purification-analysis

Ongoing facility expansion and developments

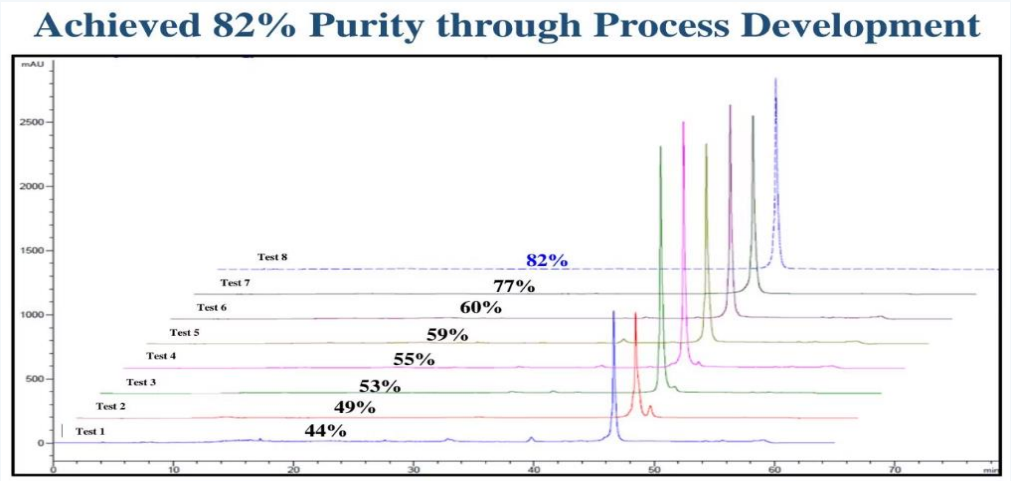
- Work-in-progress for high-purity 130-mer sgRNA
- Planned installation of dedicated production line in 2025

2024~2032 gRNA Global Market Forecast



[Source: AnalystView Market Insight]

sgRNA purification developed from 44% → 82%



GMP/non-GMP Production Facility

Status	Capability
R&D Lab Line	50 μmol ~ 1.2 mmol
Small-scale Line	1.2~20 mmol
Dedicated Small-scale Line	1.2 mmol

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

STP-0404(Pirmitegravir) - Phase 2a

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Highlights from Earlier Trials (Preclinical ~ Phase 1)

- Observed anti-viral efficacy under monotherapy
  Confirmed safety with Therapeutic Index (TI) > 6,020
  (Raltegravir > 2,710)

- Differentiation from conventional mechanisms such as Integrase Inhibitor MoA
  4 ~ 400 times higher anti-viral efficacy against resistant viruses
  (Preclinical)

- Global HIV/AIDs treatment Market : 2024년 + $32.8 Billion (2024)
  Approved Treatments : Biktarvy ($13.4B), Descovy($2.8B), Truvada($2.1B)

Phase 2a Trial Data (Interim)

- Design: Randomized, Double-blinded, Placebo-controlled
  Participants: ARTs-naïve / limited exposure to ART
  Cohort 1: 200mg, Cohort: 400mg
  Cohort 3: 600mg → Data expected in 2026.1Q

- Antiviral Activity (change in plasma HIV-1 RNA copies in D11):
  -1.552 ~ -1.191 (log10 copies/mL) from pre-dose baseline
  Drug A: -1.9 ~ 1.7 (log10 copies/mL), Drug B -2.00 ~ -0.92 (log10 copies/mL)*

- Safety:
  3 possible related adverse events out 16 total AEs
  No severe AEs or discontinuation reported
  All AEs resolved & recovered

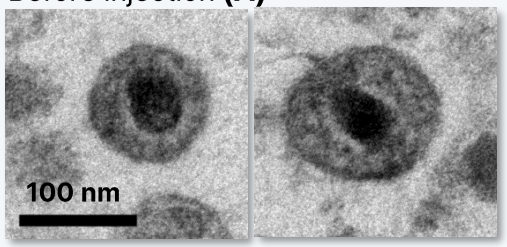
- Pharmacokinetics:
  Linear PK profile, less than dose-proportional across dose range

* Based on low- to mid-size dosage comparison

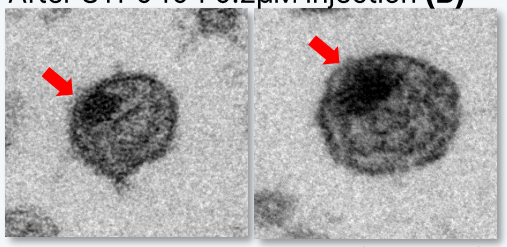
STP-0404(Pirmitegravir)

ALLINI MoA for Potential Functional Cure of HIV/AIDS

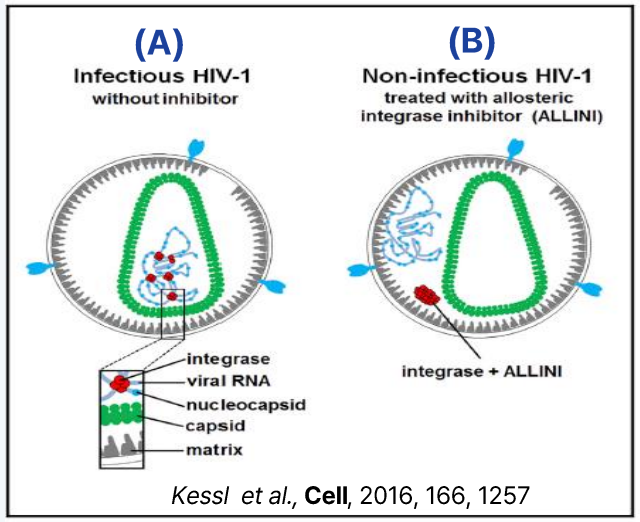
Before Injection **(A)**



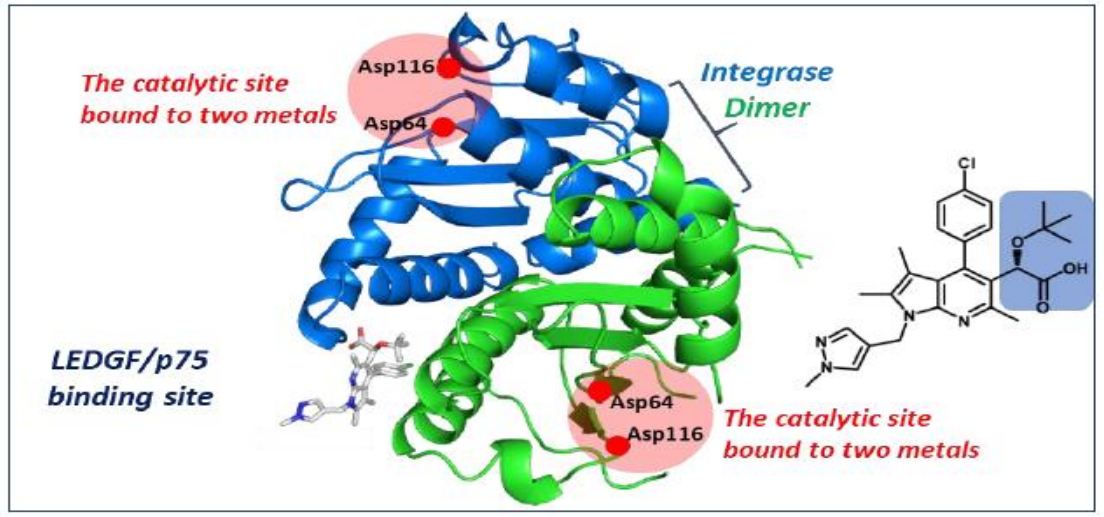
After STP0404 0.2μM Injection **(B)**



TEM study in Emory Univ.



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



- 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

Cheap or Expensive?

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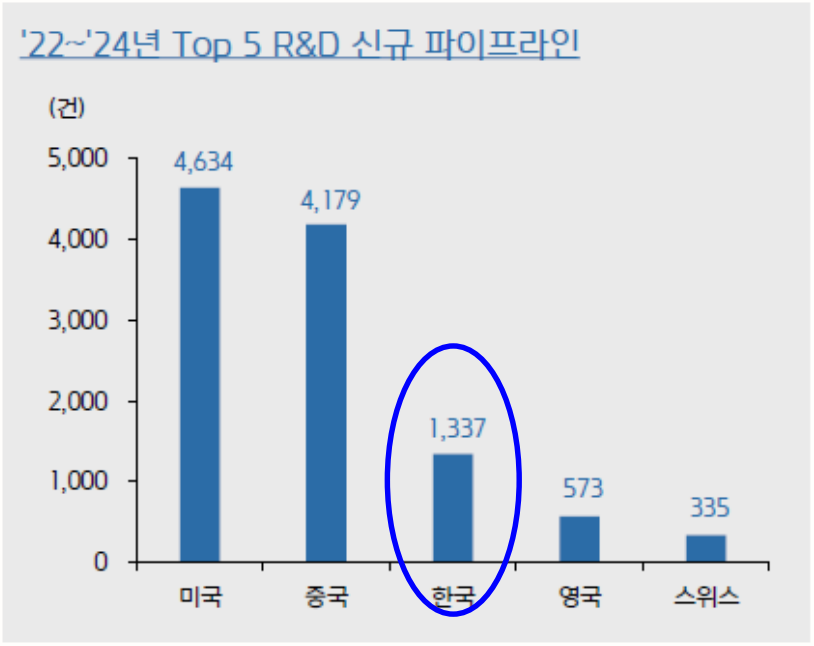
Korea's R&D at a global level

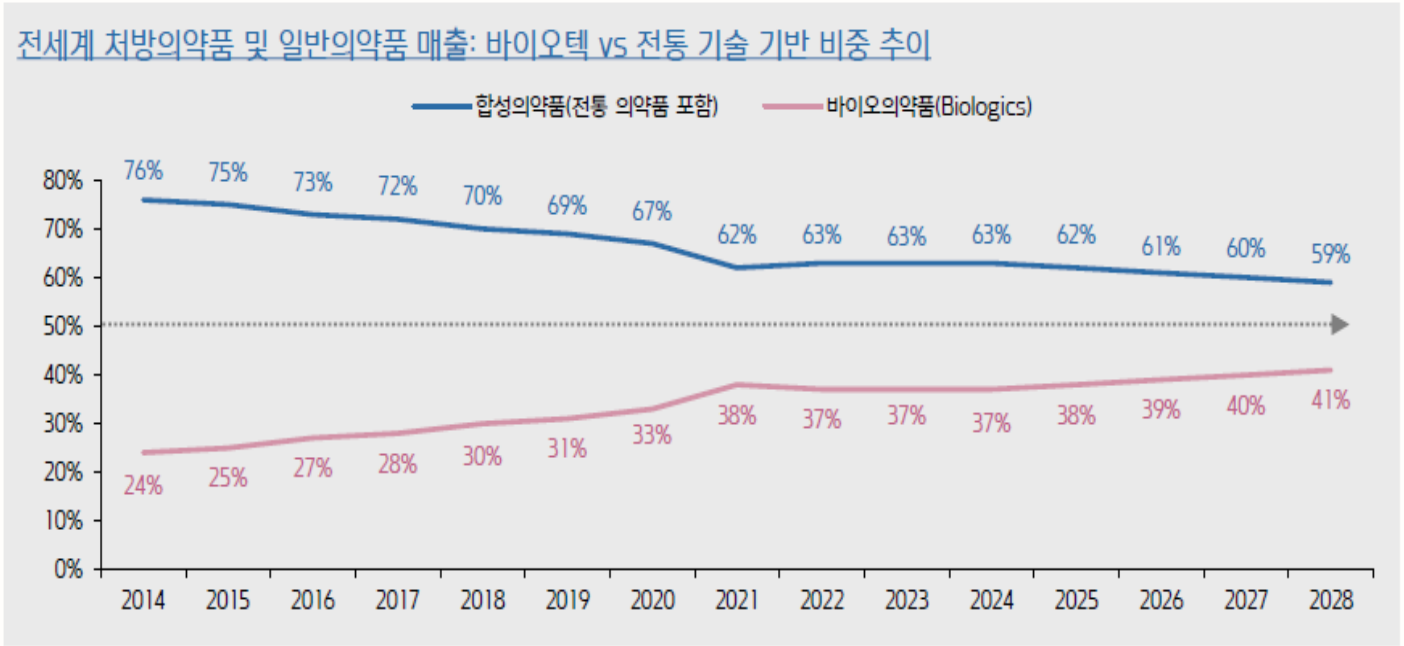
- 'HK-listed pharma/bio companies surge in stock
  52% of companies had stock prices rise by more than 50% (Nasdaq: 24%)

Regulatory changes driving new therapeutic growth

- 1984 Hatch-Waxman Act, allow generics' approval through demonstration of bioequivalence for chemical drugs
- 2025: Simplified clinical trials for biosimilars → Expansion of biosimilar development → Increased competition, margin decline → **next new therapeutic field?**



자료: Citeline, Pharmaprojects, 키움증권 리서치센터



자료: Evaluatepharma, 키움증권 리서치센터

ST Pharm - CDMO with established Platform in next-gen modalities

Thank You

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