

4Q19 Results

Mar 2020

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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 4Q19 & FY2019, Operation Leverage
- Sales Breakdown by product type and region

2. Trend & Forecast

- Performance Trend (quarterly & yearly), Leading Indicators
- Market Trend, Competitive Advantage 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_ 4Q19

Q4 2019 Business Results

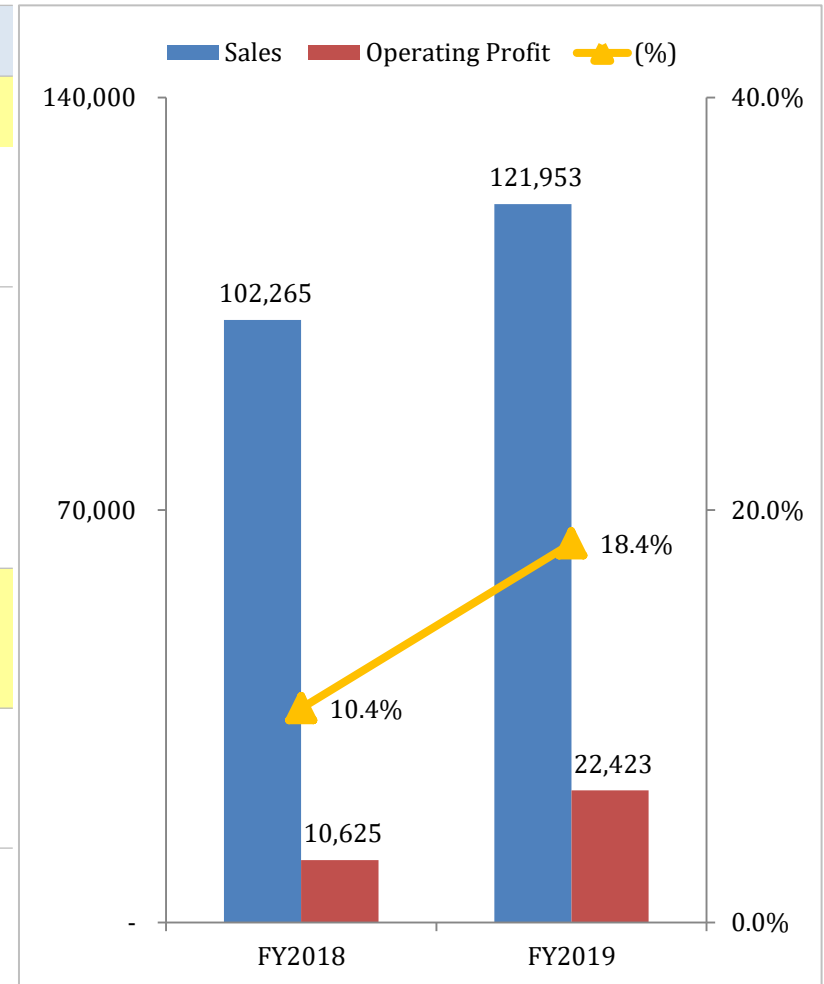
Unit: KRW mn	4Q19	4Q18	YoY	3Q19	QoQ
Sales	33,776	30,268	11.6%	31,398	7.6%
COGS	13,640	10,940	24.7%	9,796	39.2%
(%)	40.4%	36.1%		31.2%	
Gross Profit	20,136	19,327	4.2%	21,602	(6.8%)
SG&A	15,008	14,338	4.7%	14,758	1.7%
(%)	44.4%	47.4%		47.0%	
R&D	2,516	2,410	4.4%	2,425	3.7%
Operating Profit	5,128	4,989	2.8%	6,844	(25.1%)
(%)	15.2%	16.5%		21.8%	
Pre-tax Profit	5,209	4,526	15.1%	7,748	(32.8%)
(%)	15.4%	15.0%		24.7%	
Net Profit	5,666	5,624	0.7%	5,896	(3.9%)
(%)	16.8%	18.6%		18.8%	

- **4Q sales KRW 33.8bn (YoY +11.6%)**
 - Favorable sales trend in EU (Italy, France, Germany etc.)
 - Solid sales of instruments and assays (GI & STI)
 - Allplex products contributed to sales growth
- **OP KRW 5.1bn (YoY +2.8%)**
 - Increase in COGS cost due to disposal of expired products as of end-year
 - OP decreased QoQ stemming from one-off expense related to year-end bonus
- **Pre-tax profit KRW 5.2bn (YoY +15.01%)**
 - Stable non-operating income
- **NP KRW 5.7bn (YoY +0.7%)**
 - NP ↑ backed by corporate tax return

Financials_FY2019

FY 2019 Business Results

Unit: KRW mn	FY2019	FY2018	YoY	Diff.	Ratio
Sales	121,953	102,265	19.3%	19,689	100.0%
COGS	40,661	34,612	17.5%	6,048	30.7%
(%)	33.3%	33.8%			
Gross Profit	81,293	67,653	20.2%	13,640	69.3%
SG&A	58,869	57,028	3.2%	1,842	9.4%
(%)	48.3%	55.8%			
R&D	9,647	10,277	(6.1%)	(630)	
Operating Profit	22,423	10,625	111.0%	11,798	59.9%
(%)	18.4%	10.4%			
Pre-tax Profit	27,705	10,668	159.7%	17,036	
(%)	22.7%	10.4%			
Net Profit	26,710	10,711	149.4%	15,998	
(%)	21.9%	10.5%			

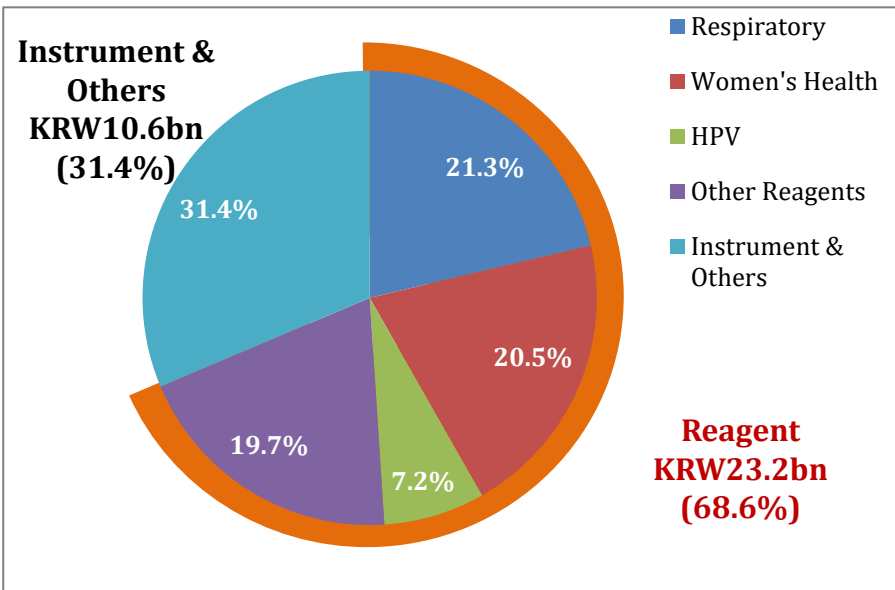


Sales Breakdown by Product Type

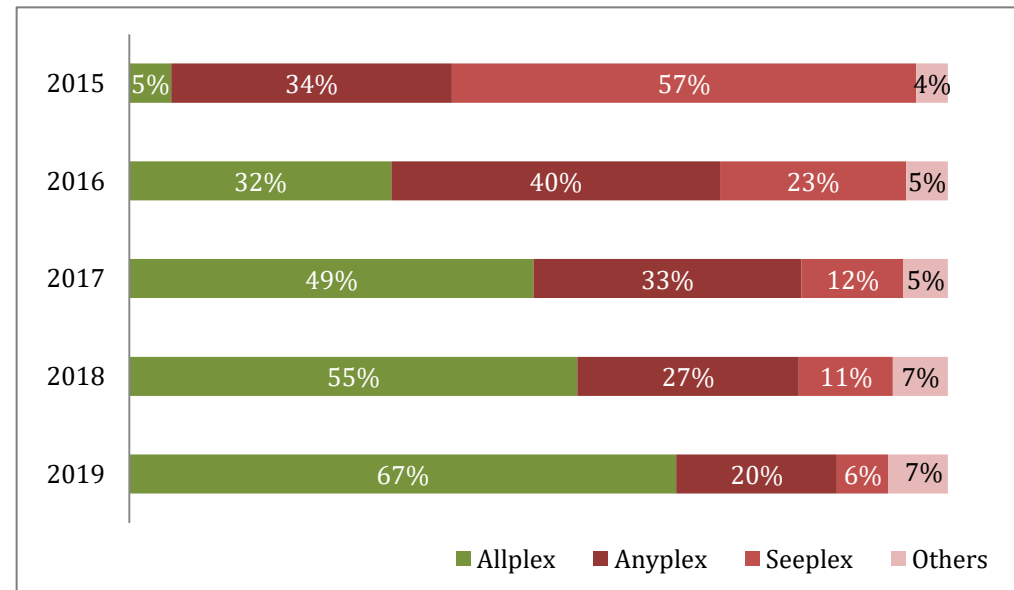
Reagent & Instrument Sales

(Unit: KRW mn)	1Q18	2Q18	3Q18	4Q18	1Q19	2Q19	3Q19	4Q19	QoQ	YoY
Reagent	16,848	16,935	16,665	18,904	20,672	20,627	22,560	23,177	2.7%	22.6%
Instrument/Others	7,399	7,824	6,690	11,363	6,808	8,673	8,838	10,598	19.9%	-6.7%
Total Sales	23,883	24,759	23,355	30,268	27,480	29,299	31,398	33,776	7.6%	11.6%

Sales by Product (4Q19)



Reagent Sales Trend by Product Group

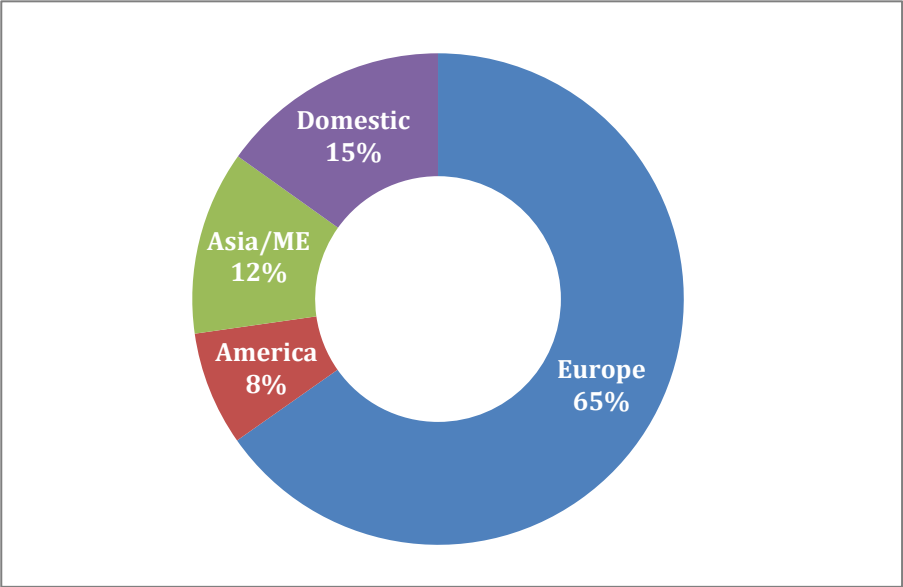


Sales Breakdown by Region

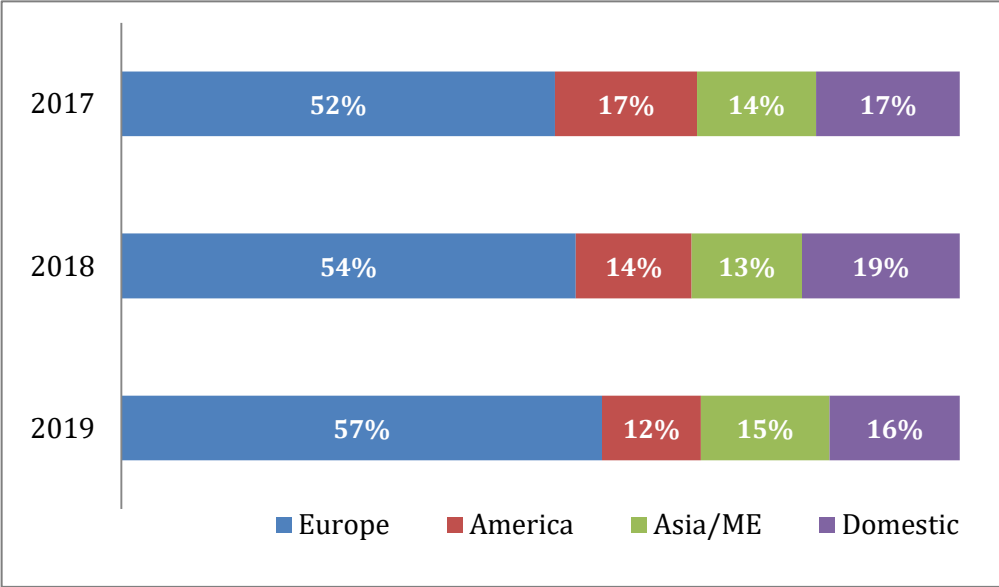
Sales by Region

(Unit: KRW mn)	1Q18	2Q18	3Q18	4Q18	1Q19	2Q19	3Q19	4Q19	QoQ	YoY
Europe	14,462	12,015	12,486	16,437	15,742	16,302	15,855	22,036	39.0%	34.1%
America	3,266	3,162	3,970	3,763	3,961	3,720	4,145	2,536	-38.8%	-32.6%
Asia/Middle East	2,354	3,762	2,923	4,407	3,604	5,401	5,632	4,091	-27.4%	-7.2%
Domestic	3,801	5,820	3,977	5,660	4,173	3,875	5,766	5,113	-11.3%	-9.7%
Total Sales	23,883	24,759	23,355	30,268	27,480	29,299	31,398	33,776	7.6%	11.8%

Sales by Region (4Q19)



Sales Trend by Region

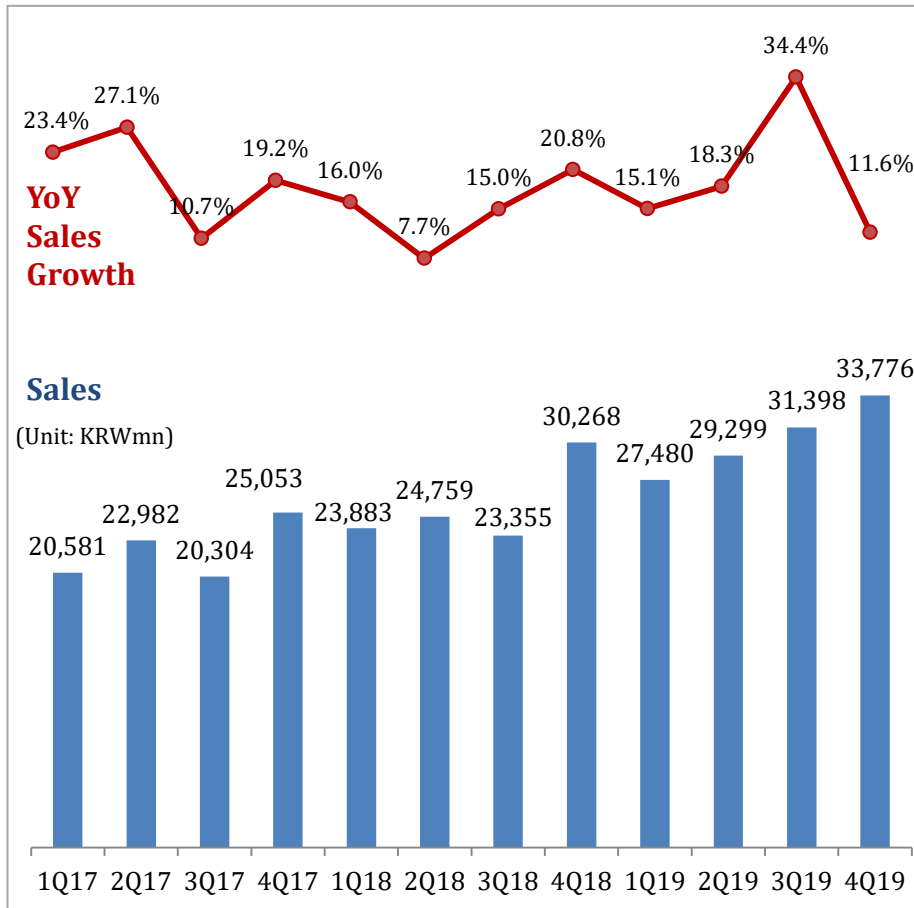


Trend & Forecast

Quarterly Trend

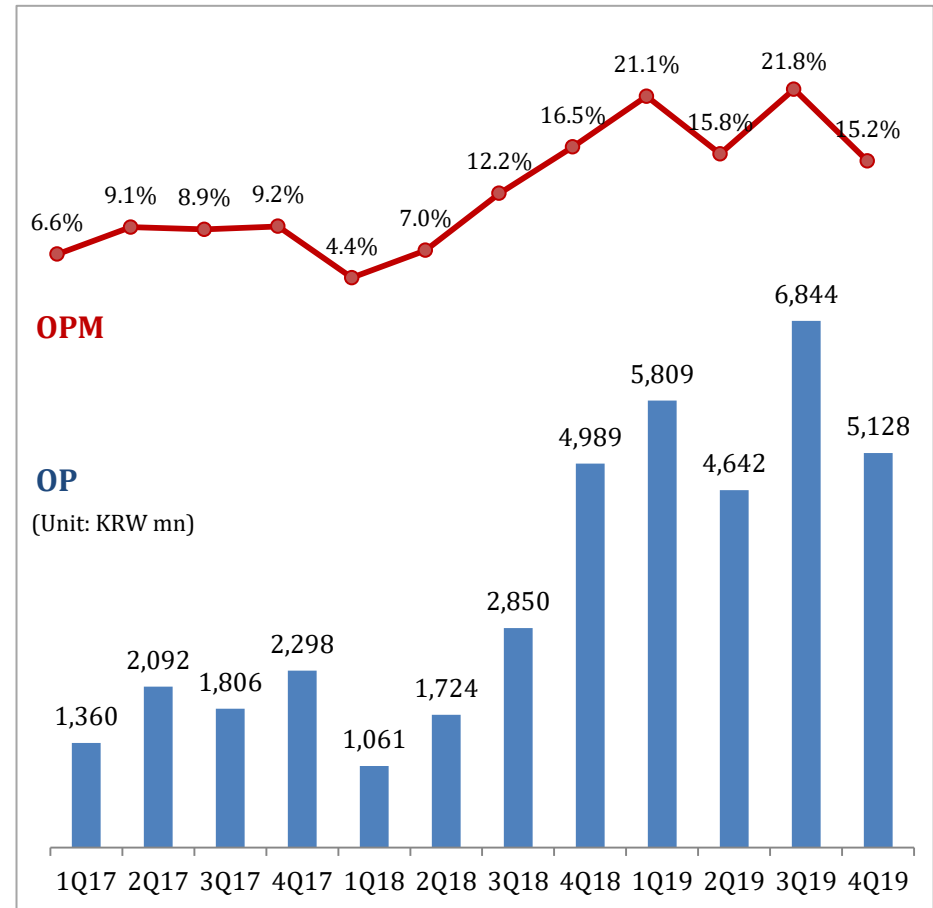
Sales Growth Trend

- Sales growth driven by Allplex reagents
- Sales to continuously grow backed by new Allplex sites and instruments setup



OP Growth Trend

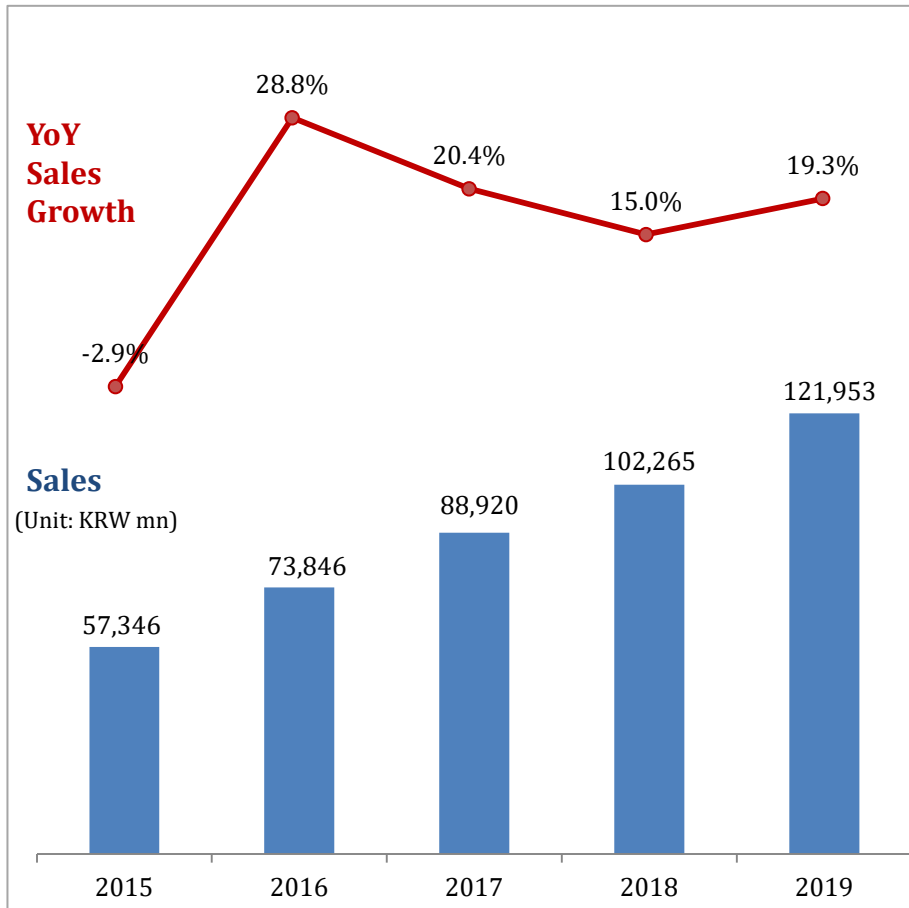
- Improvement of OP thanks to steady sales growth
- OP margin dropped due to the one-off expense, but it is expect to rebound



Yearly Trend

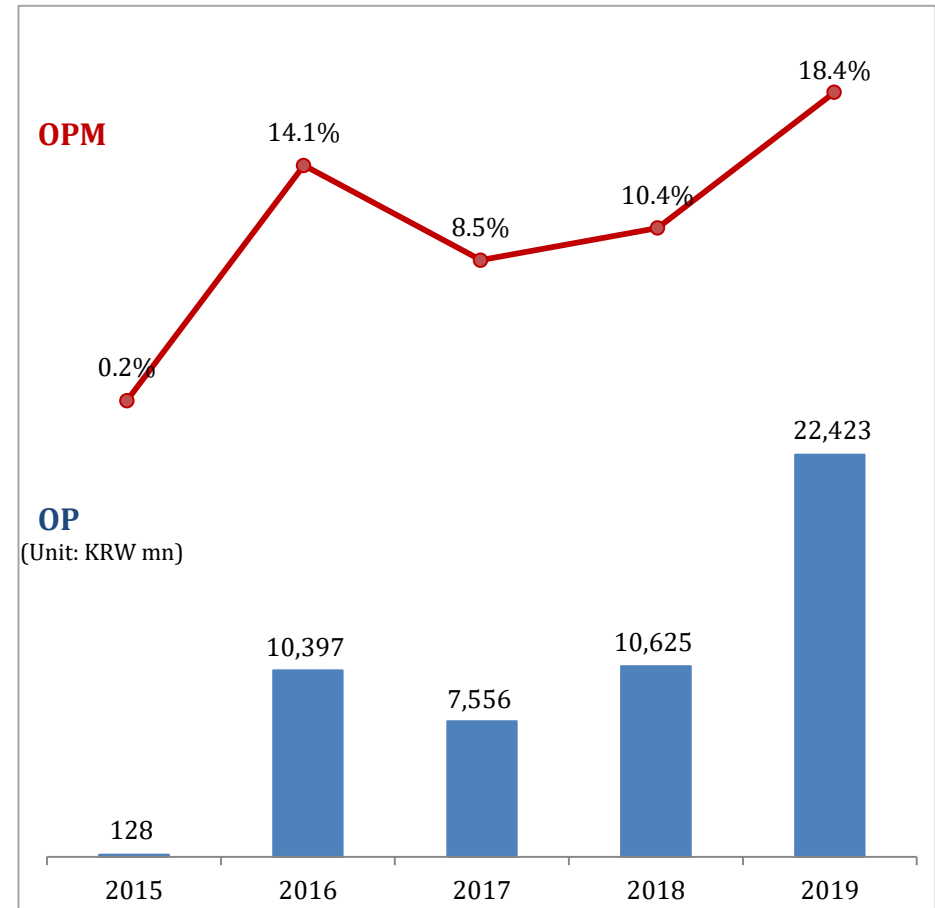
✦ Sales Growth Trend

- Achieved a record-high sales of KRW1220bn in 2019
- Sales to continuously grow backed by new Allplex sites and instruments setup



✦ OP Growth Trend

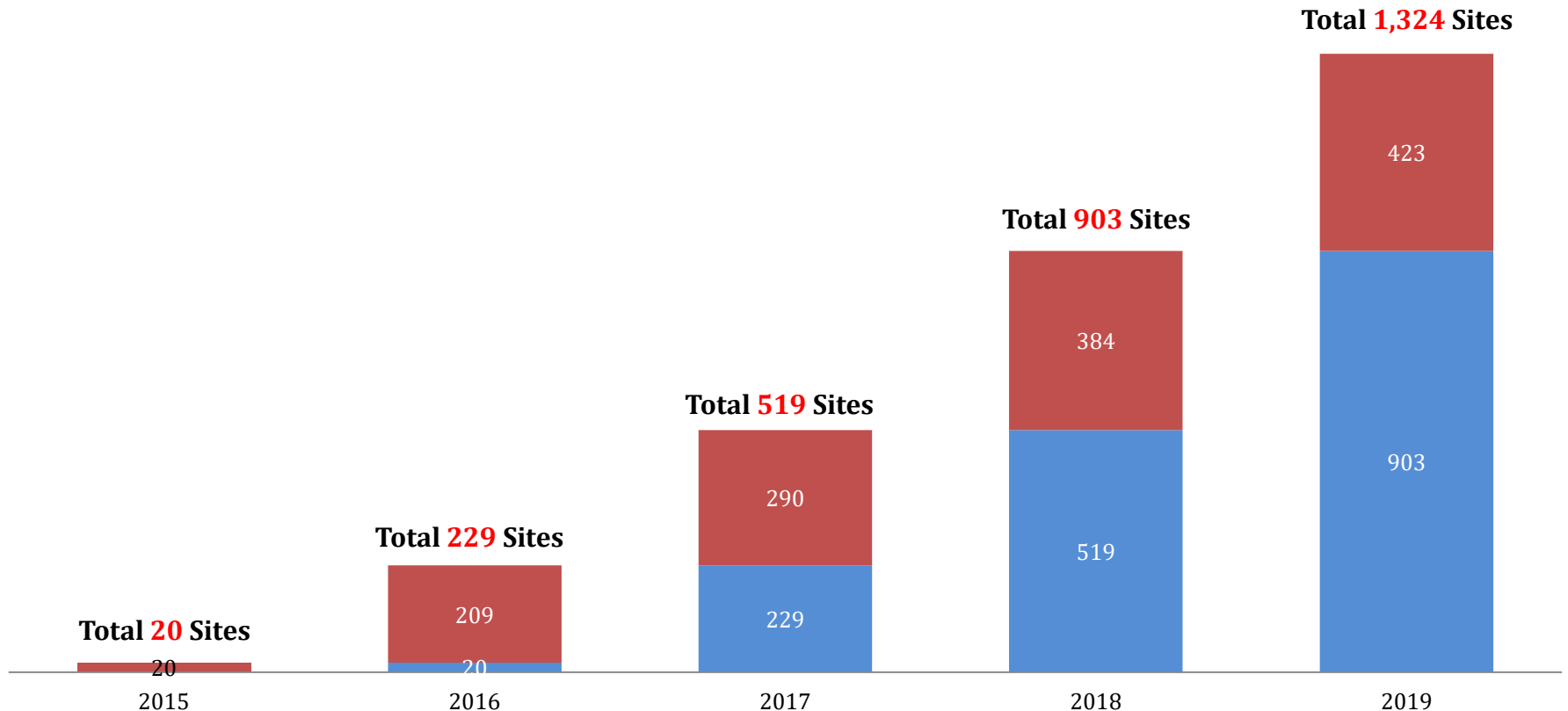
- Operating leverage effect has accelerated from this year
- Significant rise in OP due to low COGS ratio and SG&A cost



Leading Indicator (1)

of Allplex™ customer sites

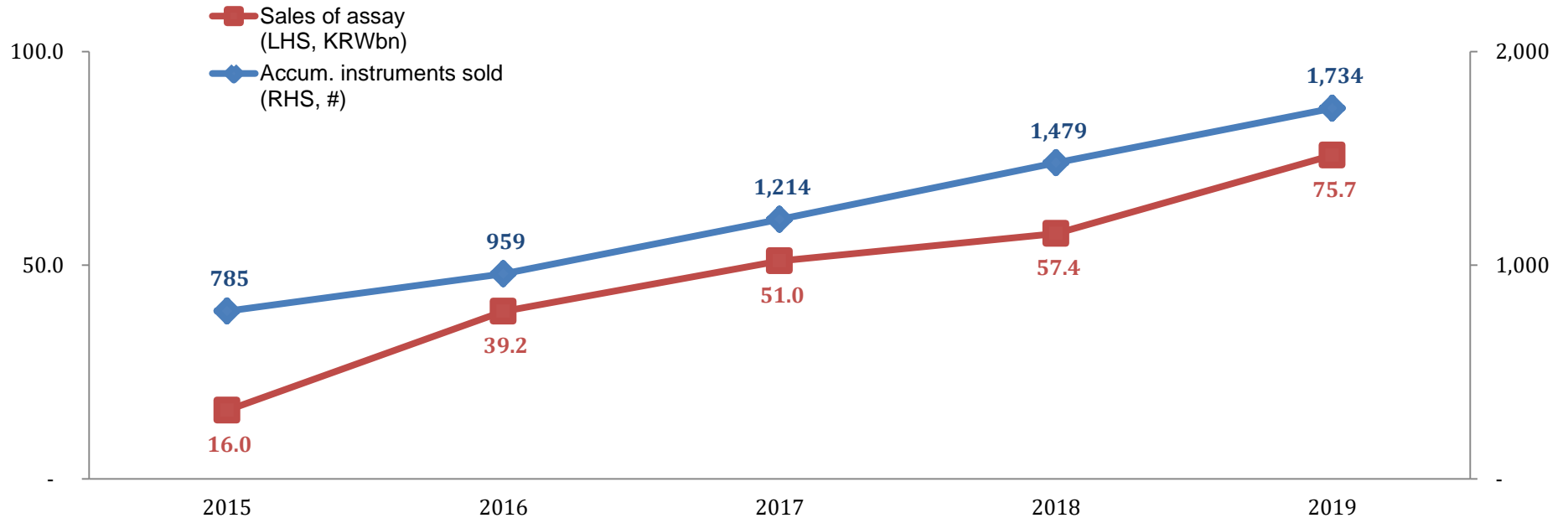
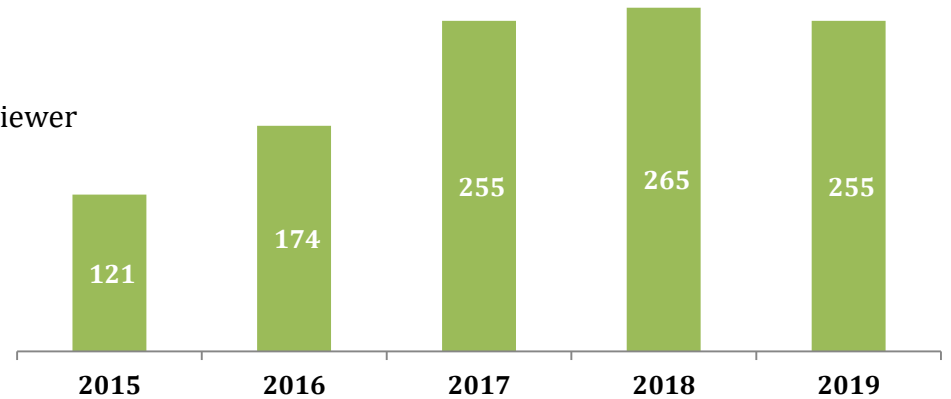
- 1,324 customer sites (hospitals and laboratories) over 48 countries
- Respiratory Infection 579 Sites, Gastrointestinal Infection 345 Sites, Sexually Transmitted Infection 297 Sites, Others 103 Sites
- **Expanding trend of annual new site growth (20 → 209 → 290 → 384 → 423)**



Leading Indicator (2)

✦ Sales trend of CFX96™ (Instrument)

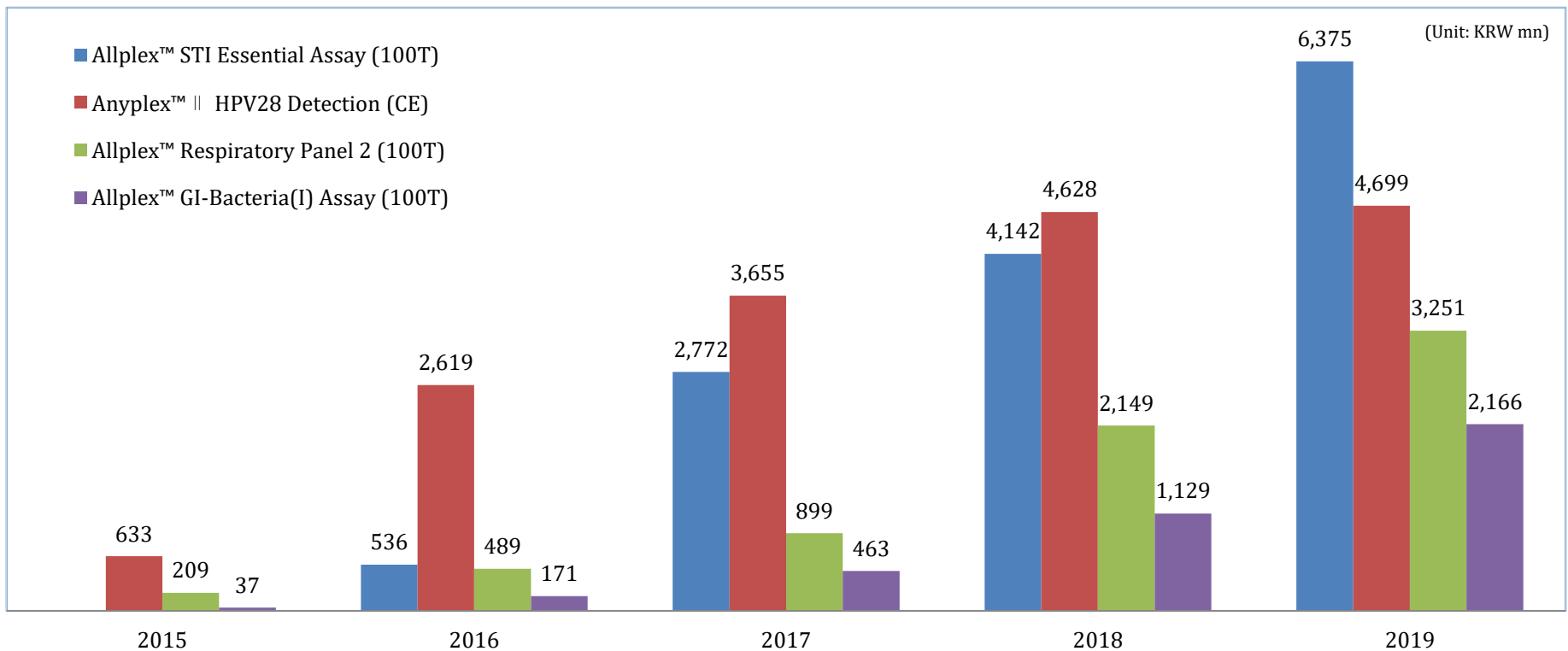
- PCR machine produced by Bio-rad (U.S. Company)
- Resale as Seegene's exclusive instrument in conjunction with SG Viewer
- Applied to Anyplex and Allplex, Real-time PCR reagents
- [Achieved >1,700 cumulative sales volume since 2010](#)
- Increase in sales per instrument ('15FY 20.4m → '19FY 43.7m)



Trend of Seegene's Representative Reagents

✦ Sales trend of major reagents

- Main products grew by > 50% in 2019 and **maintain high growth even 5 years after the launch**
- ✧ Sales of Anyplex™II HPV28 Detection (CE) slightly increased in 2019, but is growing again in 2020 after winning several nation tenders
- Most product lineups with confirmed market demand, including RV, STI, TB, Meningitis and drug resistance are released
- **We aim to accelerate sales expansion of existing products** rather than releasing new products

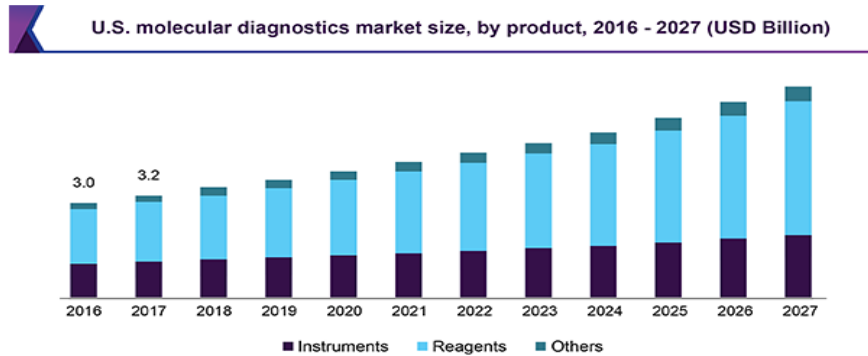


Market Trend

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%

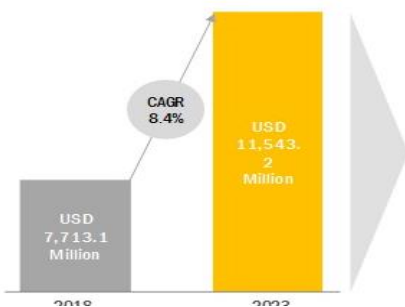


Source: www.grandviewresearch.com

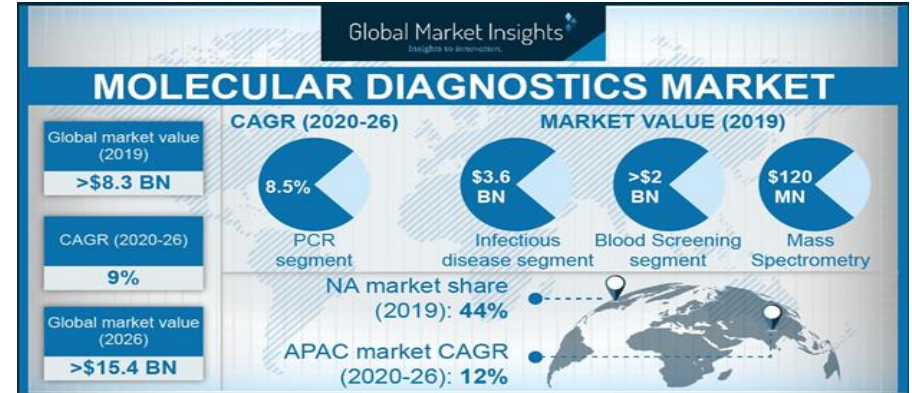
- MarketsandMarkets (May 2018)**

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

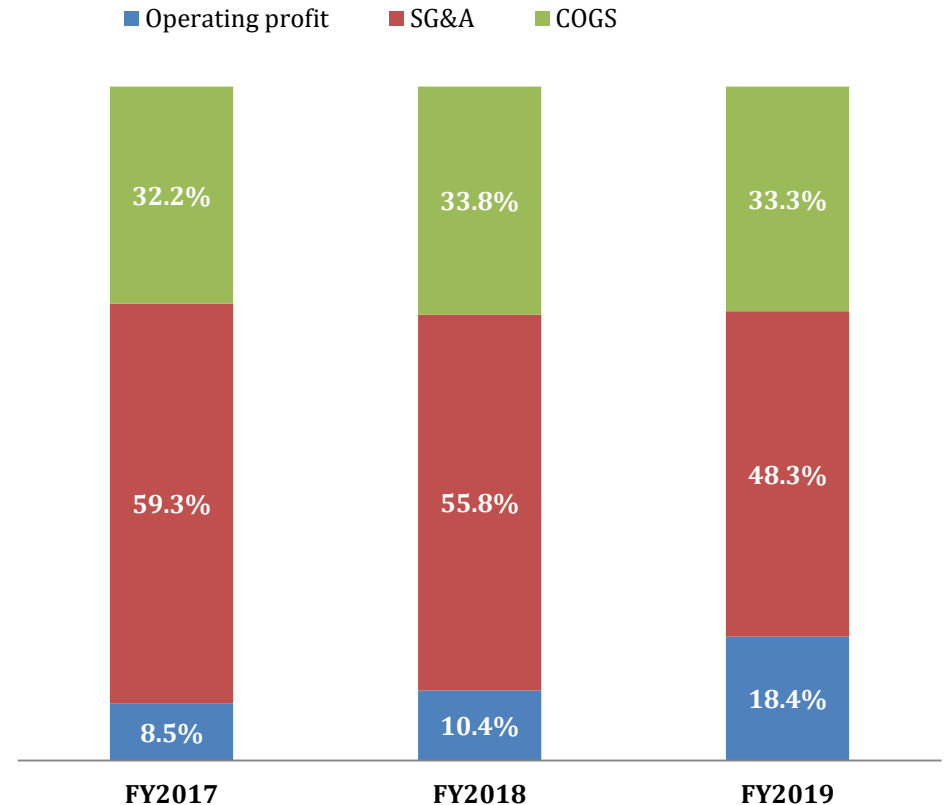
Profit Structure

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: 314 (as of Dec. 31, 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) CFX96 (Bio-Rad)

STARlet (Hamilton) **Re-sale**

OEM

[Extraction] [Real-time PCR]

글로벌 네트워크

- Headquarter: Seoul, South Korea
- 7 Foreign subsidiaries (# of employees : 58)
Italy, Dubai, US, Canada, Germany, Brazil, Mexico
- Supplying reagents/instruments through 86 agencies
 - 23 distribution agencies in Korea
 - 63 distribution agencies in 57 overseas markets

Foreign subsidiaries & Branch office



Stock Information

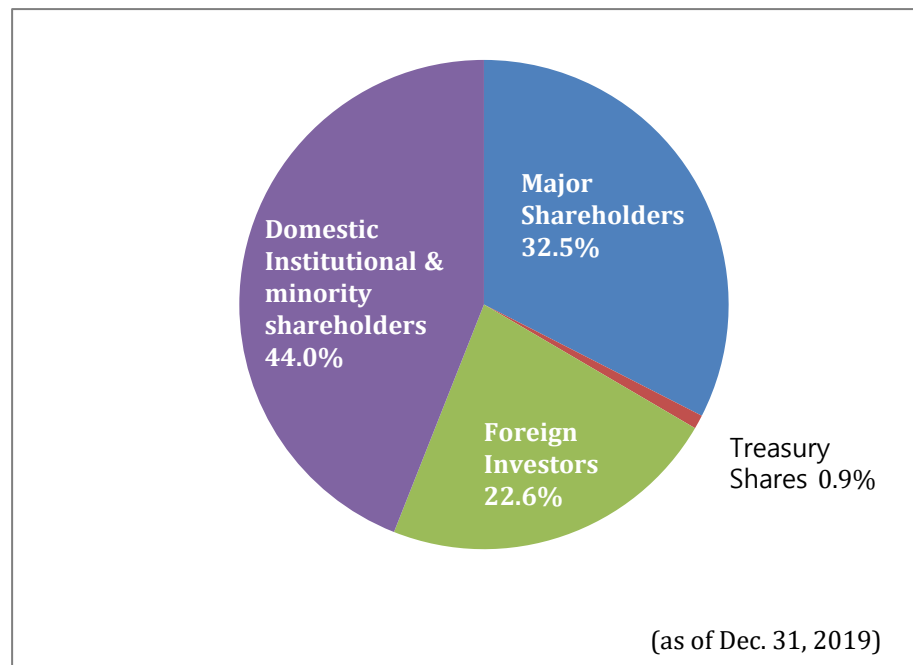
Overview of Stock Information

- Ticker: 096530 (KOSDAQ)
- Shares Outstanding: 26,234,020 (as of Dec 31, 2019)
- Par value: KRW 500
- Market Cap: KRW 850bn (as of Feb. 21, 2020)
*equivalent to USD 700.4mn
- Avg. Daily Trading Volume: 578,653 (as of Jan. 2020)
- 52 week High / Low: KRW 39,800 / 19,050

Subsidiaries

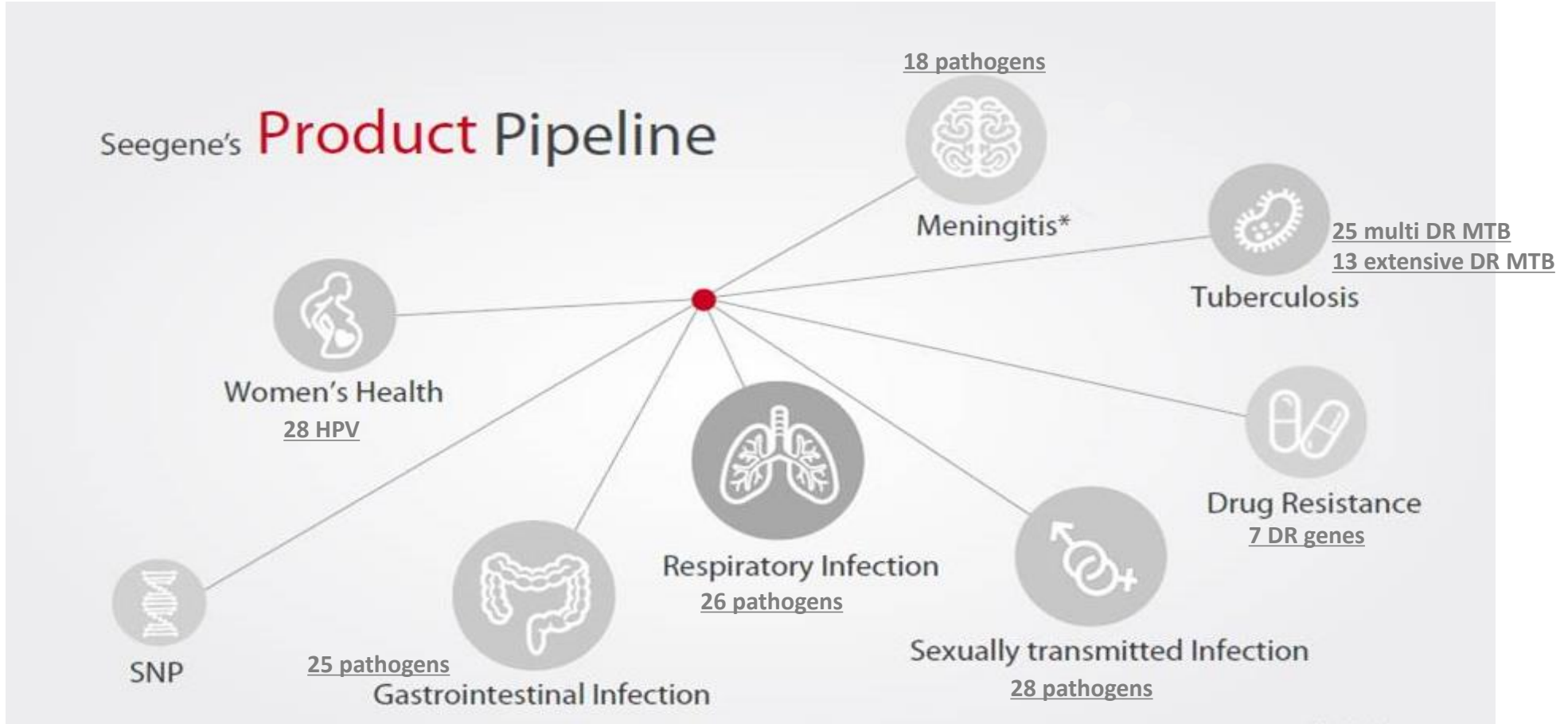
Subsidiary	Date of establishment
Arrow Diagnostics (Italy)	Jan. 2014
Seegene Middle East (Dubai)	Oct. 2014
Seegene Technologies (USA)	Apr. 2015
Seegene Canada (Canada)	Jul. 2015
Seegene Mexico (Mexico)	Apr. 2016
Seegene Germany GmbH (Germany)	Jul. 2016
Seegene Brazil (Brazil)	Jun. 2019

Shareholder Structure



Major Shareholder	Ownership
CEO	18.1%
Related parties	14.4%

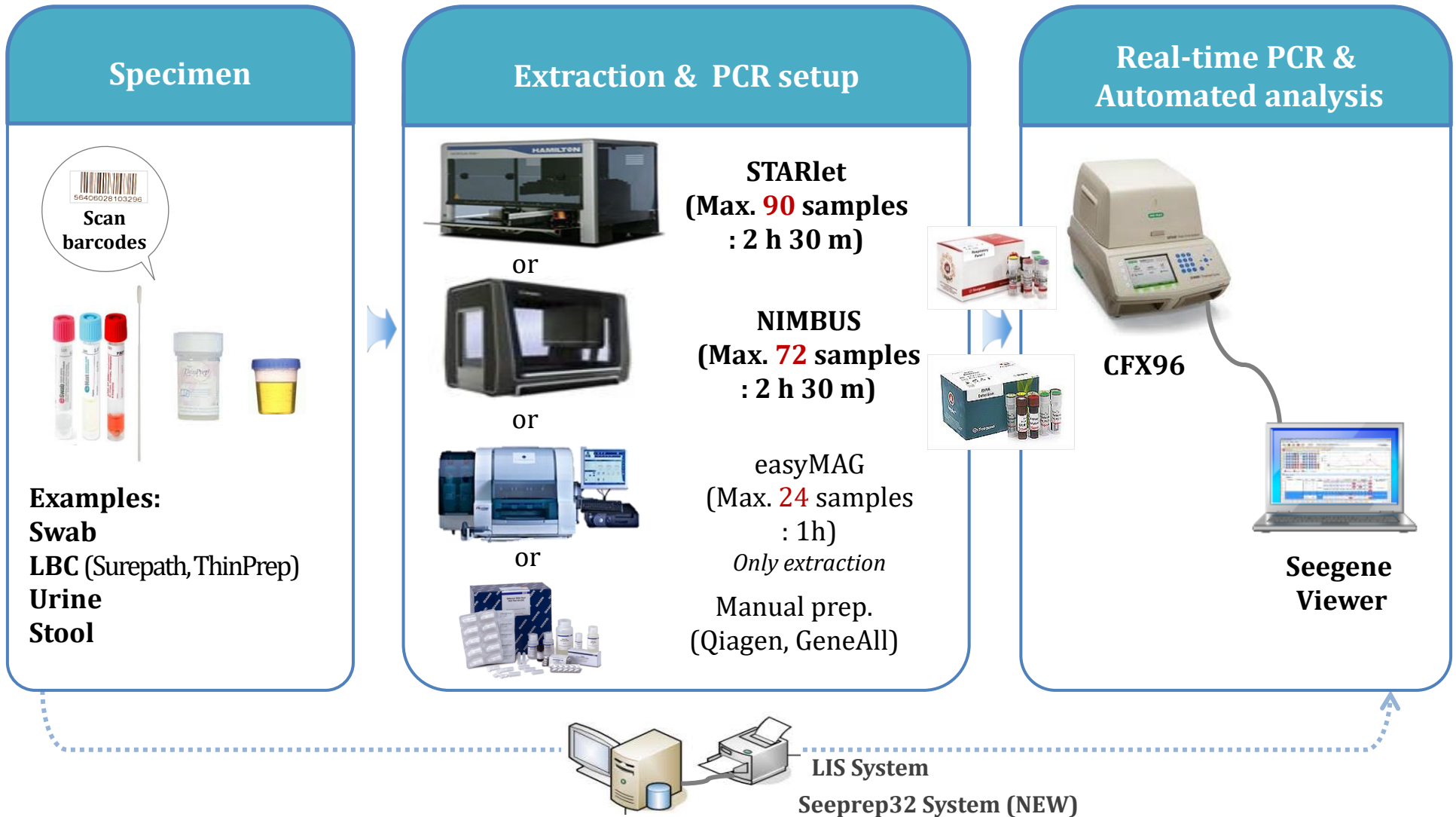
Product Pipeline & Global Certification



Classification	MFDS (KR)	CE (EU)	TGA (AU)	Health Canada	FDA (US)	COFERIS (Mexico)	Total
Certification	61	68	44	11	3	19	206

※ Cleared or in progress in 28 other countries

Workflow

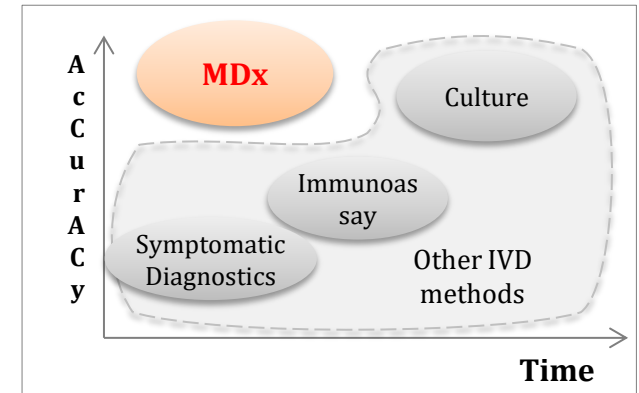
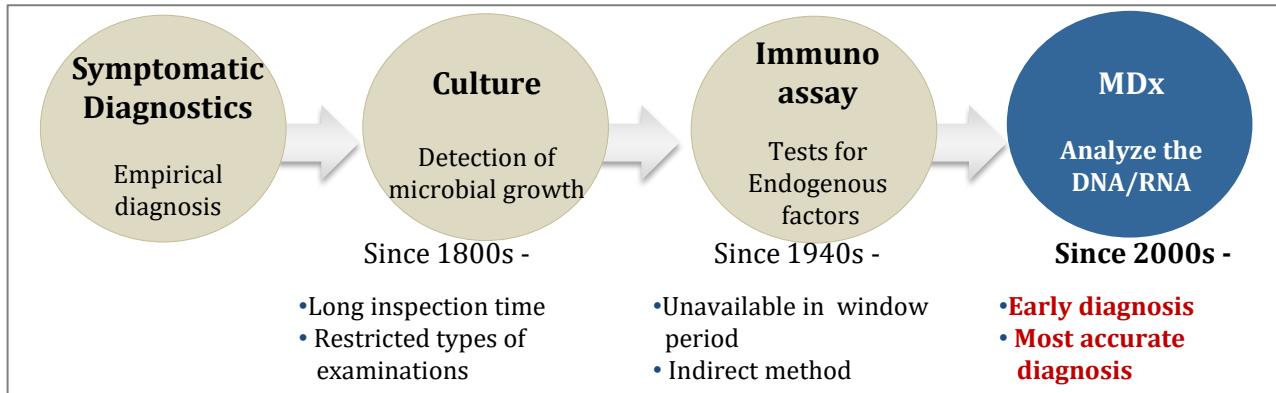


IVD (In-Vitro Diagnostics) Overview

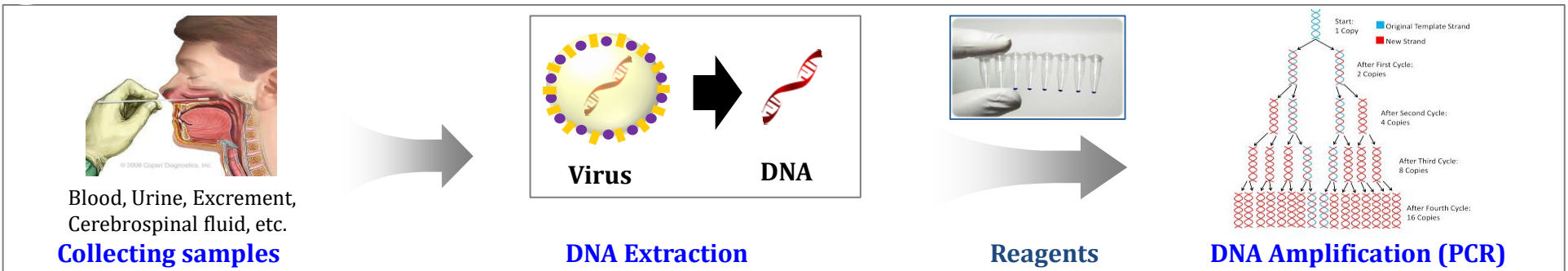
Classification of Diagnostics Methods

- 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

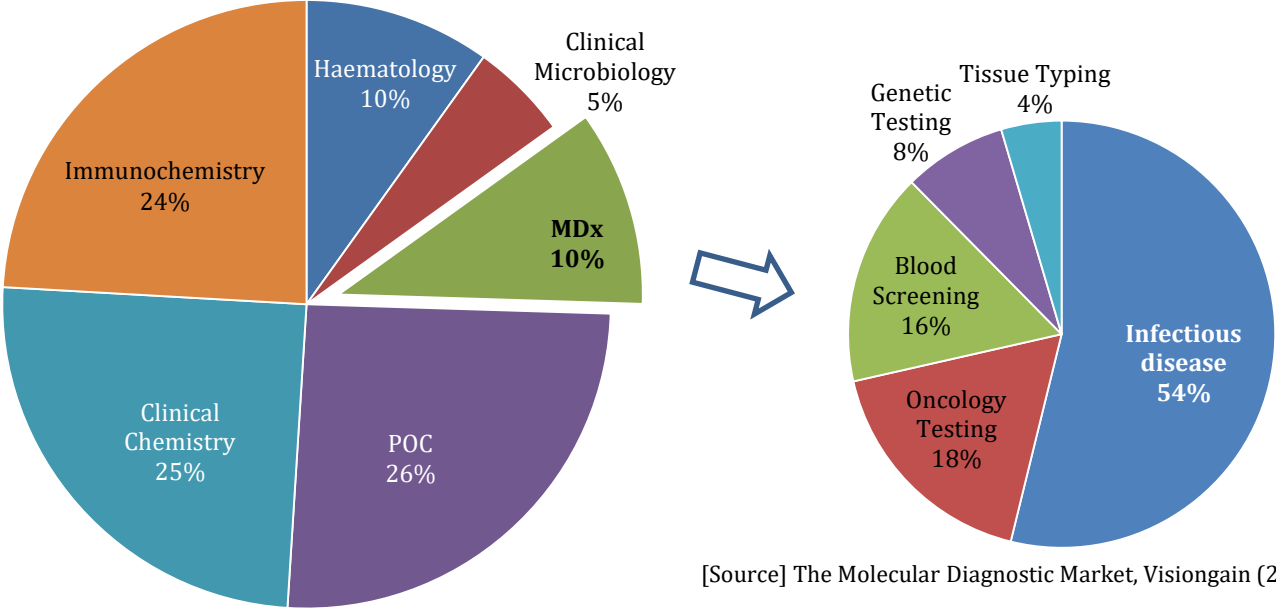


IVD Industry

In-Vitro Diagnostics Market: \$66,4bn(2018) → \$95bn(2025) / CAGR 6.7%

















More than 50% of MDx market: Infectious disease



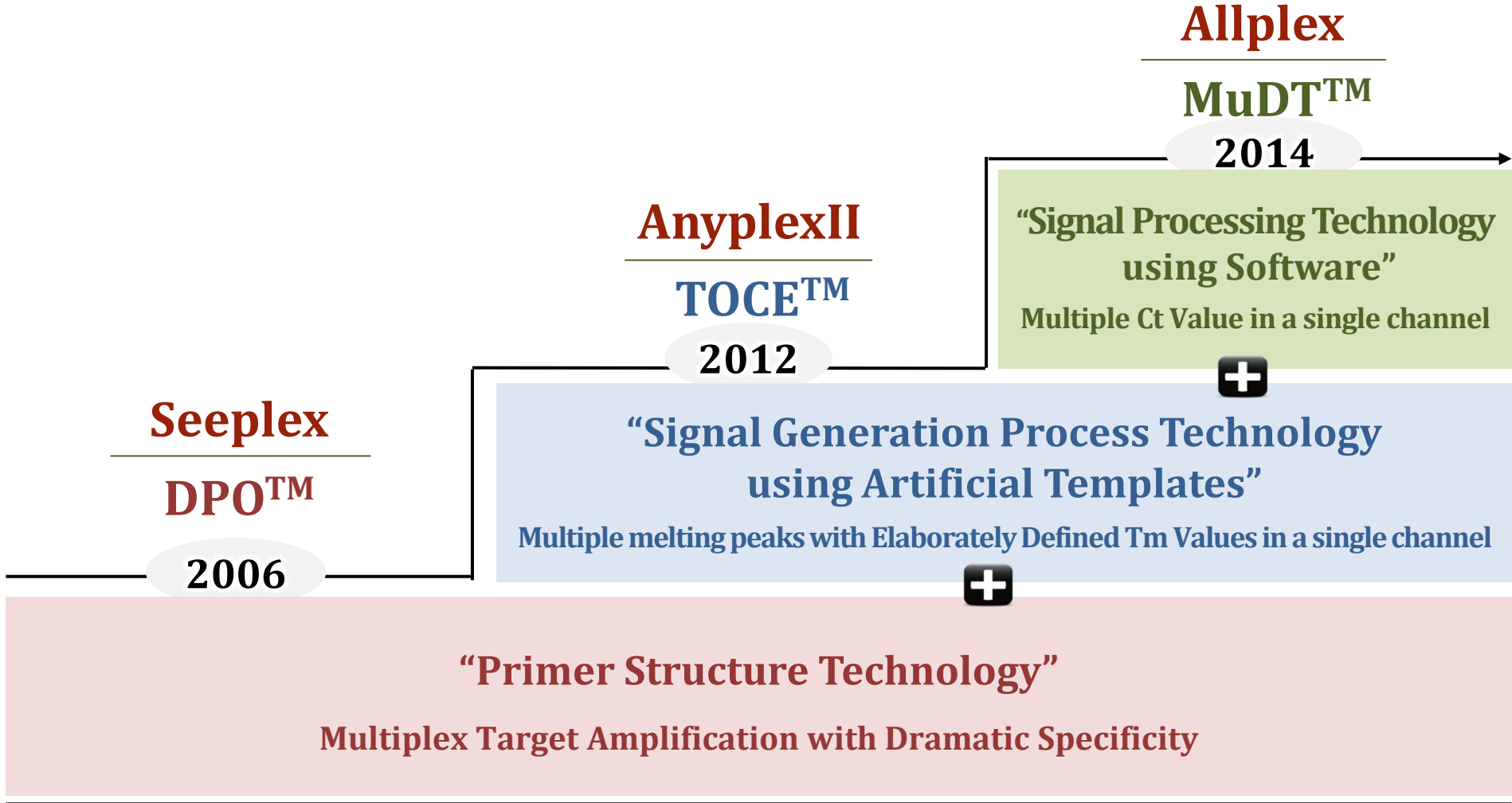
[Source] The Molecular Diagnostic Market, Visiongain (2017)

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				

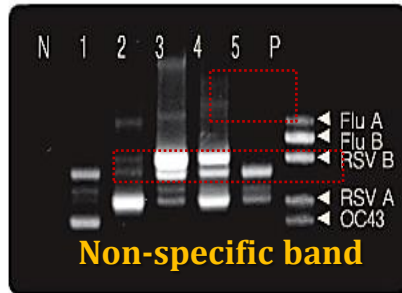
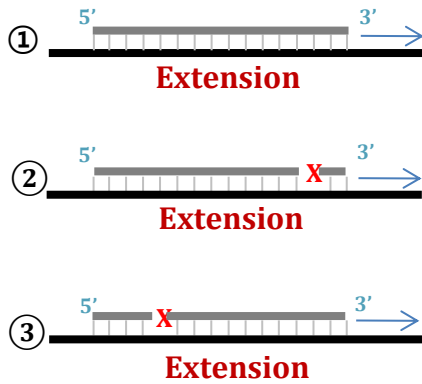
Seegene's Proprietary PCR Technologies



DPO™ (Dual Priming Oligonucleotide)

Conventional PCR

<Conventional Primer>

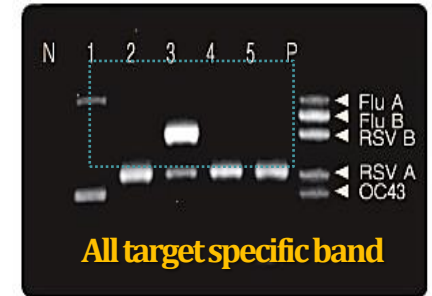
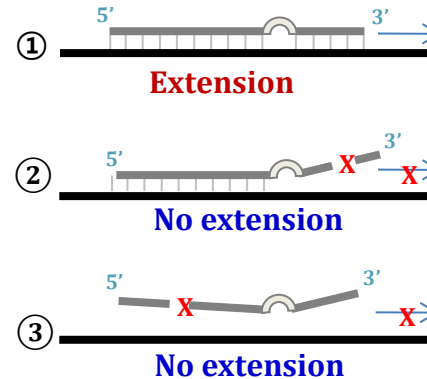


P: Positive marker N: Negative marker / Lane 1~5: patients

- Non-target genes are amplified together
- Limited multiplexing

DPO PCR

<DPO Primer>



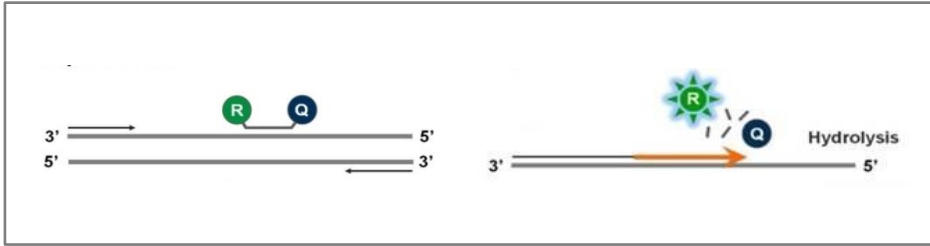
P: Positive marker N: Negative marker / Lane 1~5: patients

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

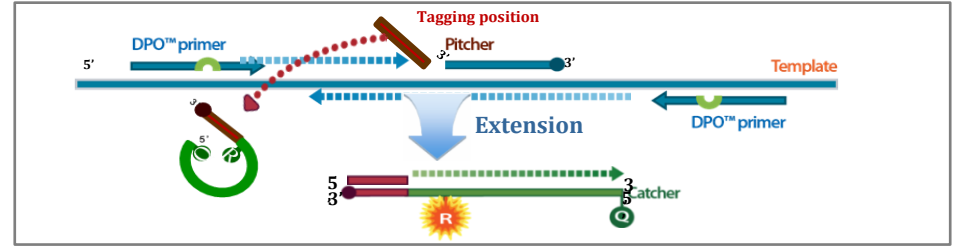
Multiplex + High Accuracy = Realization of Multiplex MDx

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

Melting curve Analysis

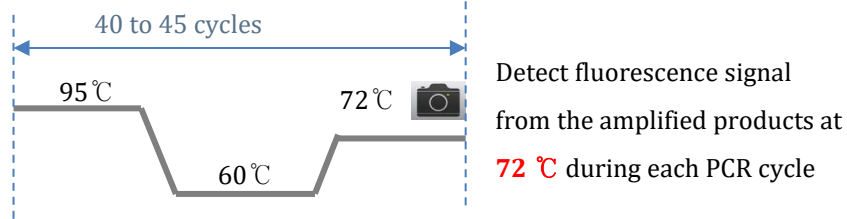
- Detection of 5 targets per a single channel
- Multiplex in a single channel using Catcher-Tm
- As sensitive as singleplex real-time PCR

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

MuDT™ (Multiple Detection Temperatures)

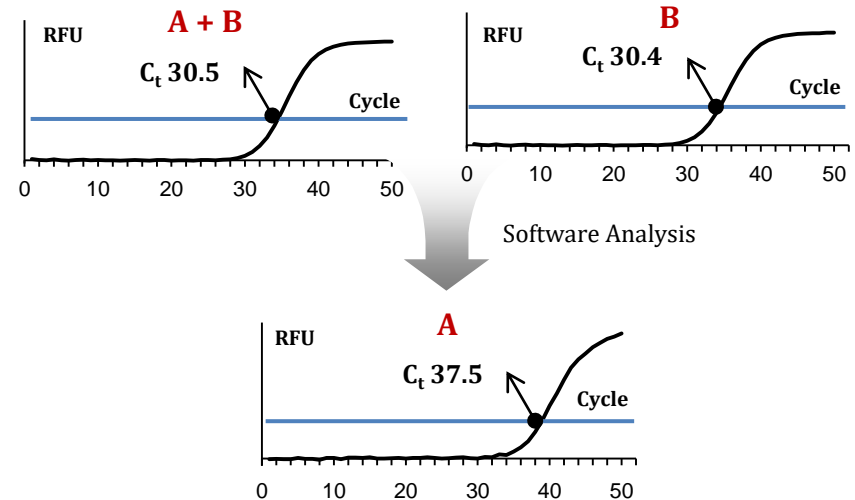
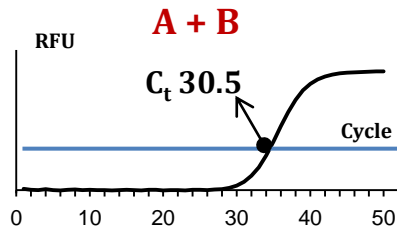
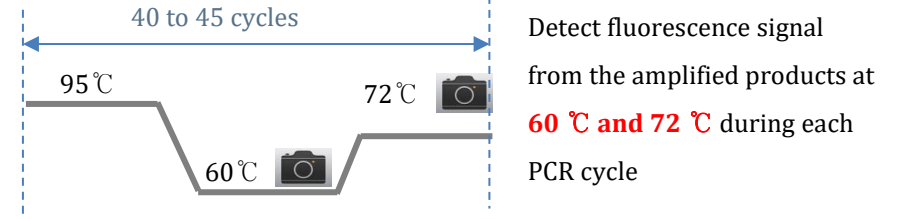
Conventional Real-time PCR

[PCR cycle]



MuDT Real-time PCR

[PCR cycle]



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