



Seegene 2016 Investor Relations

2016.06



Seegene Overview

Overview of Seegene

- CEO/CTO: Dr. Jong-Yoon Chun
- Established: Sept. 15, 2000
- Listed on KOSDAQ: Sept. 10, 2010
- Paid-in capital: KRW 13,117mn (as of Dec. 31, 2015)
- Number of employees: 243 (as of Dec. 31, 2015)
- Business area: Molecular Diagnostics(MDx)
- Key proprietary MDx technologies
: DPO™(2005), TOCE™(2011), MuDT™(2014)

Major Products

MDx Reagents



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

Instruments (OEM or re-sale)

Nimbus (Hamilton)

CFX96 (Bio-Rad)
Re-sale

OEM
[Extraction] [Real-time PCR]

Global Network

- Headquarter: Seoul, South Korea
- Foreign subsidiaries: Italy, UAE(Dubai), US, Canada
- Branch office : Germany
- Supplying reagents/instruments through 82 agencies
 - 21 distribution agencies in Korea
 - 61 distribution agencies in 55 overseas markets

Foreign subsidiaries & Branch office



Industry Overview

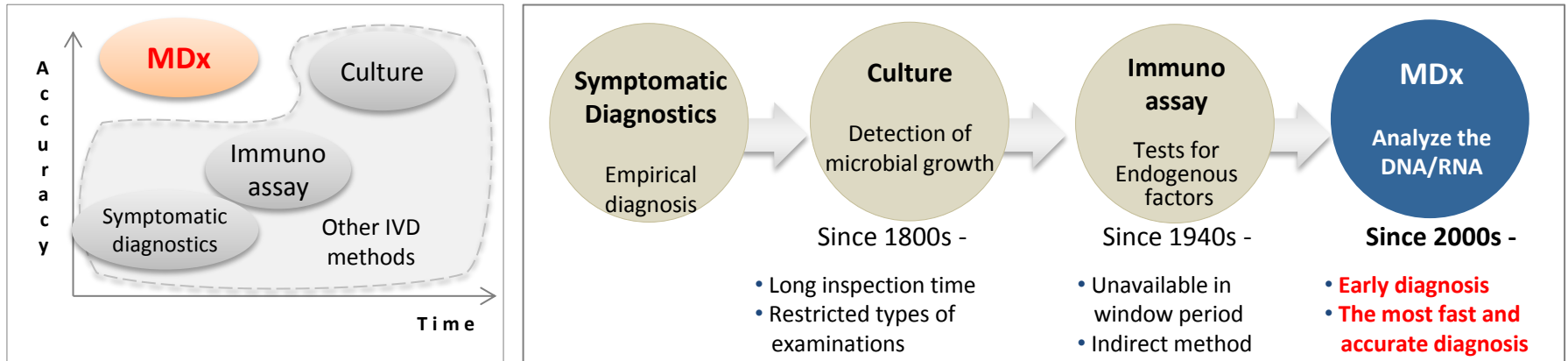
The image features a 3D model of a DNA double helix on the right side, rendered in a light blue and white color scheme. The background is a soft, light blue gradient with abstract, flowing, wave-like shapes that create a sense of movement and depth. The overall aesthetic is clean, modern, and scientific.

IVD Market

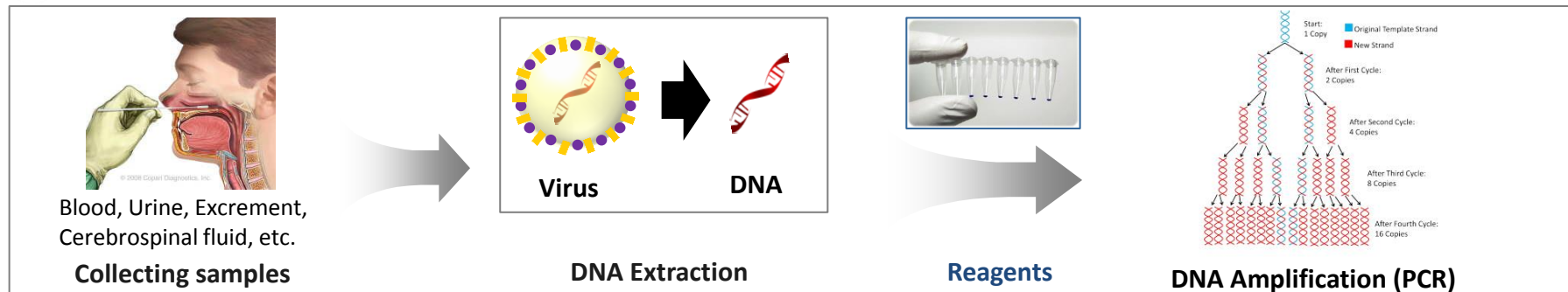
Classification of Diagnostics Methods

- 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



MDx Market Trend

Market Size of IVD & MDx Industry

Classification		Market Size					CAGR (%)	
		'12	'13	'14	'15	'16		'17
Global IVD Market (Unit : USD bn)		45.7	48.7	52.2	55.9	60.1	64.7	7.2
MDx Market	Global (Unit : USD bn)	5.0	5.6	6.3	7.2	8.1	9.1	12.6
	Korea (Unit : KRW bn)	57.7	64.9	73.0	82.6	93.5	106.4	13.0

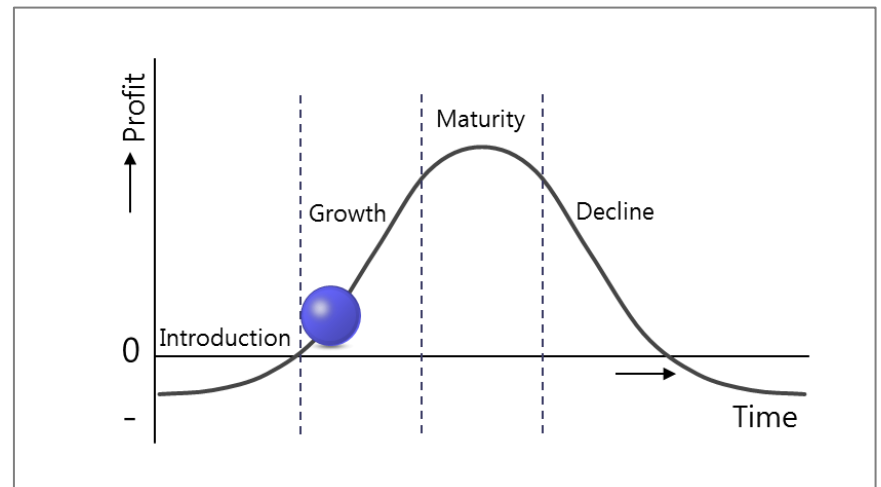
[Source] Analysis of the Global In Vitro Diagnostics Market, Frost & Sullivan(2013), Analysis of the Asia-Pacific Molecular Diagnostics Market, Frost & Sullivan(2013)

Application Fields of Molecular Diagnostics




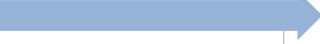

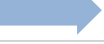








Classification		Share
Infectious disease		63%
Non-infectious disease	Cancer	20%
	Genetic disorder	9%
	Pharmacogenomics	8%

[Source] Molecular Diagnostics: Market Segmentation and Opportunities October 2010, DeciBio, Frost & Sullivan (2013)

MDx Industry Life Cycle



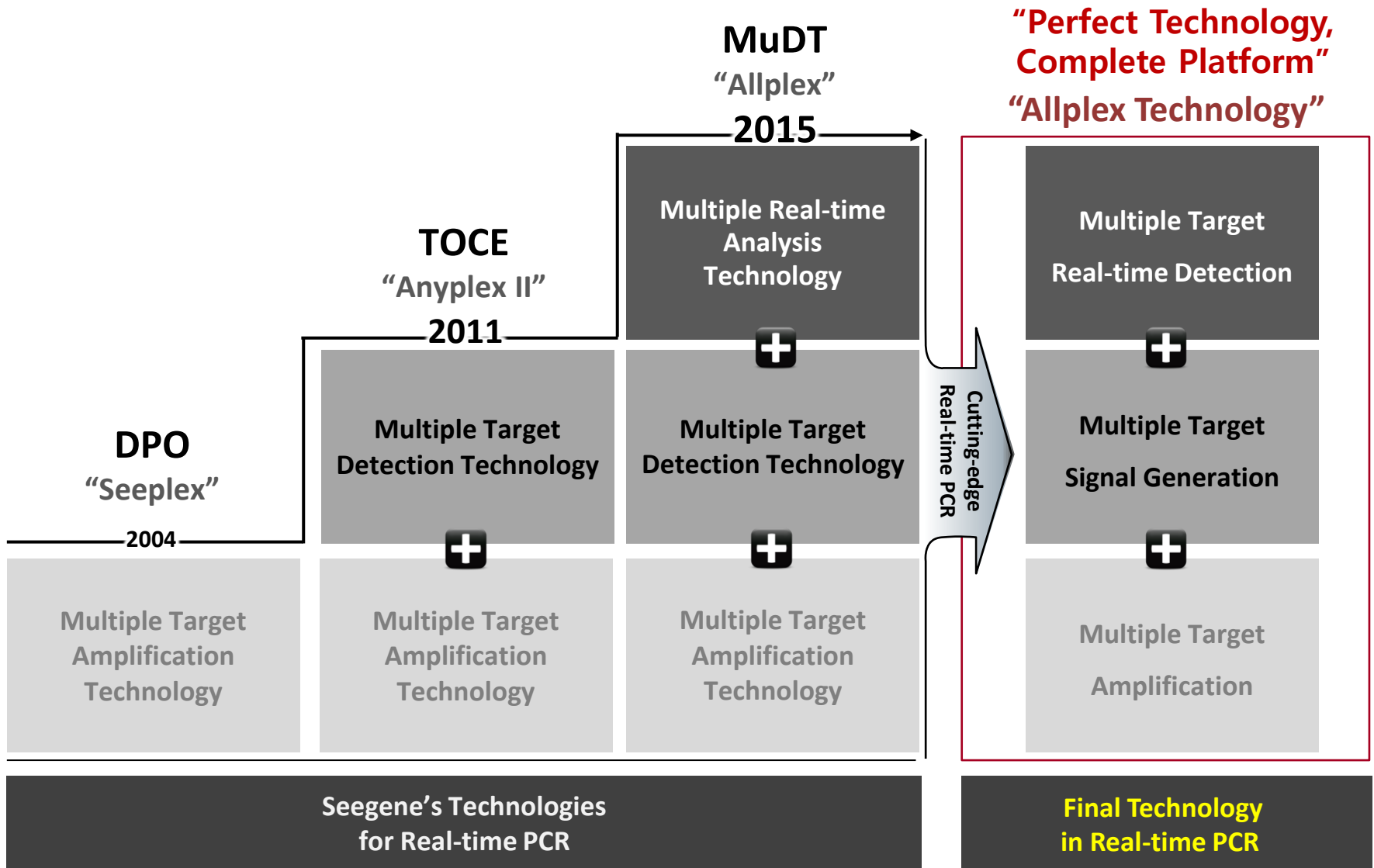
Competitive Positioning of Real-time PCR Technology

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				

Products & Pipeline



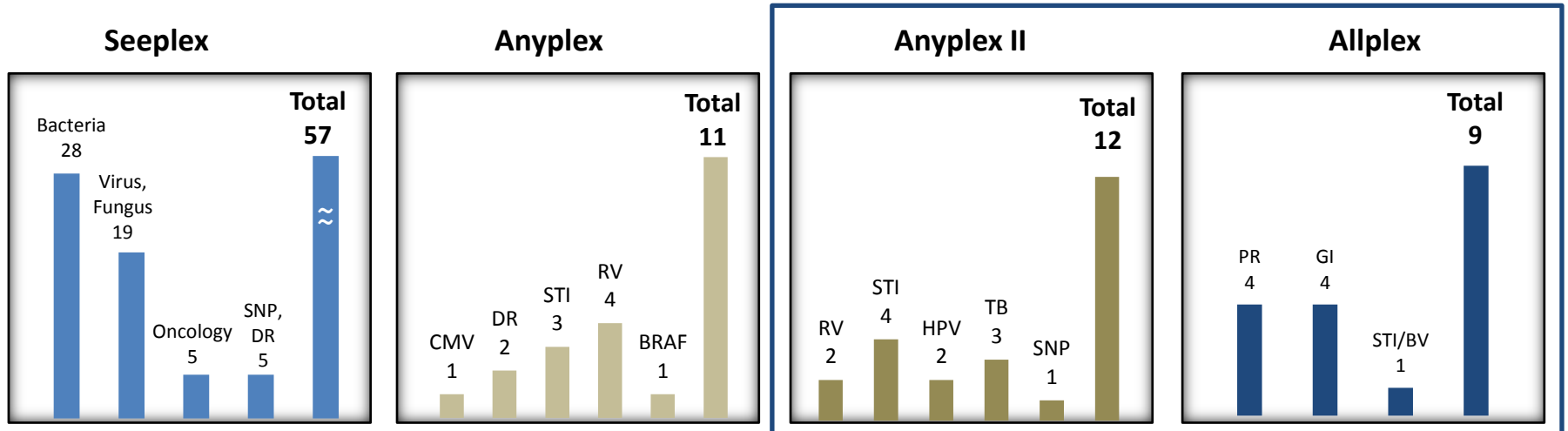
Technological Perfection of Real-time PCR



Commercialized Multiplex Product Line & Global Certification

Commercialized Multiplex Products

- Real-time PCR Platform
- Trend on the development of High-multiplex diagnostic reagents



Global Certification

Korea(MFDS)	EU(CE, CE0086)	Canada(Health Canada)	Australia(TAG)	U.S.(FDA)
58 items	48 items	10 items	17 items	1 items
<ul style="list-style-type: none"> • Class IV: 1 • Class III: 51 • Class II: 2 • Class I: 4 	<ul style="list-style-type: none"> • List B: 11 • Others: 37 	<ul style="list-style-type: none"> • Class III: 1 • Class II: 9 	<ul style="list-style-type: none"> • Class III: 17 • Class II: 4 	<ul style="list-style-type: none"> • 510(k)

※ Certified in other 16 countries

Trends in HPV Test for Cervical Cancer Screening

Comparison with Competitors' Cervical Cancer(HPV) Products



Performance Proved by Customers - WHO LabNet

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


Type of HPV assay	No. of datasets	100% proficient	99-90% proficient	89-80% proficient	<80 % proficient	Not proficient
All assays	146	86	16	9	5	30
Anyplex II HPV28 (Seegene)	10	10	0	0	0	0
Onclarity (BD)	5	4	1	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	1	2	1	1
CLART HPV 2/3 (Genomica)	4	0				
In- house PCR (Luminex)	8	3				
Realtime PCR (Abbott)	3	1				

- 100% proficiency at all 10 Lab participants.
- Detection of all 5 HPV subtypes and its multiple co-infection
- The best Results regarding Sensitivity, Specificity and Reproducibility

MuDT™ based Allplex™ Assay

**Allplex™
Respiratory Panel**

**4 Tubes
For
26 respiratory
pathogens**



The image shows a yellow assay tube with a white cap. The number '26' is prominently displayed on the tube. Below it, the text 'RESPIRATORY PATHOGENS' is visible. Two circular callouts are attached to the tube: one on the left labeled '19 Viruses' and one on the right labeled '7 Bacteria'.

**Allplex™
Gastrointestinal
Panel**


**4 Tubes
For
25 gastrointestinal
pathogens**



The image shows a yellow assay tube with a white cap. The number '25' is prominently displayed on the tube. Below it, the text 'GASTROINTESTINAL PATHOGENS' is visible. Three circular callouts are attached to the tube: one on the left labeled '6 Viruses', one in the middle labeled '13 Bacteria', and one on the right labeled '6 Parasites'.

**Allplex™
STI/BV Panel**

**4 Tubes
For
28 STI&BV
pathogens**



The image shows a yellow assay tube with a white cap. The number '28' is prominently displayed on the tube. Below it, the text 'STI/BV PATHOGENS' is visible. Three circular callouts are attached to the tube: one on the left labeled '7 Fungi', one in the middle labeled '17 Bacteria', and one on the right labeled '4 Viruses'.

※ Will be released in 2016

- **One Channel, Multi-Ct** : Provide Multi Ct(Quantitative info) in one Channel
- **Adjustable Panel Composition by purpose of use** : Full Panel / Selective Panel
- **Customized Diagnosis by Symptom** : Customized treatment by symptom, Virus/Bacteria Panel composition

Cost Saving

- Saving operation cost of laboratories
- Saving national medical cost
- Saving inspection cost of patients

Timely Diagnosis

- Effective treatment by detecting pathogens rapidly just a single test

Coinfection Detection

- Detect coinfection of pathogens
- Customized treatment

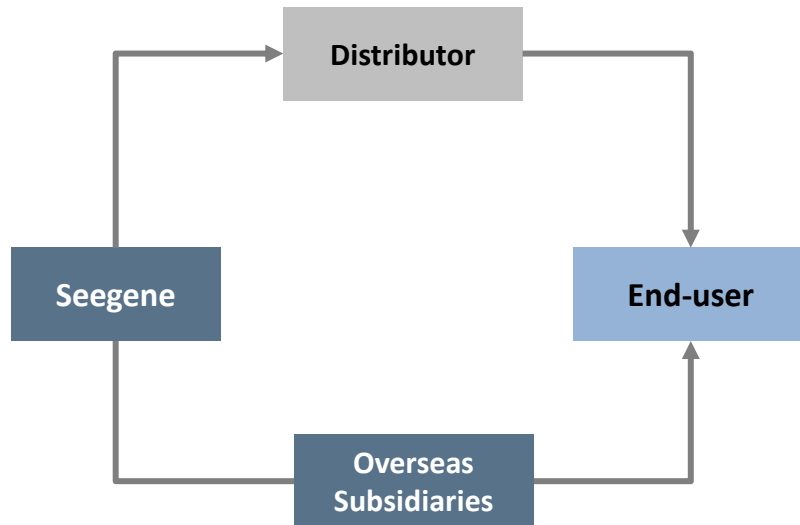
Business Strategy



Business Model

B2C

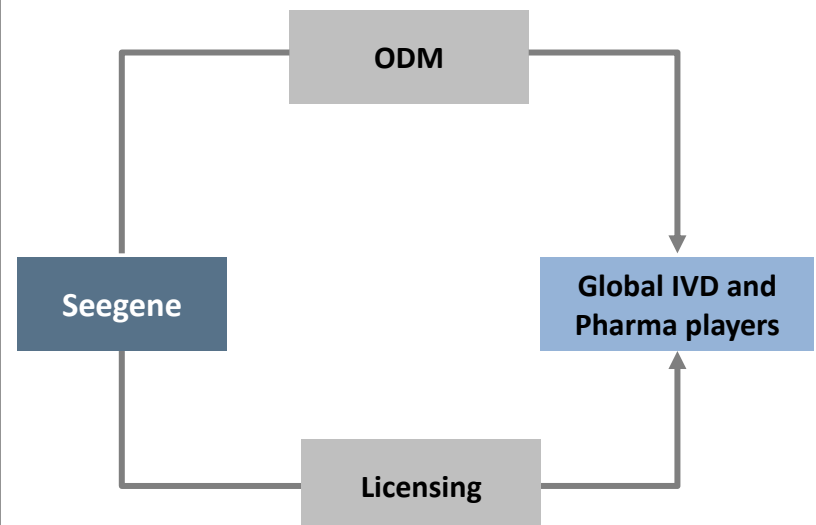
- Supplying reagents/instruments through 82 distribution agencies (21 in Korea, 61 in 55 overseas markets)



- Supplying reagents & instruments directly to some of major commercial laboratories in the U.S. and Europe
- Enhancing global direct sales channels through subsidiaries in Italy, Dubai and the U.S.

B2B

- Partner:    ...
Develop and supply reagents



- Partner:   
Food Safety testing Companion Diagnostics

ODM Partners

Partner	Beckman Coulter	Qiagen	Becton Dickinson
Contract date	2014.11.13	2015.07.09	2015.09.15
Sales(2015)	\$20.6bn(Danaher)	\$1.1bn	\$10.3bn(IVD \$1.3bn)
M/S	No.3 in IVD market(M/S 10.3%) No.1 in hematology market(M/S 33.3%)	No.3 in MDx market(M/S 11.6%) No.1 in HPV test market	No.4 in MDx market(M/S 9.2%) No.6 in IVD market(M/S 5.4%)



**Seegene's
Multiplex Assays**



**Seegene's
Multiplex Assays**



**Seegene's
Multiplex Assays**



**Seegene's
Multiplex Assays**



Rank of Global Companies

Global IVD Market

Rank	Company	M/S
1	Roche Diagnostics	18.3%
2	Siemens Healthcare	10.4%
3	Danaher(Beckman Coulter)	10.3%
4	Abbott	9.5%
5	ThermoFisher	6.2%
6	Becton Dickinson	5.4%
7	Alere	4.5%
8	Sysmex	3.7%
9	bioMerieux	3.6%
10	Ortho Clinical Diagnostics	1.8%
-	Others	26.3%

Global MDx Market

Rank	Company	M/S
1	Roche Diagnostics	25.2%
2	Hologic	14.4%
3	Qiagen	11.6%
4	Becton Dickinson	9.2%
5	Abbott	8.4%
6	Cepheid	5.5%
7	Siemens Healthcare	5.2%
-	Others	20.5%



Seegene
DPO + TOCE + MuDT = High Multiplex

“Next Generation Gold standard of MDx CR”

[Source] Evaluate MedTech(2015). Analysis of the Global In Vitro Diagnostics Market, Frost&Sullivan(2014)

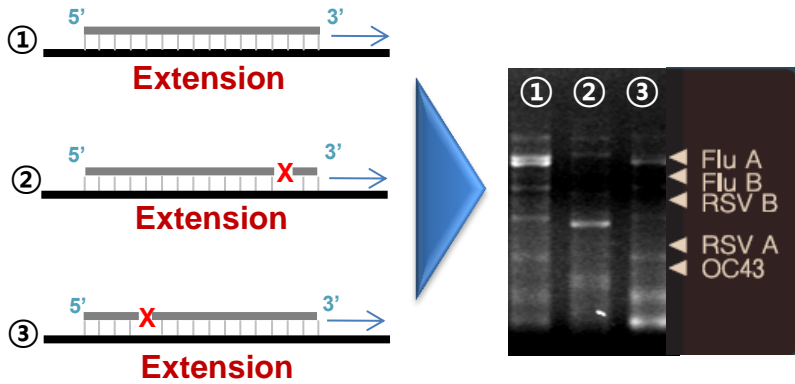
Key Proprietary Technologies



DPO™ (Dual Priming Oligonucleotide)

Conventional PCR

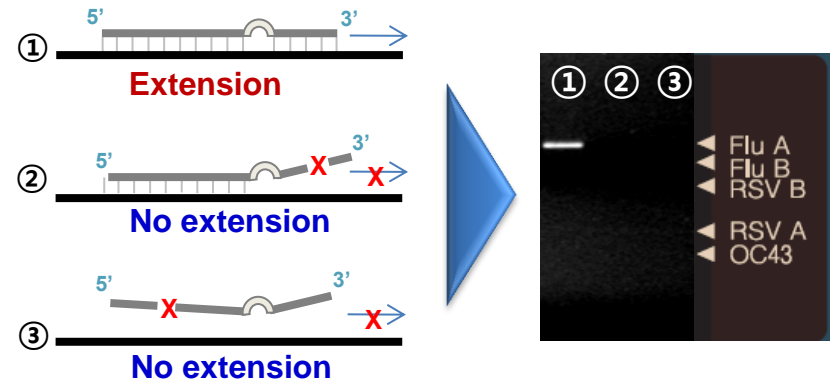
<Conventional Primer>



- Non-target genes are amplified together
- Limited multiplexing

DPO PCR

<DPO Primer>

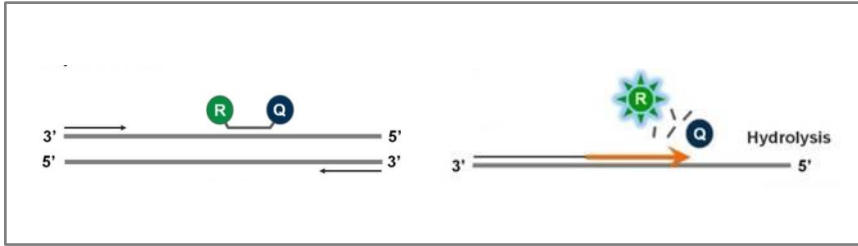


- Only the target gene is specifically amplified
- Highly reliable multiple target amplification

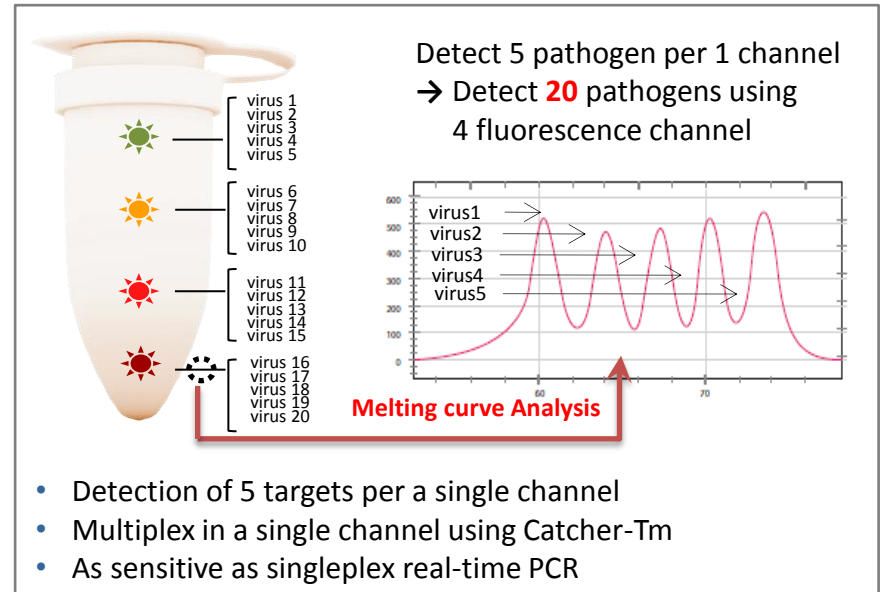
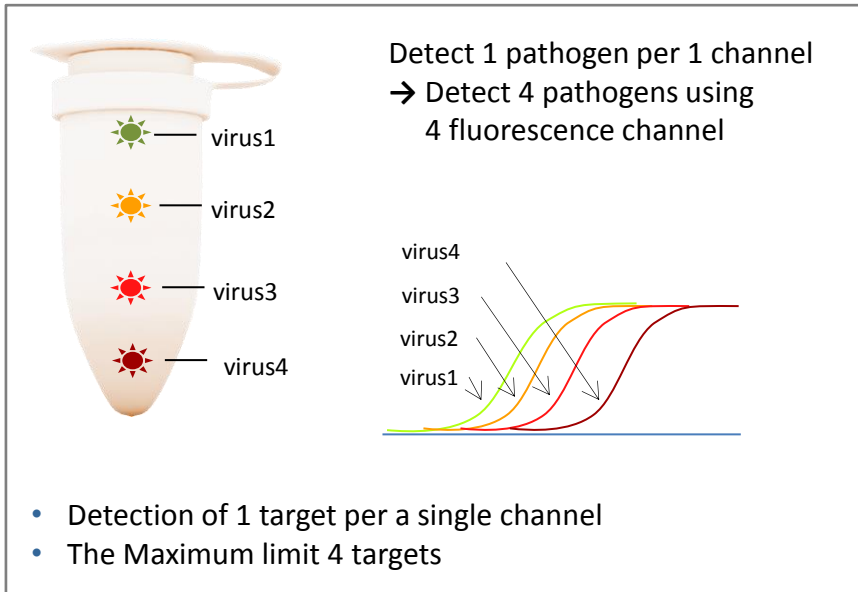
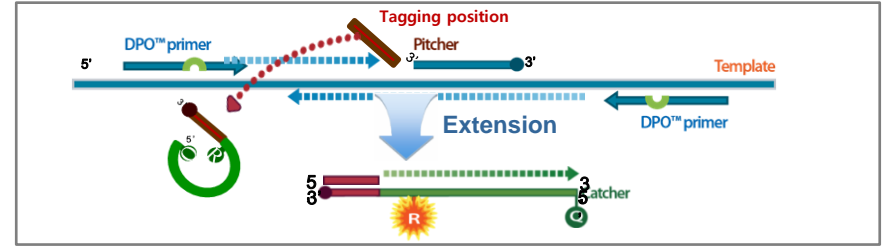
Multiplex + High Accuracy = Realization of Multiplex MDx

TOCE™ (Tagging Oligonucleotide Cleavage & Extension)

Conventional Real-time PCR



TOCE Real-time PCR

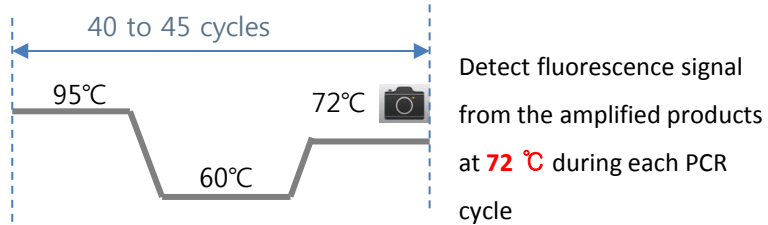


High Multiplex Real-time PCR + Quantitative Analysis(Melting Curve Analysis)

MuDT™ (Multiple Detection Temperatures)

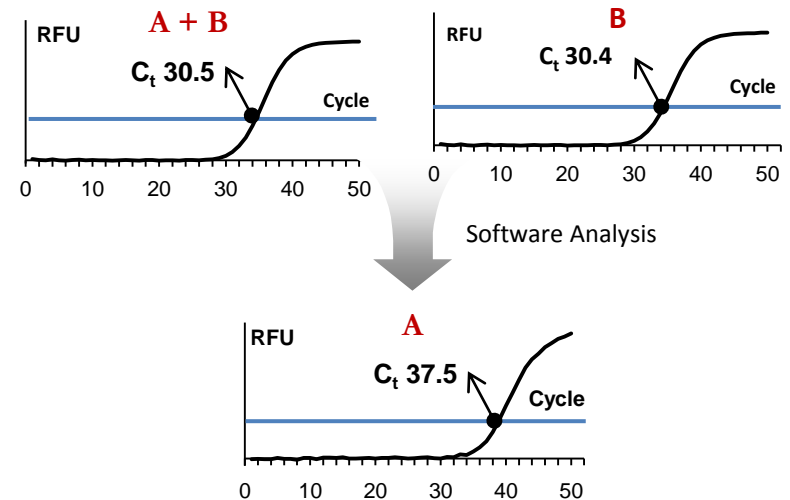
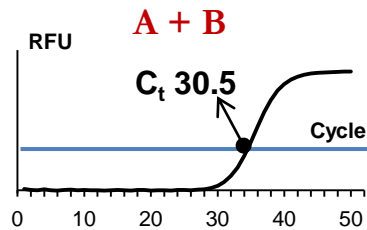
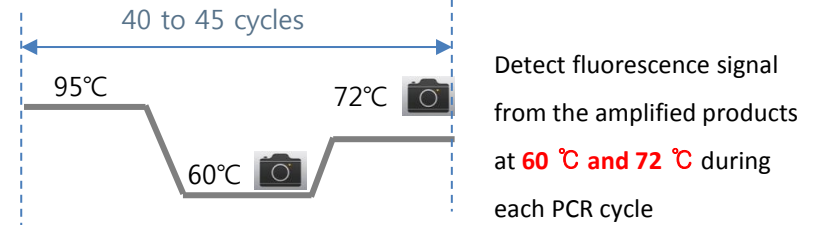
Conventional Real-time PCR

[PCR cycle]



MuDT Real-time PCR

[PCR cycle]



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

Financials



Stock Information

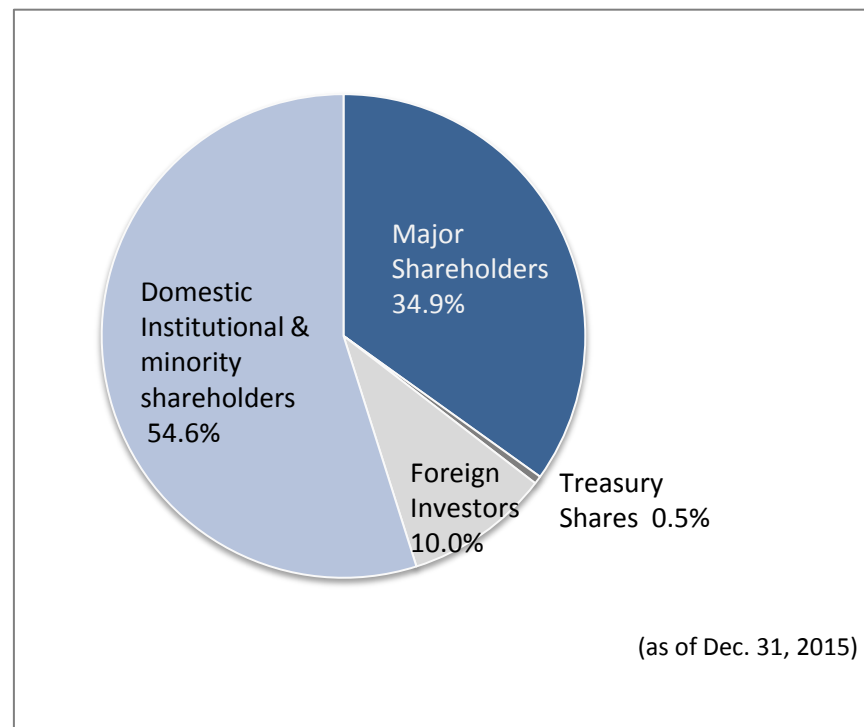
Overview of Stock Information

- Ticker : 096530 KQ
- Shares Outstanding: 26,234,020 (as of Dec. 31, 2015)
- Par value : KRW 500
- Market Cap: KRW 993bn (as of Dec. 31, 2015)
- Stock volume turnover: 262,400 per day
- 52 week High / Low : KRW 71,700 / 29,350

Subsidiaries

Subsidiary	Established
Arrow Diagnostics (Italy)	Jan, 2014
Seegene Middle East (UAE)	Oct, 2014
Seegene Technologies (USA)	Apr, 2015
Seegene Canada	July, 2015

Shareholder Structure



Major Shareholder	Ownership
CEO	18.1%
Related parties	16.8%

Key Figures

2016 Q1 Business Results (Consolidated)

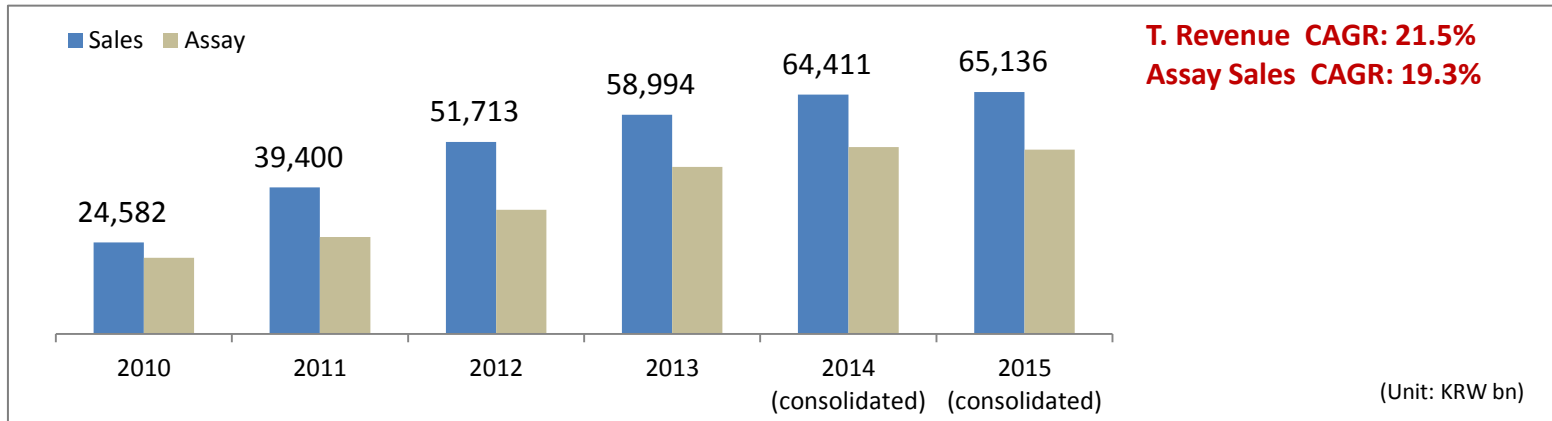
(Unit: KRW mn)	2016 Q1	2015 Q4	QoQ	2015 Q3	2015 Q2	2015 Q1	YoY	2015(YTD)
Revenue	17,232	16,976	1.5%	15,243	16,452	16,465	4.7%	65,137
Gross Profit	12,136	12,185	-0.4%	11,484	10,990	12,089	0.4%	46,748
SG&A	10,195	9,868	3.1%	10,121	9,040	9,081	12.3%	38,111
Operating Profit	1,941	2,317	-16.3%	1,363	1,950	3,008	-35.5%	8,637
Pre-tax Profit	1,547	210	636.7%	4,152	2,627	1,928	-19.8%	8,917
Net Profit	1,230	70	1657.1%	3,031	1,961	1,711	-28.1%	6,778

2016 Q1 Business Results (Non-Consolidated)

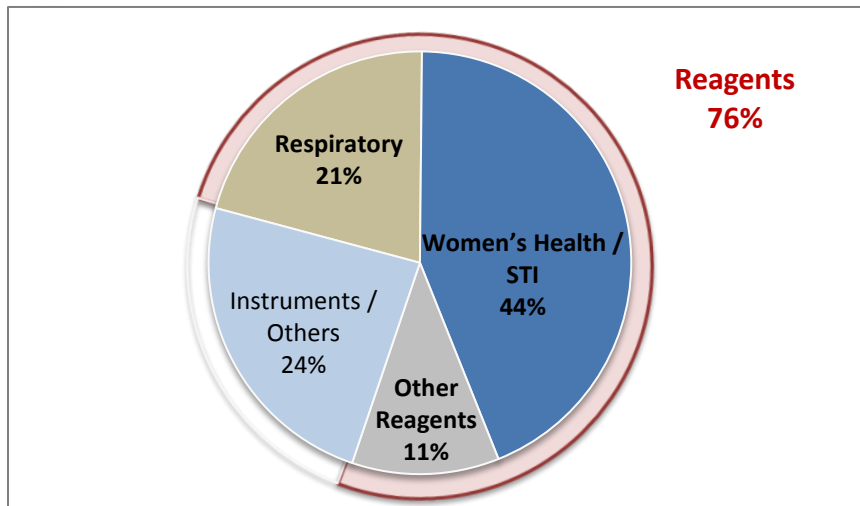
(Unit: KRW mn)	2016 Q1	2015 Q4	QoQ	2015 Q3	2015 Q2	2015 Q1	YoY	2015(YTD)
Revenue	13,402	13,471	-0.5%	13,120	14,170	13,103	2.3%	53,864
Gross Profit	9,757	10,376	-6.0%	10,119	10,128	10,066	-3.1%	40,688
SG&A	7,474	7,268	2.8%	7,962	7,039	7,357	1.6%	29,626
Operating Profit	2,283	3,108	-26.5%	2,157	3,089	2,709	-15.7%	11,063
Pre-tax Profit	1,792	1,036	73.0%	4,783	3,778	1,684	6.4%	11,281
Net Profit	1,655	1,022	61.9%	3,823	3,083	1,583	4.6%	9,512

Sales Breakdown

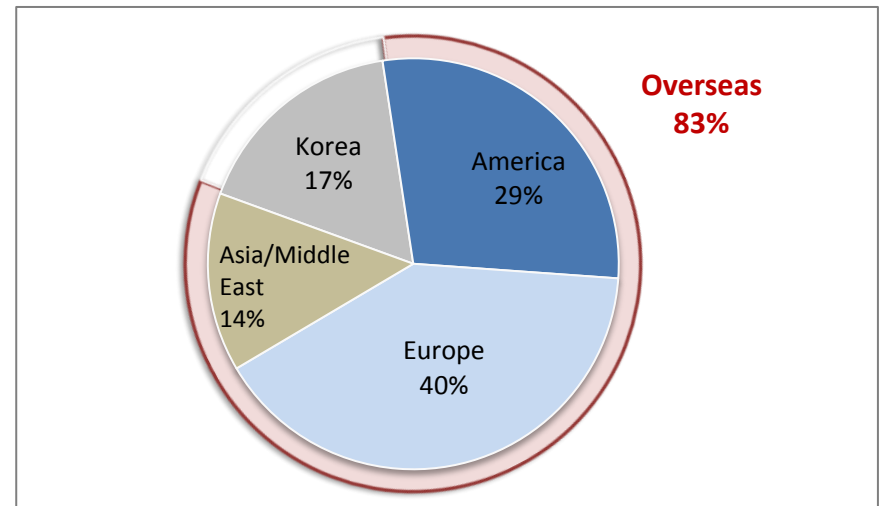
Total Revenue and Assay Sales Trend



Revenue by Product (2015)



Revenue by Geography (2015)



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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.

Forward-looking statements are not guarantees of performance and involve both known and unknown risks, uncertainties and assumptions that may impact actual results. Levels of activity, performance or achievements may differ materially from those expressed or implied.

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