

2Q20 Results

August 2020

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Any statement in this presentation about our expectations, beliefs, plans, objectives, assumptions or future events or performance are not historical facts and are forward- looking statements. These statements are often, but not always, made through the use of words or phrases such as “believe”, “will”, “expect”, “anticipate”, “estimate”, “intend”, “plan” and “would”.

For example, statements concerning proposed financial guidance, macroeconomic conditions, future results of operations, growth opportunities, product development, clinical trials, regulatory timelines and approvals, industry ranking, plans and objectives of management, the market for our stock, and future management and organization structure are all forward-looking statements.

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Agenda

1. Financials & Sales

- Results of 2Q20
- Sales of COVID-19 testing kit
- Sales Breakdown by product type and region

2. Trend & Forecast

- Performance Trend (quarterly & yearly), Leading Indicators
- Key driver in 2H20, Market Trend, Competitive Advantage
- Our business in COVID-19 Pandemic and Profit Structure

3. Company & Industry

- Seegene Overview (including Stock Info, Product Pipeline & Global Certification, Workflow)
- In-Vitro Diagnostics Industry and its Segment

4. Technology

- History of PCR Technology
- Seegene's Proprietary PCR Technologies: DPO, TOCE, MuDT

Financials & Sales

Financials_ 2Q20

Q2 2020 Business Results

Unit: mKRW	2Q20	2Q19	YoY	1Q20	QoQ
Sales	274,831	29,299	838.0%	81,772	236.1%
COGS	68,246	9,225	639.8%	20,793	228.2%
(%)	24.8%	31.5%		25.4%	
Gross Profit	206,585	20,075	929.1%	60,978	238.8%
SG&A	37,604	15,433	143.7%	21,224	77.2%
(%)	13.7%	52.7%		26.0%	
R&D	5,622	2,498	125.0%	2,920	92.5%
Operating Profit	168,981	4,642	3,540.0%	39,754	325.1%
(%)	61.5%	15.8%		48.6%	
Pre-tax Profit	175,806	8,363	2,002.3%	42,624	312.5%
(%)	64.0%	28.5%		52.1%	
Net Profit	131,636	10,188	1,192.1%	33,677	290.9%
(%)	47.9%	34.8%		41.2%	

- **2Q sales KRW274.8bn (YoY +838.0%)**
 - Reached record high sales thanks to significant increase in COVID-19 related sales (Achieved about 125% of annual sales)
 - Solid sales of instrument and assays (RV)
 - Favorable sales trend in America and EU
 - Assay sales rose by 1,025.5% YoY due to the rapid increase in COVID-19 sales
- **OP KRW 169bn (YoY +3,540.0%)**
 - Recorded highest quarterly OP
 - OP margin of 61.5% was driven by operating leverage effect despite the one-off expense related to bonus
- **NP KRW131.6bn (YoY +1,192.1%)**

Financials_ Sales of COVID-19 test kit

Allplex™ 2019-nCoV Assay

One Tube (3 targets):
Simultaneous Screening & ID

- E gene
- RdRP gene
- N Gene
- Internal Control
(Whole Process Control)

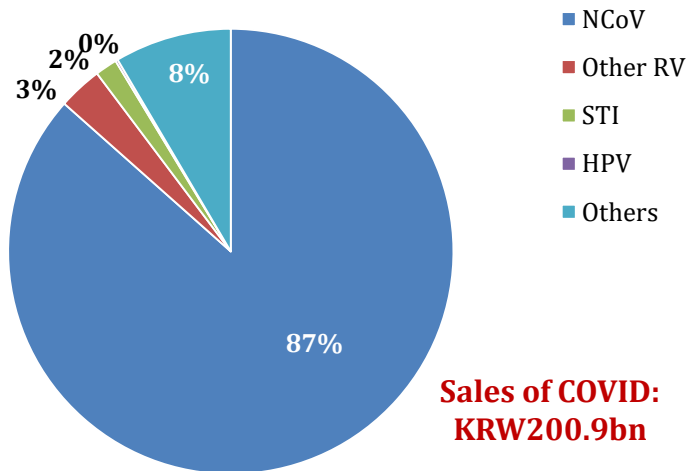


Automated Workflow

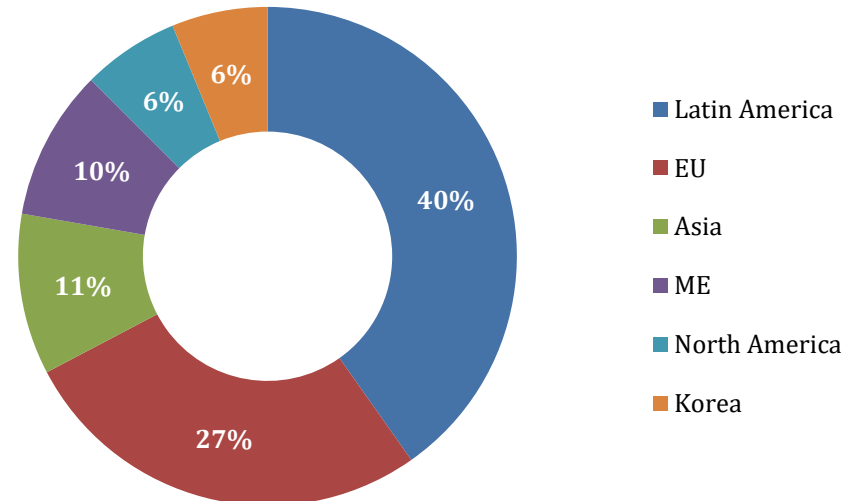
- High-throughput with
STARlet + CFX96 +
Seegene S/W



COVID19: 87% of total reagent sales



COVID19 sales by region

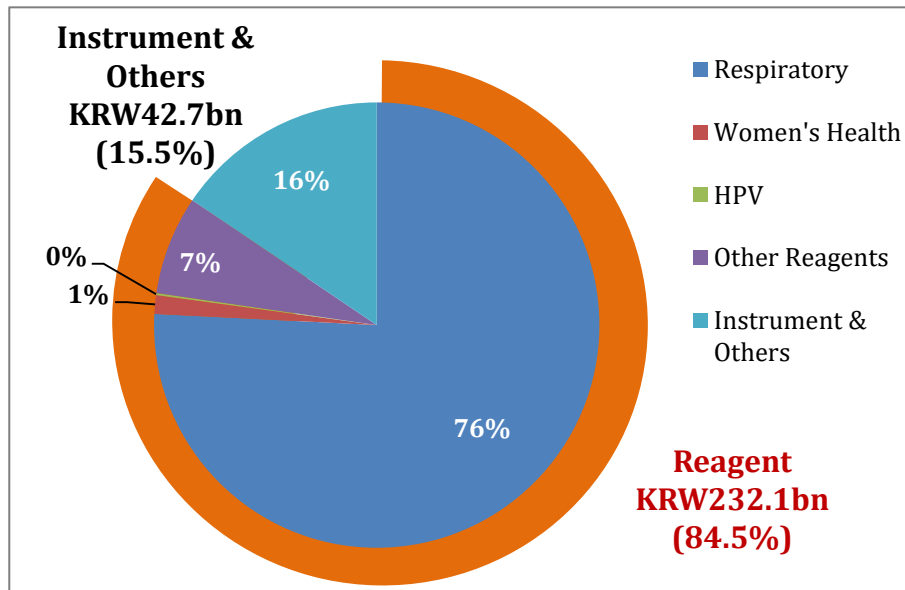


Sales Breakdown by Product Type

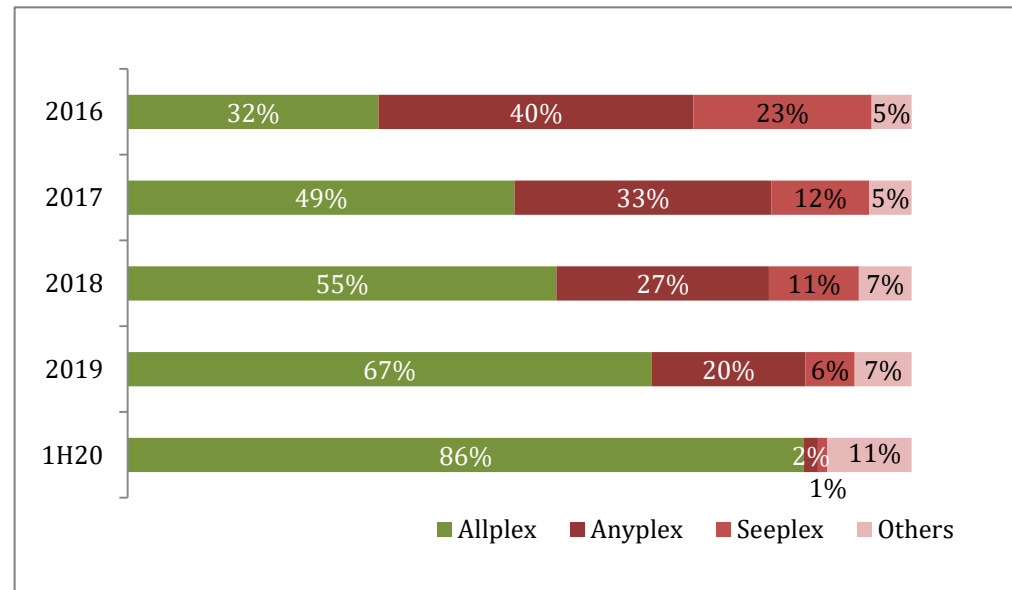
Reagent & Instrument Sales

(Unit: KRW mn)	1Q19	2Q19	3Q19	4Q19	1Q20	2Q20	QoQ	YoY
Reagent	20,672	20,627	22,560	23,177	58,366	232,147	297.7%	1,025.5%
Instrument/Others	6,808	8,673	8,838	10,598	23,406	42,684	82.4%	392.2%
Total Sales	27,480	29,299	31,398	33,776	81,772	274,831	236.1%	838.0%

Sales by Product (2Q20)



Reagent Sales Trend by Product Group

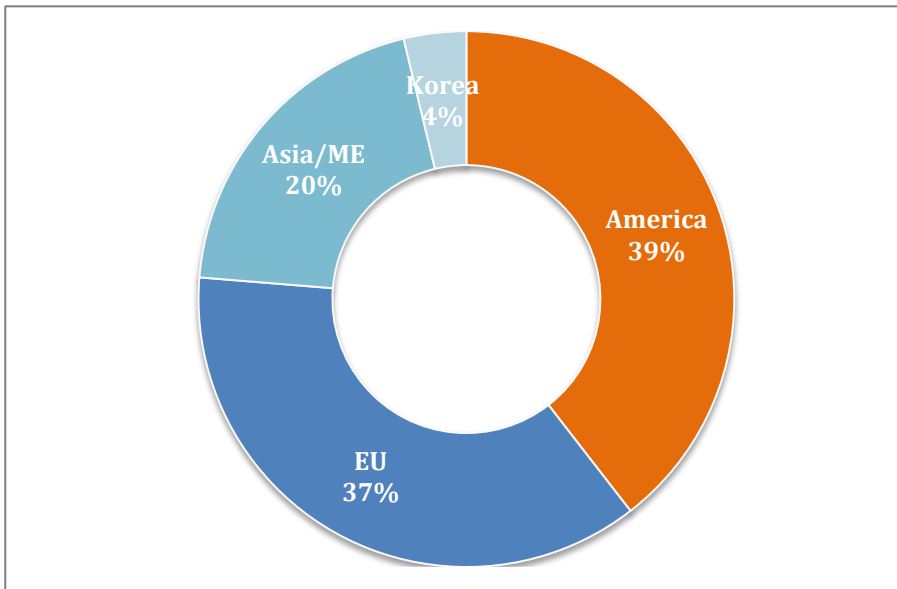


Sales Breakdown by Region

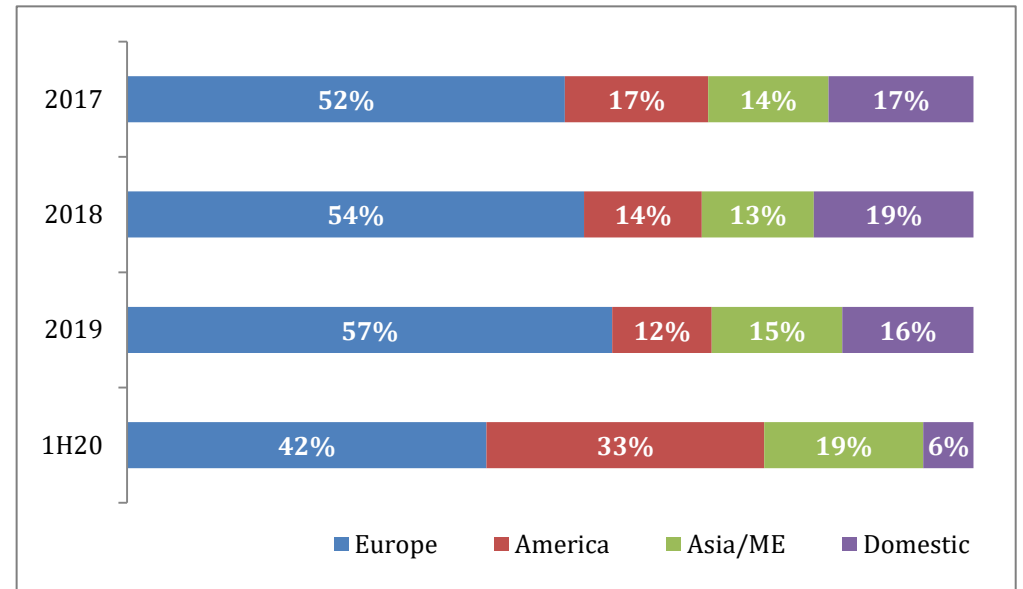
✦ Sales by Region

(Unit: KRW mn)	1Q19	2Q19	3Q19	4Q19	1Q20	2Q20	QoQ	YoY
Europe	15,621	16,357	15,862	22,047	50,358	101,097	100.8%	518.1%
America	4,001	3,705	4,144	2,507	8,354	108,578	1,199.8%	2,830.5%
Asia/Middle East	3,648	5,376	5,630	4,139	12,183	54,815	349.9%	919.6%
Domestic	4,210	3,861	5,762	5,082	10,877	10,340	-4.9%	167.8%
Total Sales	27,480	29,299	31,398	33,776	81,772	274,831	236.1%	838.0%

✦ Sales by Region (2Q20)



✦ Sales Trend by Region

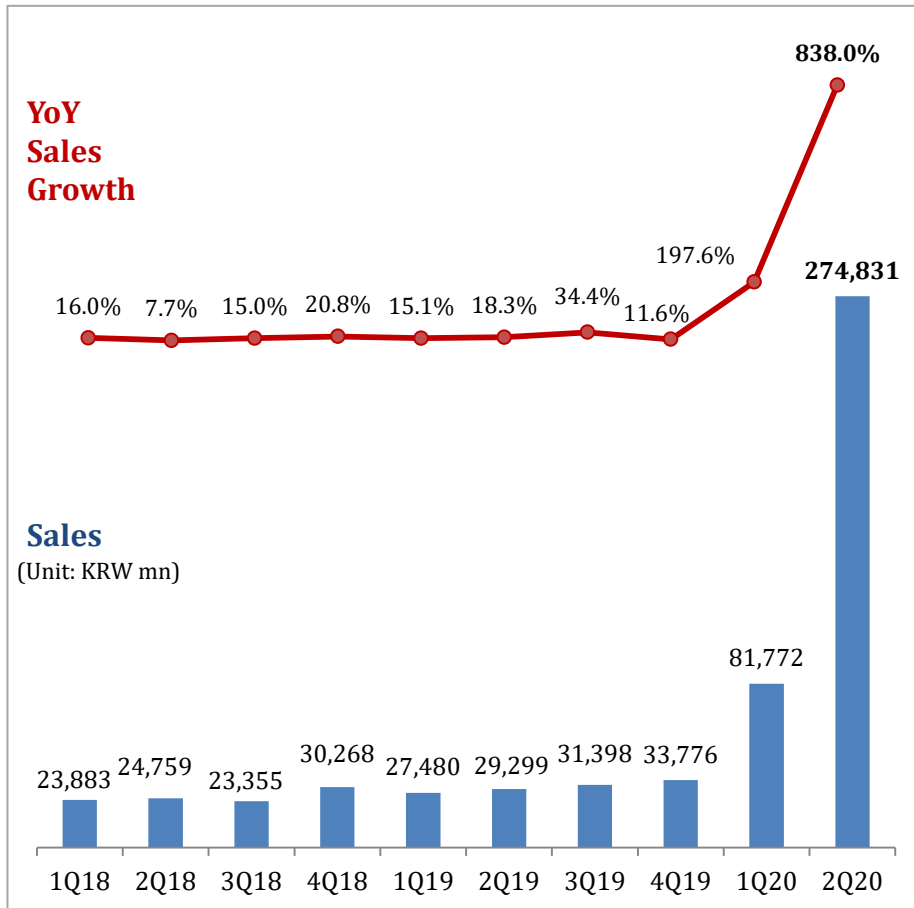


Trend & Forecast

Quarterly Trend

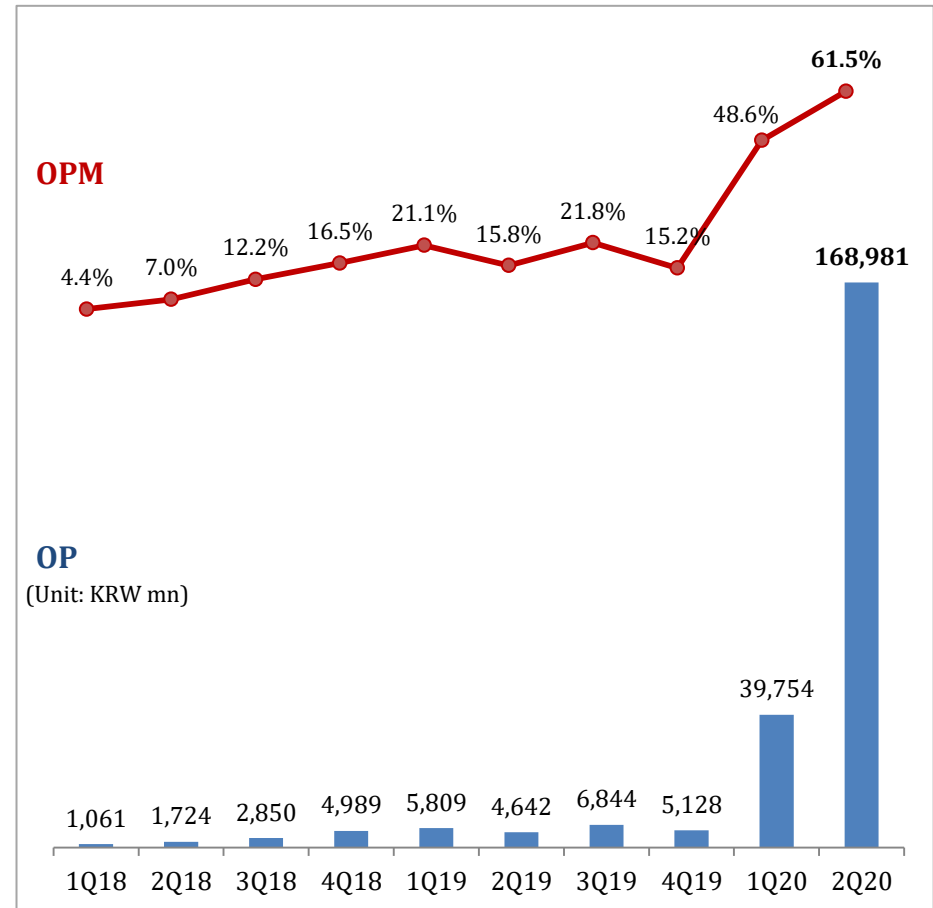
Sales Growth Trend

- Sales growth driven by Allplex reagents
- Sales to continuously grow backed by increased sales of COVID19 reagents and instruments setup



OP Growth Trend

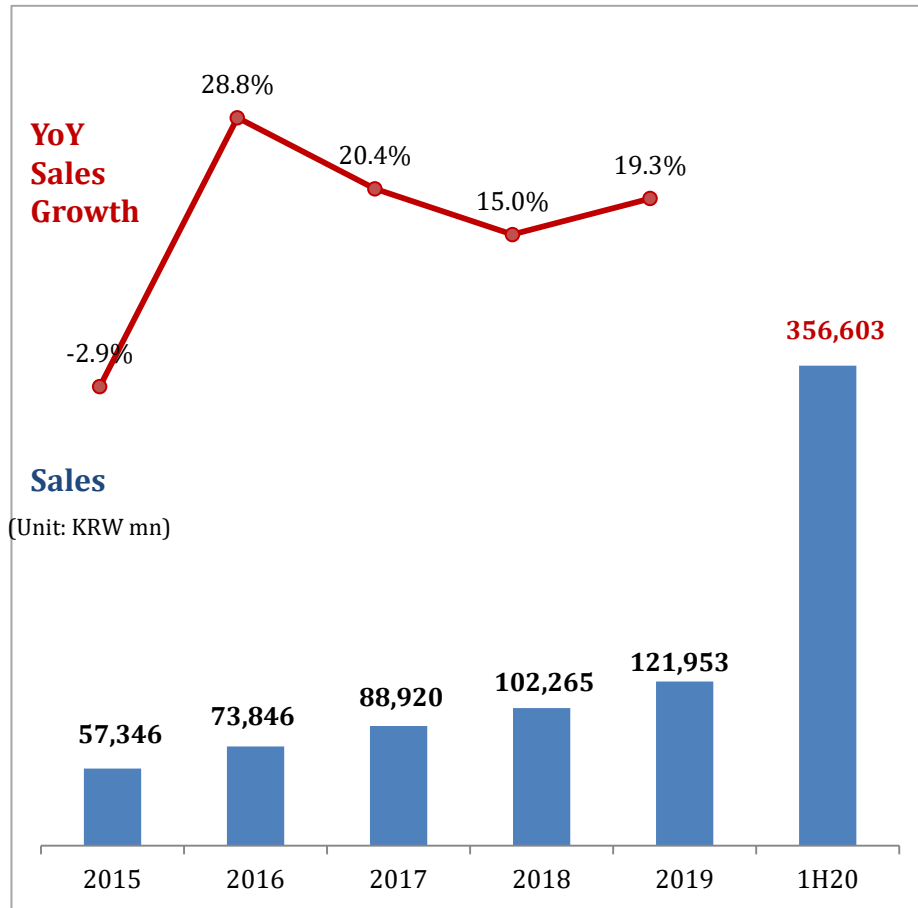
- Significant improvement of OP thanks to sharp increase in sales
- Operating leverage effect expected to continue due to sales growth



Yearly Trend

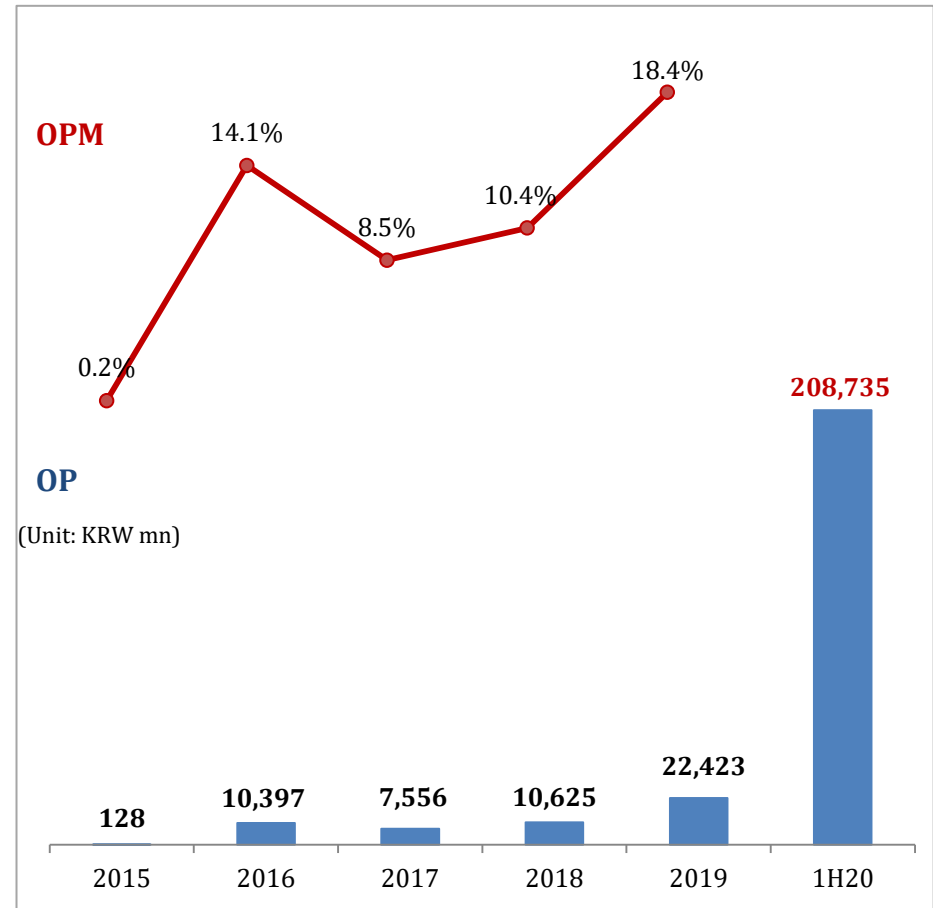
Sales Growth Trend

- Achieved a record-high sales of KRW122bn in 2019
- Sales to continuously grow backed by new Allplex sites and instruments setup



OP Growth Trend

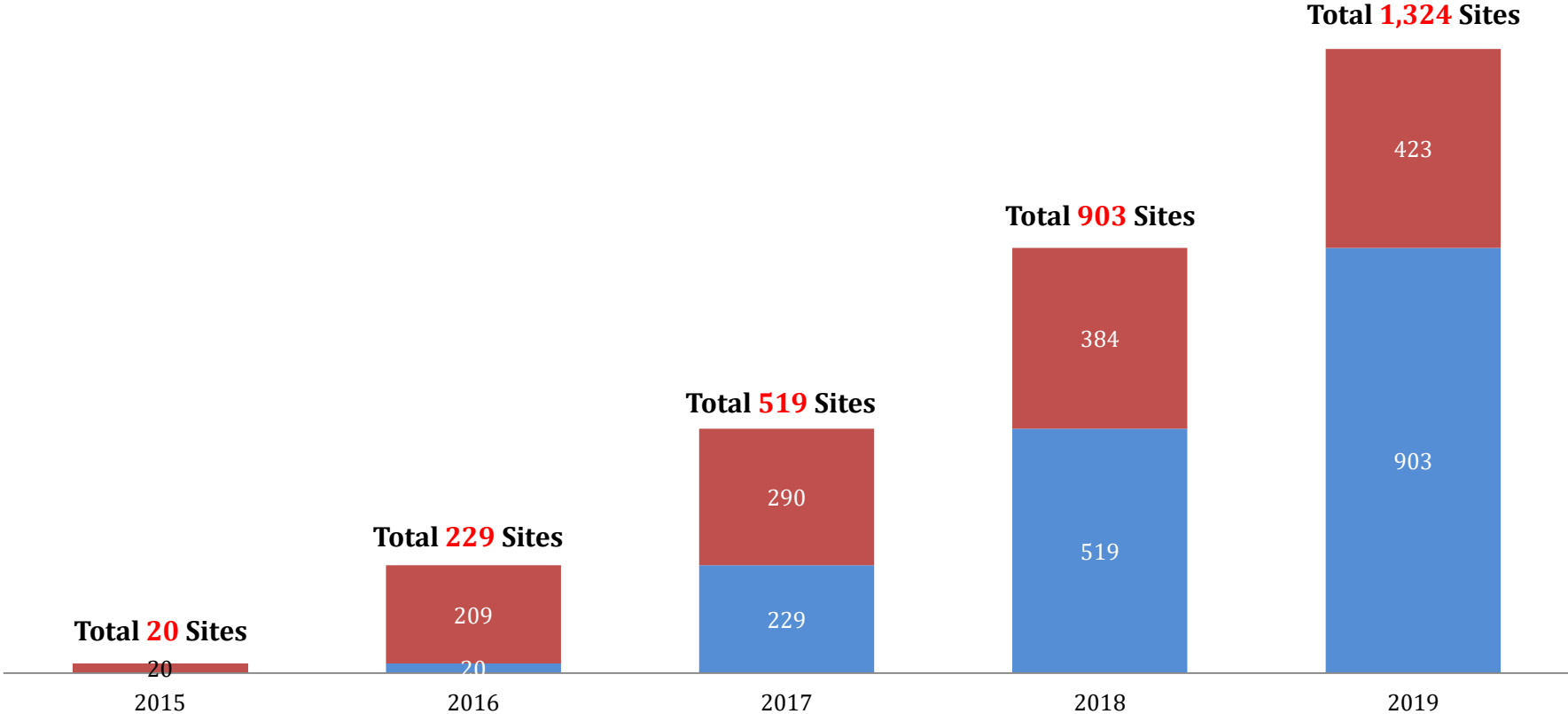
- Operating leverage effect has accelerated from this year
- Significant rise in OP due to low COGS ratio and SG&A cost



Leading Indicator (1)

of Allplex™ customer sites

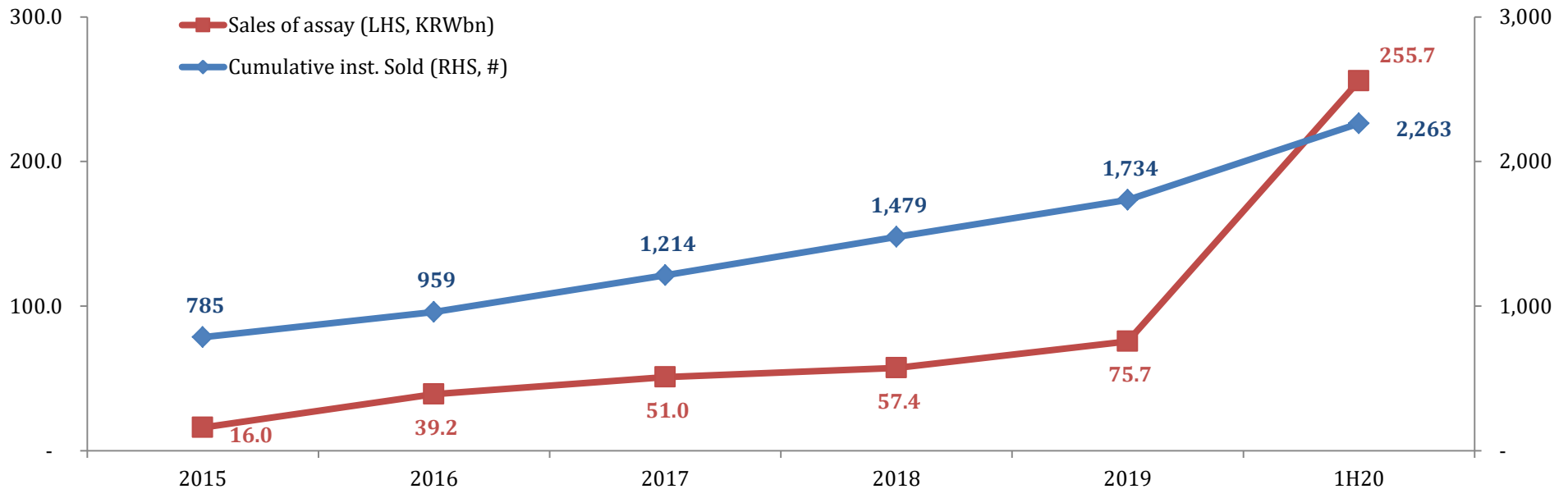
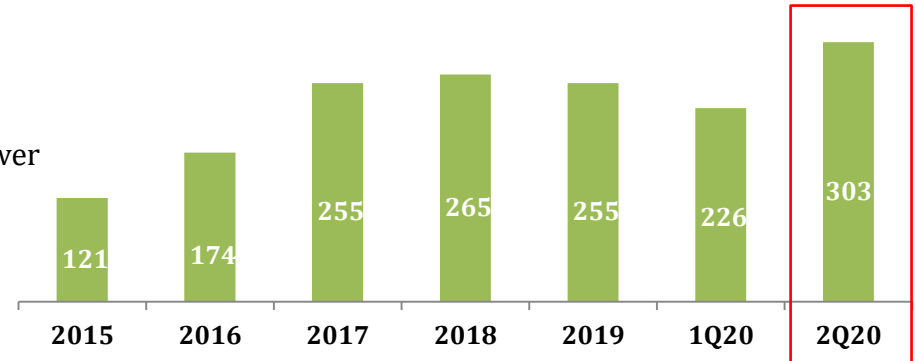
- 1,324 customer sites (hospitals and laboratories) over 48 countries
- Respiratory Infection 579 Sites, Gastrointestinal Infection 345 Sites, Sexually Transmitted Infection 297 Sites, Others 103 Sites
- **Expanding trend of annual new site growth (20 → 209 → 290 → 384 → 423)**



Leading Indicator (2)

🌀 Sales trend of CFX96™ (Instrument)

- PCR machine produced by Bio-rad (U.S. Company)
- Resale as Seegene's exclusive instrument in conjunction with SG Viewer
- Applied to Anyplex and Allplex, Real-time PCR reagents
- [Achieved >2,200 cumulative sales volume since 2010](#)
- 303 new placements in 2Q20, total of 529 in 1H20



Key driver in 2H20

Allplex™ SARS-CoV-2 Assay

One Tube (4 targets):
Simultaneous Screening & ID

- E gene
- RdRP gene
- N Gene
- S Gene
- Internal Control
(Whole Process Control)



Automated Workflow

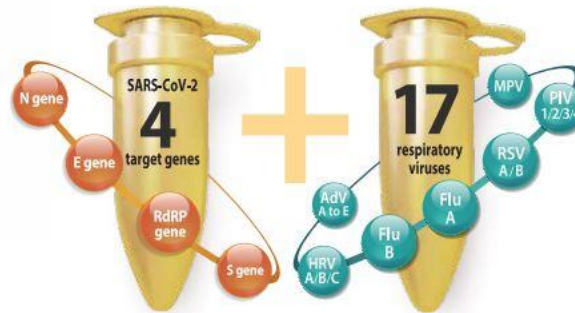
- High-throughput with
NIMBUS/STARlet +
CFX96 + Seegene S/W



OVERCOMM Project: Combination test for essential RV & SARS-CoV-2

- OVERCOMM: Overseas Validation Experiments for Respiratory virus & Coronavirus co-testing in Multi-center, Multi-nation
- A combination test for essential respiratory viruses (Allplex™ RV-EA Assay) and SARS-CoV-2 (Allplex™ SARS-CoV-2 Assay)

- E gene
- RdRP gene
- N Gene
- S Gene
- Internal Control
(Whole Process Control)



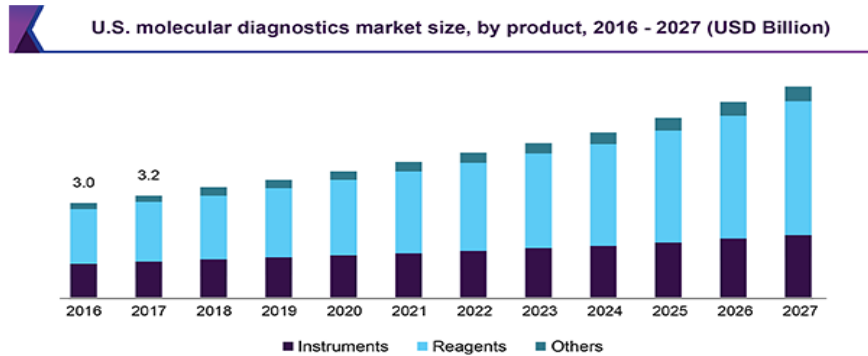
- Adenovirus (AdV)
- Influenza B virus (Flu B)
- Parainfluenza virus (PIV)
- Rhinovirus A/B/C
- Influenza A virus (Flu A)
- Metapneumovirus (MPV)
- Respiratory syncytial virus (RSV)
- Internal Control
(Whole Process Control)

Market Trend

Sales Forecast for Global MDx Market CAGR 7.X~9.X%

- Grand View Research (Feb 2020)**

2019 \$9.2bn → 2027 \$18.2bn / CAGR 9.0%

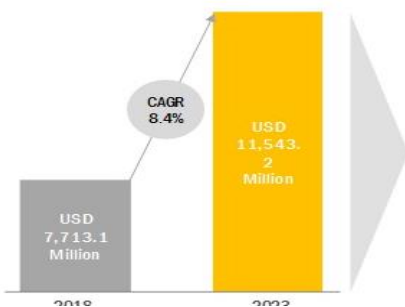


Source: www.grandviewresearch.com

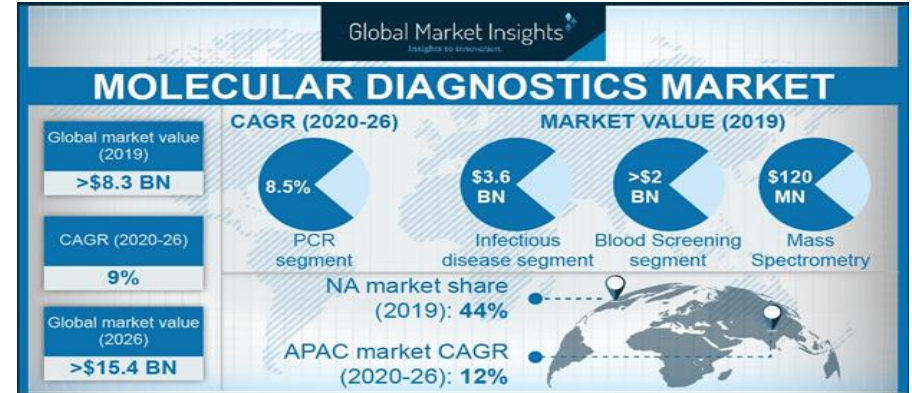
- MarketsandMarkets (May 2018)**

2018 \$7.71bn → 2023 \$11.54bn / CAGR 8.4%

Attractive Opportunities in the Molecular Diagnostics Market



- The global molecular diagnostics market is projected to reach USD 11,543.2 million by 2023 from USD 7,713.1 million in 2018, at a CAGR of 8.4% during the forecast period.
- The major factors driving the growth of the molecular diagnostics market include the high prevalence of infectious diseases and various types of cancers, increasing awareness and acceptance of personalized medicine and companion diagnostics, growth in the biomarker identification market, and advancements in molecular techniques.
- North America is expected to account for the largest share of 46.4% of the global molecular diagnostics market in 2018. Asia Pacific is projected to register the highest CAGR of 11.1% during the forecast period.



- Global Market Insights (Feb 2020)**

2019 \$8.3bn → 2026 \$15.4bn / CAGR 9.0%



- Fortune Business Insight (Apr 2019)**

2017 \$8.01bn → 2025 \$13.87bn / CAGR 7.1%

Competitive Advantage

Comparison of Cervical cancer(HPV) Products "Much more informative with 1 product"



Performance of Cervical cancer(HPV) products "More accurate"

WHO LabNet 2014 HPV DNA Proficiency study, 2015 IPV conference, Portugal, 2015

- 100% proficiency at all 11 Lab participants.
- Detection of all 5 HPV subtypes and its multiple co-infection
- The best Results regarding Sensitivity, Specificity and Reproducibility

Type of HPV assay	No. of datasets	100% proficient	99-90%	89-80%	<80 %	Not proficient
All assays	148	89	14	9	5	31
Anyplex II HPV28 (Seegene)	11	11	0	0	0	0
Onclarity (BD)	5	5	0	0	0	0
Linear Array (Roche)	14	7	1	1	0	5
HPV Direct Flow-chip (Master Diagnostica)	14	9	0	0	0	5
Papillocheck (Greiner)	5	4	0	1	0	0
CLART HPV 2/3 (Genomica)	4	0	1	1	2	0
In- house PCR (Luminex)	8	3	1	1	0	3
Realtime PCR (Abbott)	3	1	0	2	0	0

Our Business in COVID-19 Pandemic

The evaluation of Allplex™ 2019-nCoV Assay



SARS-COV-2 MOLECULAR ASSAY EVALUATION: RESULTS

LAST UPDATED: 5 JUNE 2020

Company	Gene target	Verified LOD (copies / reaction)	Avg Ct (lowest dilution 10/10)	Clinical sensitivity (50 positives)	Clinical specificity* (100 negatives)	Product No.	Product name
R-Biopharm AG	E	1–10	37.99	100% (95%CI: 93, 100)	100% (95%CI: 96, 100)	PG6815RUO	RIDA®GENE SARS-CoV-2 RUO
SD Biosensor Inc.	E	1–10	37.43	100% (95%CI: 93, 100)	97%* (95%CI: 92, 99)	M-NCOV-01	STANDARD M nCoV Real-Time Detection Kit
	ORF1	1–10	36.99	100% (95%CI: 93, 100)	99%* (95%CI: 95, 100)		
Seegene Inc.	E	1–10	33.3	100% (95%CI: 93, 100)	100% (95%CI: 96, 100)	RP10244Y RP10243X	Allplex™ 2019-nCoV Assay
	N	1–10	36.74	100% (95%CI: 93, 100)	100% (95%CI: 96, 100)		
	RdRP	1–10	34.73	100% (95%CI: 93, 100)	100% (95%CI: 96, 100)		

Our Allplex™ 2019-nCoV Assay has **100% sensitivity and specificity** from the FIND¹⁾'s evaluation

¹⁾ FIND : a **WHO Collaborating Centre for Laboratory Strengthening and Diagnostic Technology Evaluation**. It is a global non-profit organization driving innovation in the development and delivery of diagnostics to combat major diseases affecting the world's poorest populations.

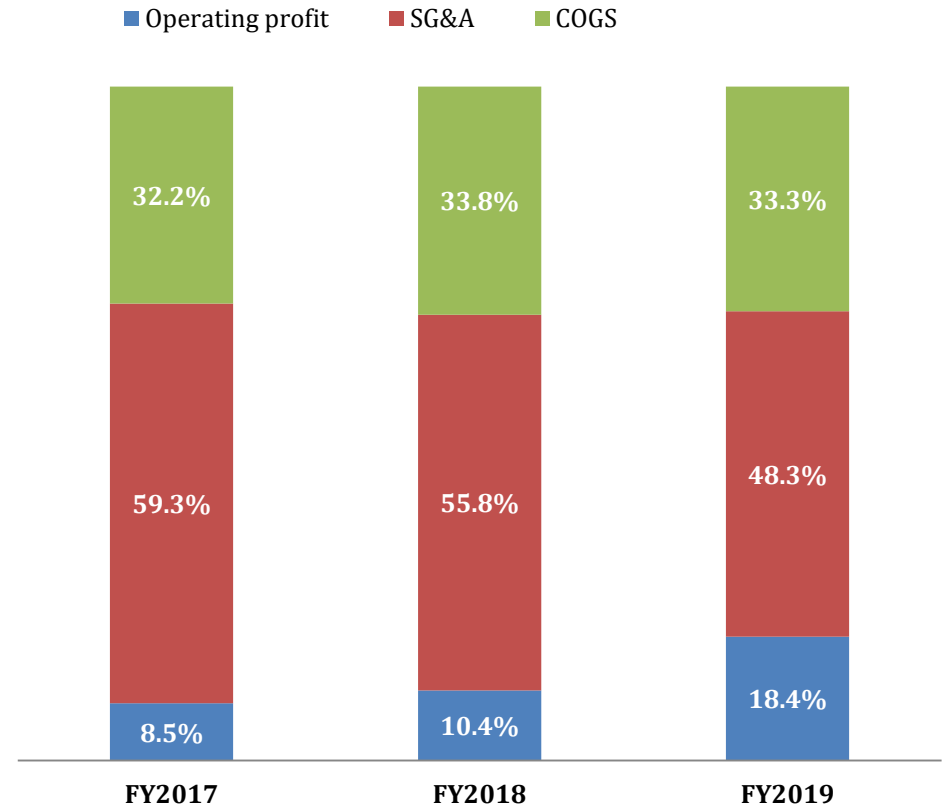
Profit Structure

Revenue Structure in the last three years

- Operating leverage effect has risen from 2019 → Rapid growth in OP as sales increase while SG&A cost ratio decreases
- Increase in OP will likely accelerate thanks to rise in sales

$$\Delta \text{Sales} - \Delta \text{COGS} - \Delta \text{SG\&A} = \Delta \text{Operating Profit}$$

(Unit: KRW mn)	FY2017	FY2018	FY2019
Sales	88,920	102,265	121,953
(%)	100.0%	100.0%	100.0%
COGS	28,620	34,612	40,661
(%)	32.2%	33.8%	33.3%
Gross profit	60,300	67,653	81,293
(%)	67.8%	66.2%	66.7%
SG&A	52,744	57,028	58,869
(%)	59.3%	55.8%	48.3%
Operating profit	7,556	10,625	22,423
(%)	8.5%	10.4%	18.4%



Company & Industry

Seegene Overview

Overview of Seegene

- CEO/CTO: Dr. Jong-Yoon Chun
- Established: Sept. 15, 2000 / Listed: Sept. 10, 2010
- Capital: KRW 13,117mn
- Number of employees: 398 (as of Jun. 30, 2019)
- Product: Molecular Diagnostics (MDx) Reagent
- Key proprietary MDx technologies:
DPO™(2004), TOCE™(2011), MuDT™(2015)

Major Products

MDx Reagents



- Respiratory Infection
- Gastrointestinal Infection
- Women's Health
- Other Infections disease

Instruments(OEM or re-sale)



Nimbus (Hamilton)



STARlet (Hamilton)

OEM

[Extraction]



CFX96 (Bio-Rad)

Re-sale

[Real-time PCR]

Global Network

- Headquarter: Seoul, South Korea
- 7 Foreign subsidiaries (# of employees : 82)
Italy, Dubai, US, Canada, Germany, Brazil, Mexico
- Supplying reagents/instruments through 84 agencies
 - 21 distribution agencies in Korea
 - 63 distribution agencies in 57 overseas markets

Foreign subsidiaries & Branch office



Stock Information

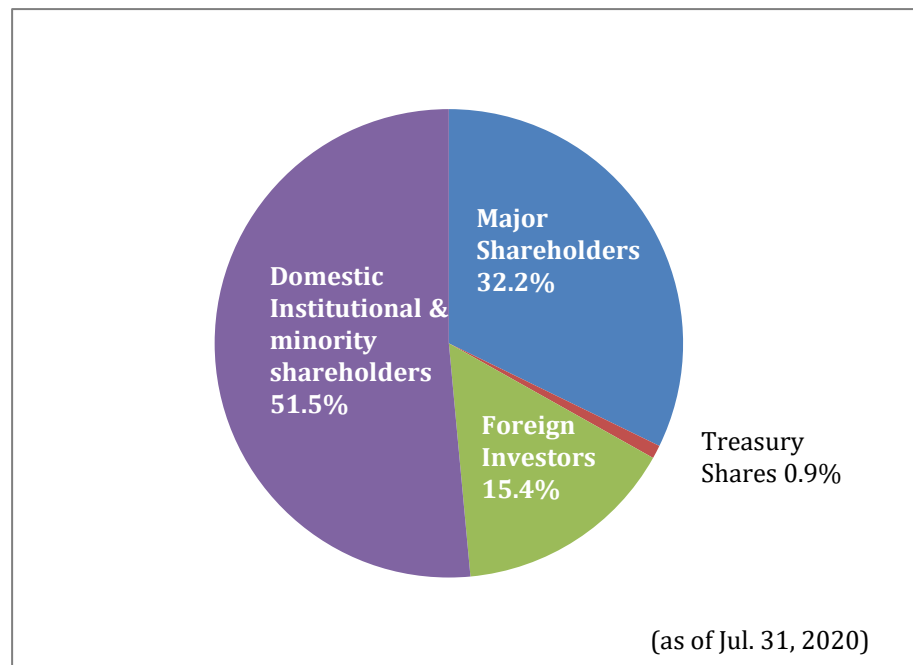
Overview of Stock Information

- Ticker: 096530 (KOSDAQ)
- Shares Outstanding: 26,234,020 (as of Dec 31, 2019)
- Par value: KRW 500
- Market Cap: KRW 6.83tr. (as of Jul 31, 2020)
*equivalent to USD 5.7bn
- Avg. Daily Trading Volume: 4,242,449 (as of Jul. 2020)
- 52 week High / Low: KRW 264,300 / 19,050

Subsidiaries

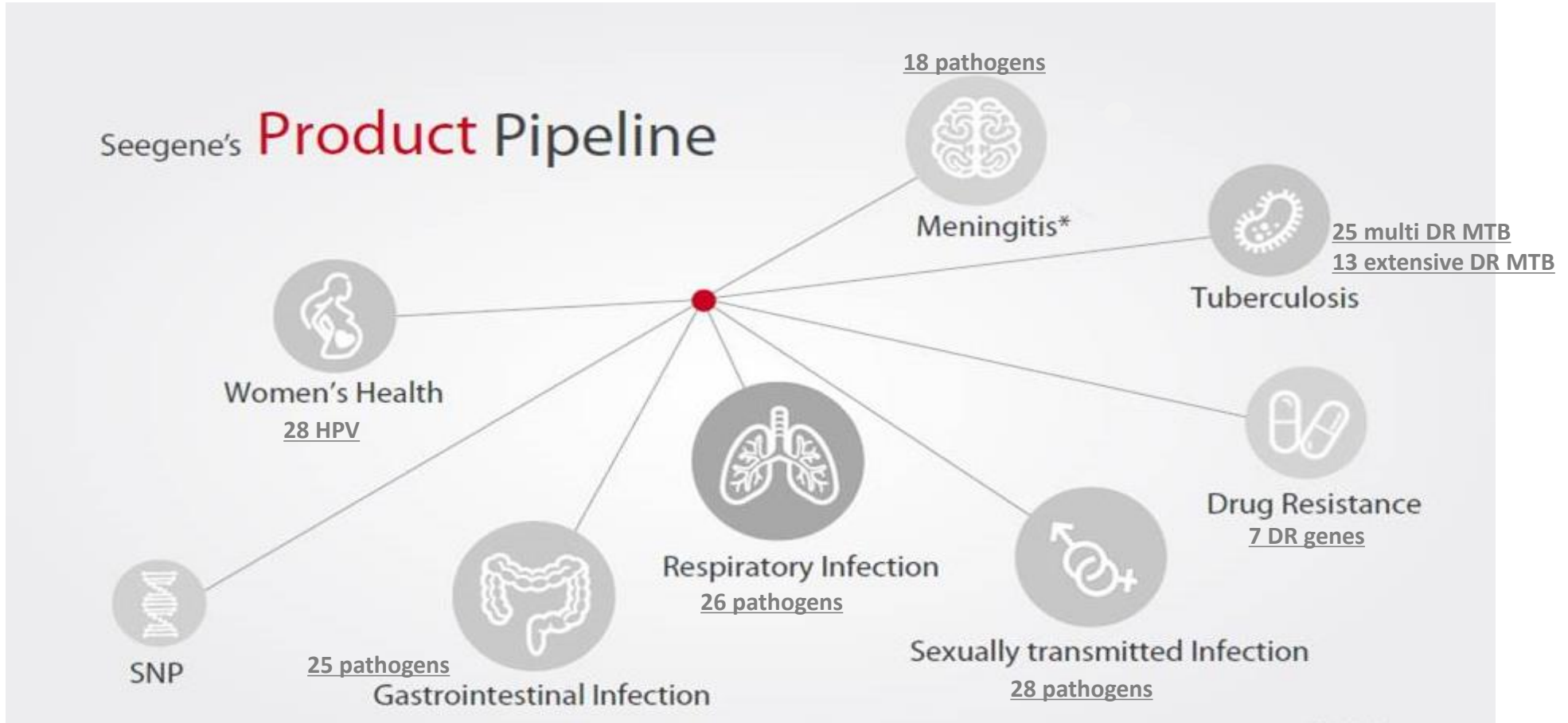
Subsidiary	Date of establishment
Arrow Diagnostics (Italy)	Jan. 2014
Seegene Middle East (Dubai)	Oct. 2014
Seegene Technologies (USA)	Apr. 2015
Seegene Canada (Canada)	Jul. 2015
Seegene Mexico (Mexico)	Apr. 2016
Seegene Germany GmbH (Germany)	Jul. 2016
Seegene Brazil (Brazil)	Jun. 2019

Shareholder Structure



Major Shareholder	Ownership
CEO	18.1%
Related parties	14.1%
Total	32.2%

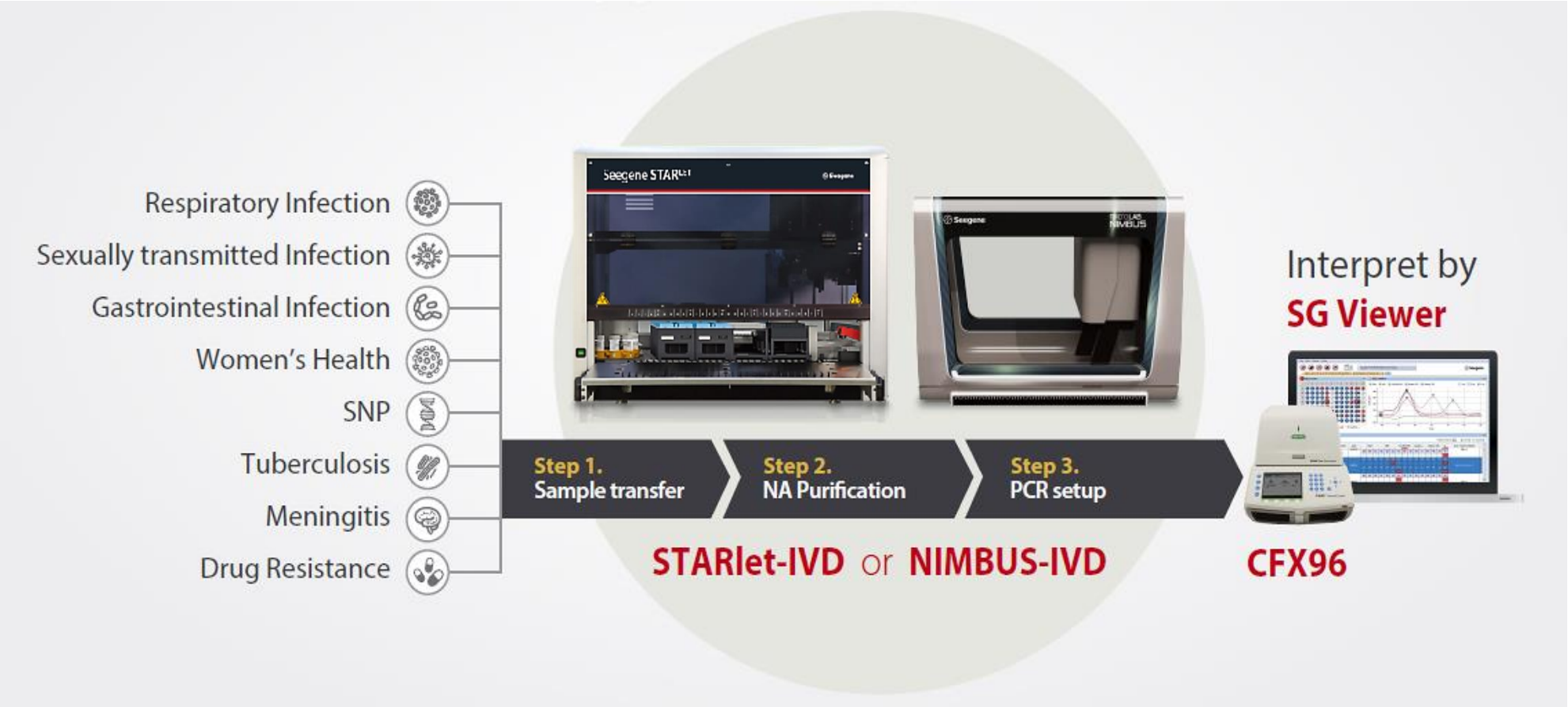
Product Pipeline & Global Certification



Classification	MFDS (KR)	CE (EU)	TGA (AU)	Health Canada	FDA (US)	COFEPRIS (Mexico)	ANVISA (Brazil)	Total
Certification	61	68	44	11	3	36	19	242

* Cleared or in progress in 28 other countries

Workflow – All in One Platform

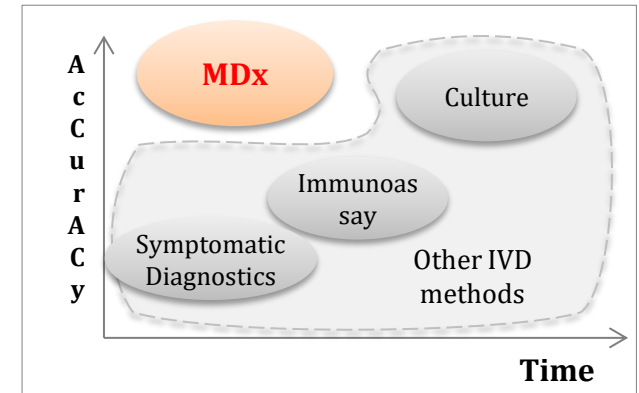
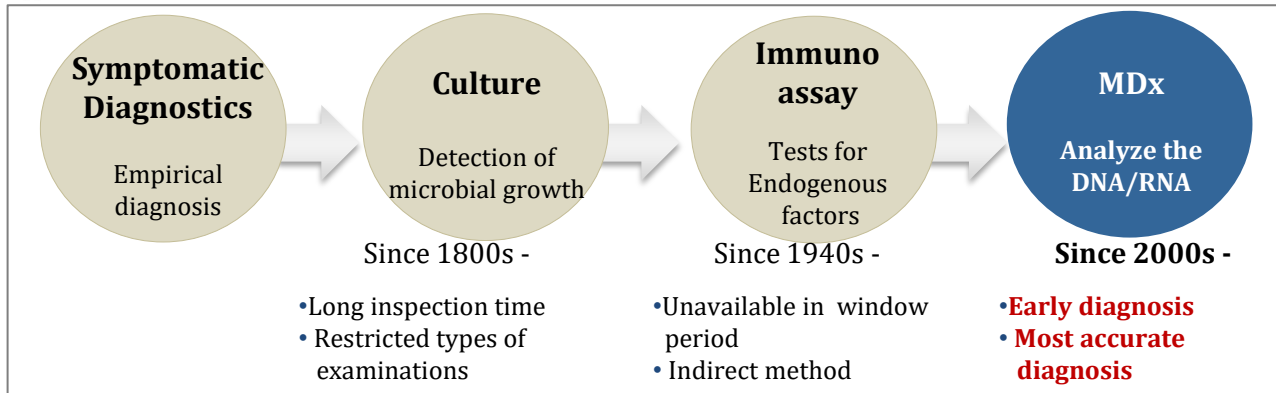


IVD (In-Vitro Diagnostics) Overview

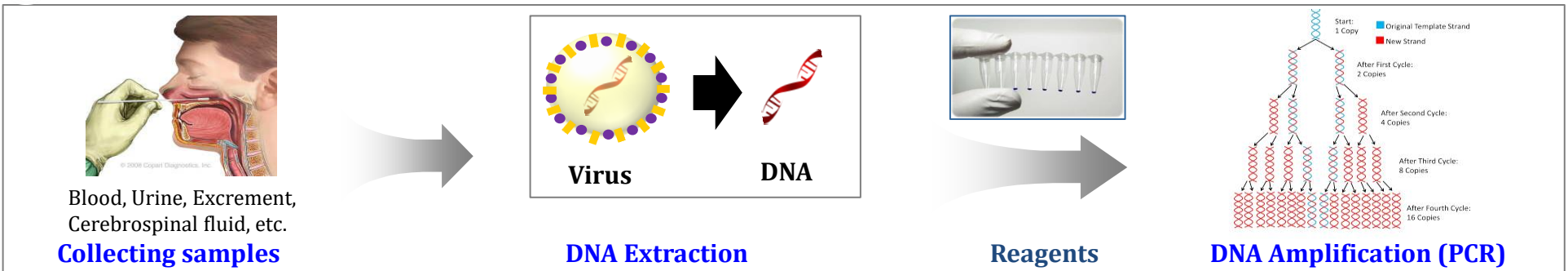
Classification of Diagnostics Methods

- In vivo Diagnostics : Analyze the health status inside of the human body. ex) X-ray, CT, MRI
- In vitro Diagnostics : Analyze the specimens derived from the body such as blood, urine etc.

Evolving IVD Method



Process of MDx

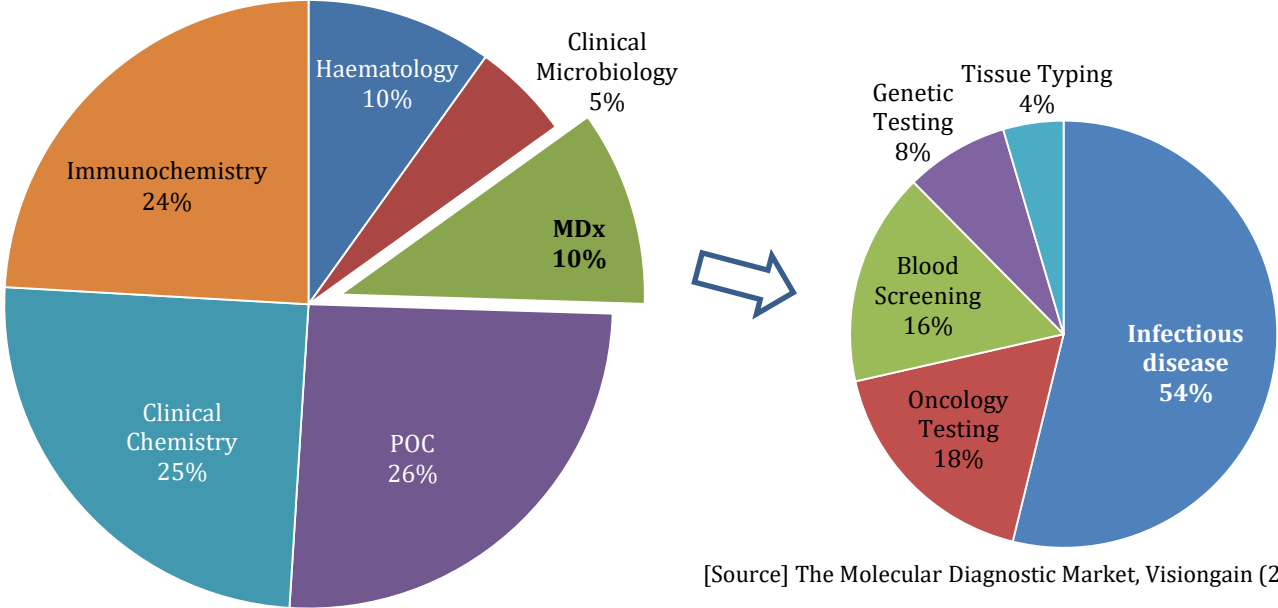


IVD Industry

In-Vitro Diagnostics Market: \$66.4bn(2018) → \$95bn(2025) / CAGR 5.6%
















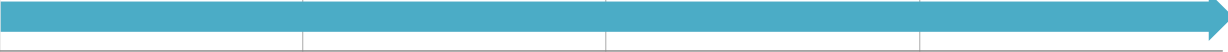
More than 50% of MDx market: Infectious disease



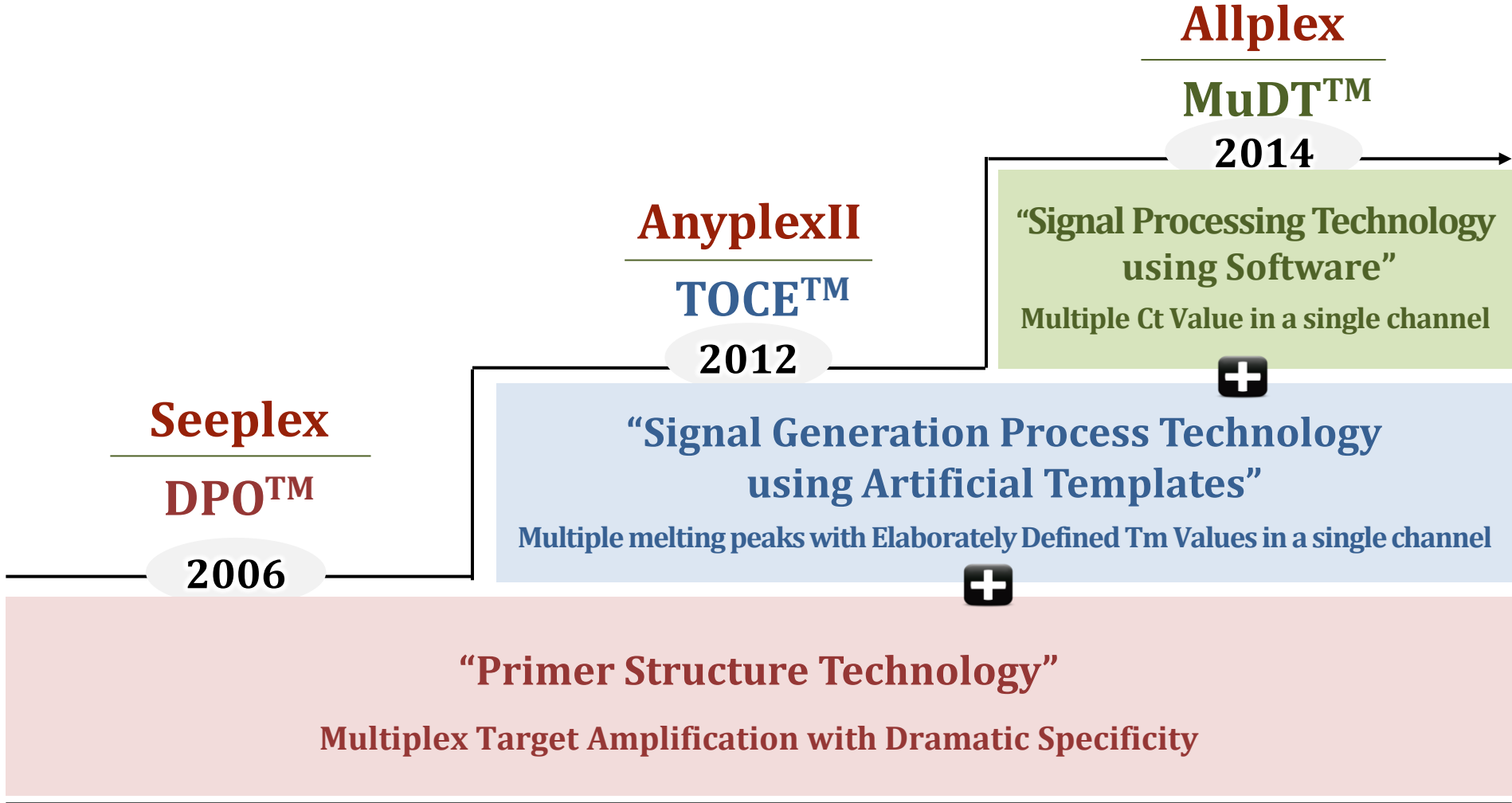
[Source] The Molecular Diagnostic Market, Visiongain (2017)

Technology

History of PCR Technology

Patent	DNA amplification technologies	Companies	Homogeneous (Closed System)	Multiplex (> 10-plex)	SNP (> 10 point mutations)	Quantification (> 10 analytes)
1983	PCR	Roche				
1989	bDNA	Siemens				
1989	Line Probe	Fujirebio				
1990	TaqMan	Roche				
1991	NASBA	bioMerieux				
1992	SDA	BD				
1993	Hybrid Capture	Qiagen				
1995	TMA	Hologic				
1995	Invader	Hologic				
1996	Molecular Beacon	PHRI				
1997	Hyb Probe	Roche				
1999	Scorpions	Qiagen				
1999	Bead Technology	Luminex				
2011	TOCE	Seegene				
2014	MuDT	Seegene				

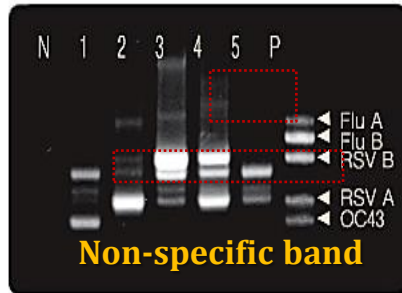
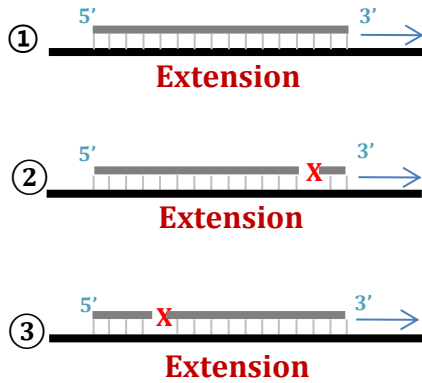
Seegene's Proprietary PCR Technologies



DPO™ (Dual Priming Oligonucleotide)

Conventional PCR

<Conventional Primer>

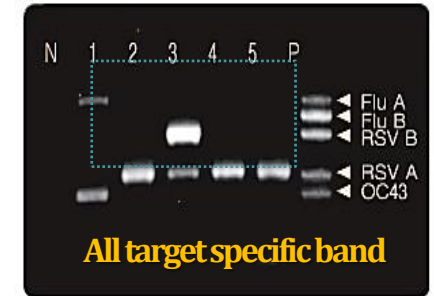
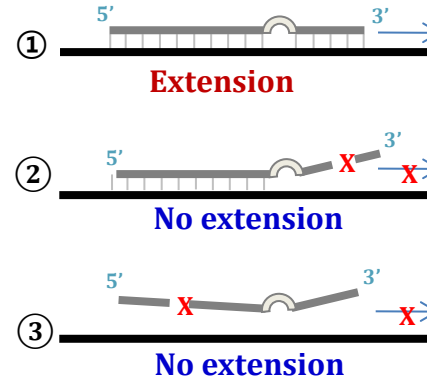
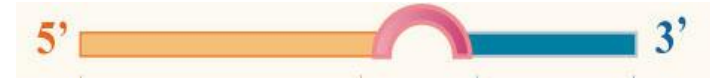


P: Positive marker N: Negative marker / Lane 1~5: patients

- Non-target genes are amplified together
- Limited multiplexing

DPO PCR

<DPO Primer>



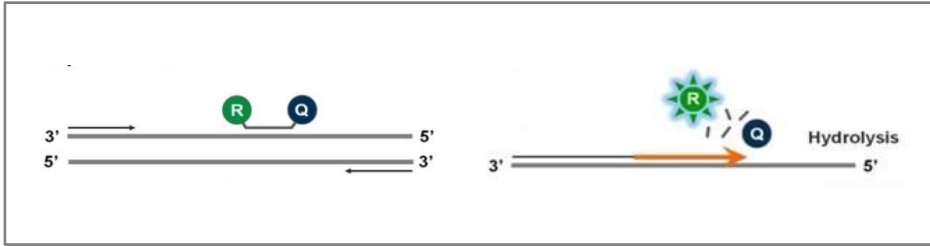
P: Positive marker N: Negative marker / Lane 1~5: patients

- Only the target gene is specifically amplified
- Highly reliable multiple target amplification

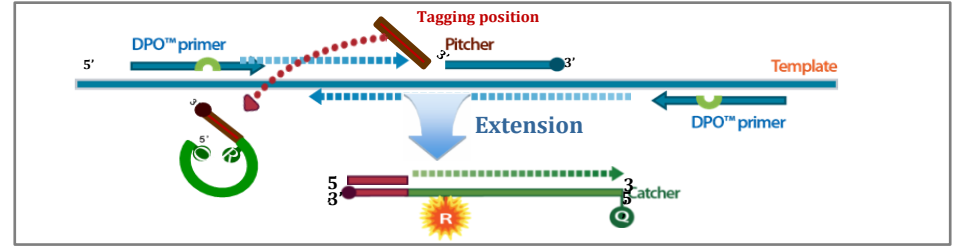
Multiplex + High Accuracy = Realization of Multiplex MDx

TOCE™ (Tagging Oligonucleotide Cleavage & Extension)

Conventional Real-time PCR



TOCE Real-time PCR



Detect 1 pathogen per 1 channel
→ Detect 4 pathogens using
4 fluorescence channel

- virus1
- virus2
- virus3
- virus4

virus4
virus3
virus2
virus1

- Detection of 1 target per a single channel
- The Maximum limit 4 targets

Detect 5 pathogen per 1 channel
→ Detect **20** pathogens using
4 fluorescence channel

- virus 1
- virus 2
- virus 3
- virus 4
- virus 5
- virus 6
- virus 7
- virus 8
- virus 9
- virus 10
- virus 11
- virus 12
- virus 13
- virus 14
- virus 15
- virus 16
- virus 17
- virus 18
- virus 19
- virus 20

virus1
virus2
virus3
virus4
virus5

Melting curve Analysis

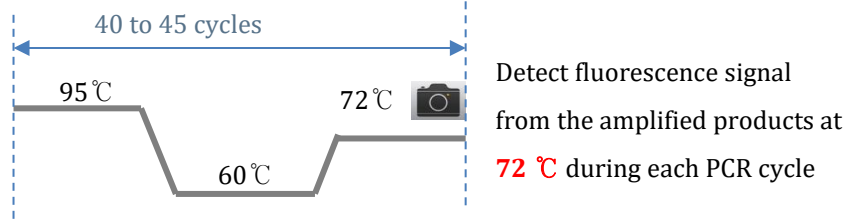
- Detection of 5 targets per a single channel
- Multiplex in a single channel using Catcher-Tm
- As sensitive as singleplex real-time PCR

High Multiplex Real-time PCR + Quantitative Analysis(Melting Curve Analysis)

MuDT™ (Multiple Detection Temperatures)

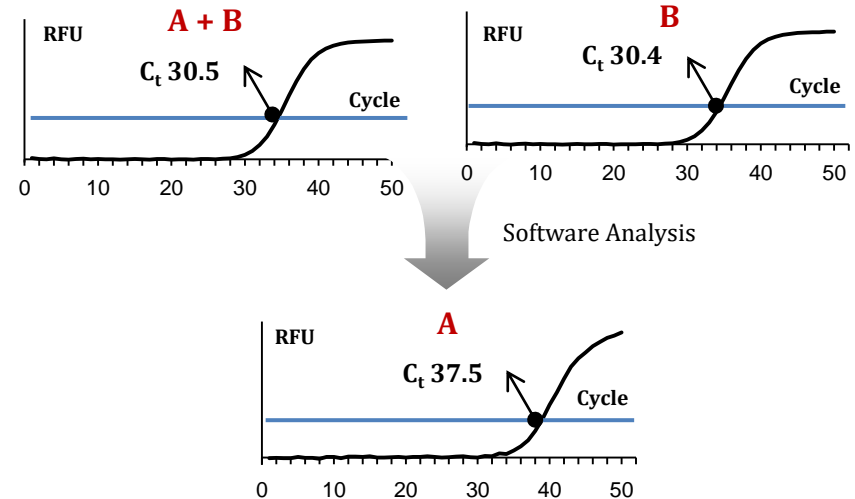
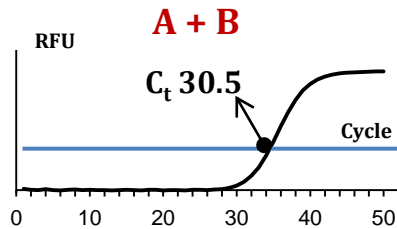
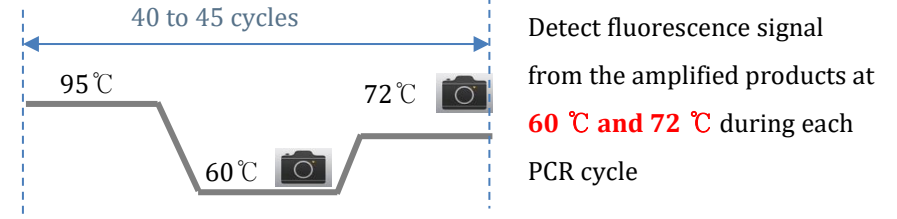
Conventional Real-time PCR

[PCR cycle]



MuDT Real-time PCR

[PCR cycle]



Multi qualitative/quantitative Analysis in Single channel = **Multi Ct value in Single channel**