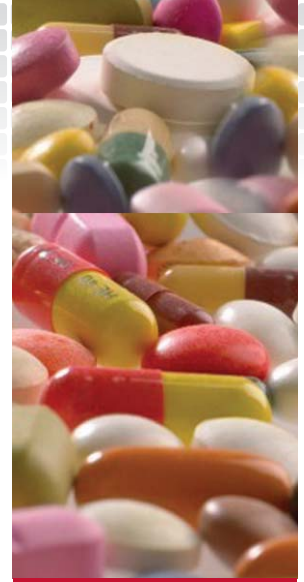




Research Use Only

## Drug Resistance



Drug  
Resistance

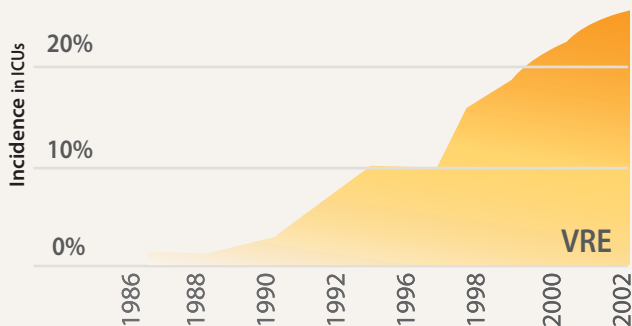
# TESTING FOR DRUG RESISTANCE

- 1 Vancomycin-resistant Enterococci Detection
- 2 Clarithromycin-resistant H. pylori Detection
- 3 Lamivudine-resistant HBV Detection



# The Emergence of Drug Resistance

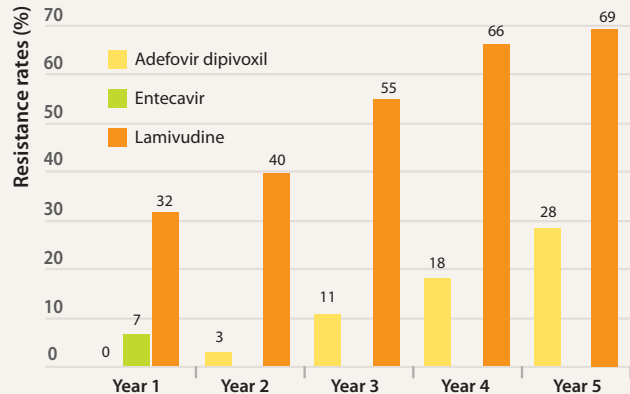
## Vancomycin Resistance



Source:  
National Nosocomial Infections Surveillance System of the CDC; data were collected from participating U.S. hospital intensive care units.

- [www.targanta.com](http://www.targanta.com)

## Lamivudine Resistance

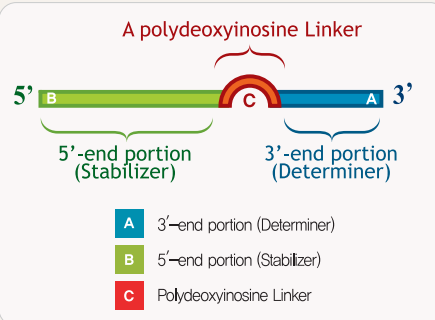


A summary of the resistance rates for lamivudine, adefovir dipivoxil, and entecavir (Treatment of chronic hepatitis B)  
Mohanty et al., Nature Clinical Practice Gastroenterology & Hepatology (2006) 3, 446-458.

# Tests for drug resistance should be rapid.

Drug resistance detection sets from Seegene employ **proprietary DPO™ technology developed by Seegene, which enables rapid testing using Seegene standard PCR methods.**

### Structure of DPO™



“Dual Priming Oligonucleotide (DPO) primer system that contains two separate priming regions connected by a polydeoxyinosine linker, prevents non-specific amplification without disturbing efficient amplifications of target sequences”

#### Reference

Chun, et al., Dual priming oligonucleotide system for the multiplex detection of respiratory viruses and SNP genotyping of CYP2C19 gene. *Nucleic Acids Research* 2007;35(6):e40

### Conventional Culture Method

- Long turnaround time
- Low culture yield

### Other Molecular Diagnostic Methods (ex. RFLP, RFMP, Sequencing etc.)

- High expertise is required
- Complicated procedure (Further experiments and specialized detection system are required)
- High cost

### PCR method using Seegene's DPO™

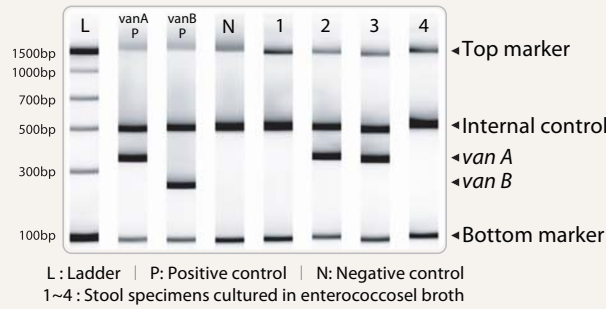
- Only PCR is required
- Automatic detection using capillary electrophoresis instruments
- Early detection
- Reliable results
- Reasonable cost

Product	Cat. No.	Size	Sample Types
VRE ACE Detection	VR1210Y	50 rxns	Stool sample cultured in Enterococcosel Broth
ClaR-H. pylori ACE Detection	HC1210Z	25 rxns	Biopsy
HBV Lami-resistant ACE	BV1410Z	25 rxns	Serum & Plasma

\* ScreenTape® System (Lab901, Ltd.) was used for detection.

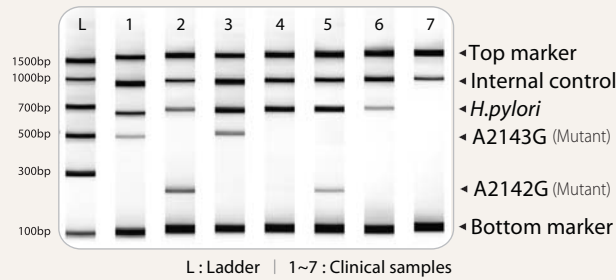
## Test for Vancomycin Resistance > van A, van B Seeplex® VRE ACE Detection

**VRE Detection** : Test for *van A*, *van B* for Vancomycin (the antibiotic for *Enterococcus* spp.) resistance



## Test for Clarithromycin Resistance > A2143G, A2142G Seeplex® ClaR-H. pylori ACE Detection

**ClaR-H. pylori Detection** : Test for point mutations (A2143G, A2142G) that cause Clarithromycin (the antibiotic for *H. pylori*) resistance

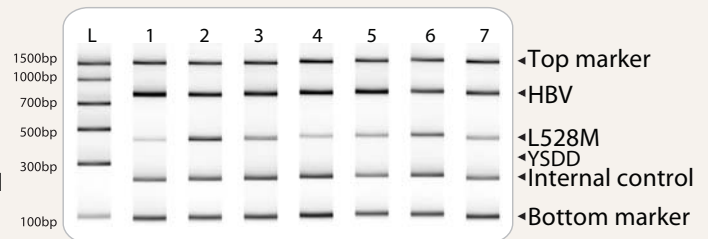
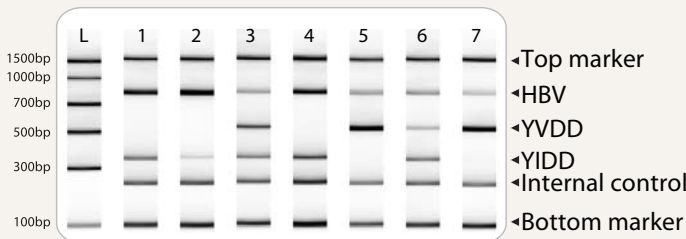


## Test for Lamivudine Resistance > YVDD, YIDD, L528M, YSDD Seeplex® HBV Lami-resistant ACE

**HBV Lami-resistant** : Test for four types of mutants (YVDD, YIDD, L528M, YSDD) that cause Lamivudine-resistance in HBV

**HLT Primer1** : YVDD, YIDD detection

**HLT Primer2** : L528M, YSDD detection



Sample ID	B2-MLT14	C2-MLT12	D2-MLT13	E2-MLT14	F2-MLT16	G2-MLT16	H2-MLT17
HBV	+	+	+	+	+	+	+
YVDD	-	-	-	-	-	-	-
L528M	-	-	-	-	-	-	-
YIDD, YSDD	+	+	+	+	-	-	-
IC	+	+	+	+	+	+	+
Unidentified	0	0	0	0	0	0	0

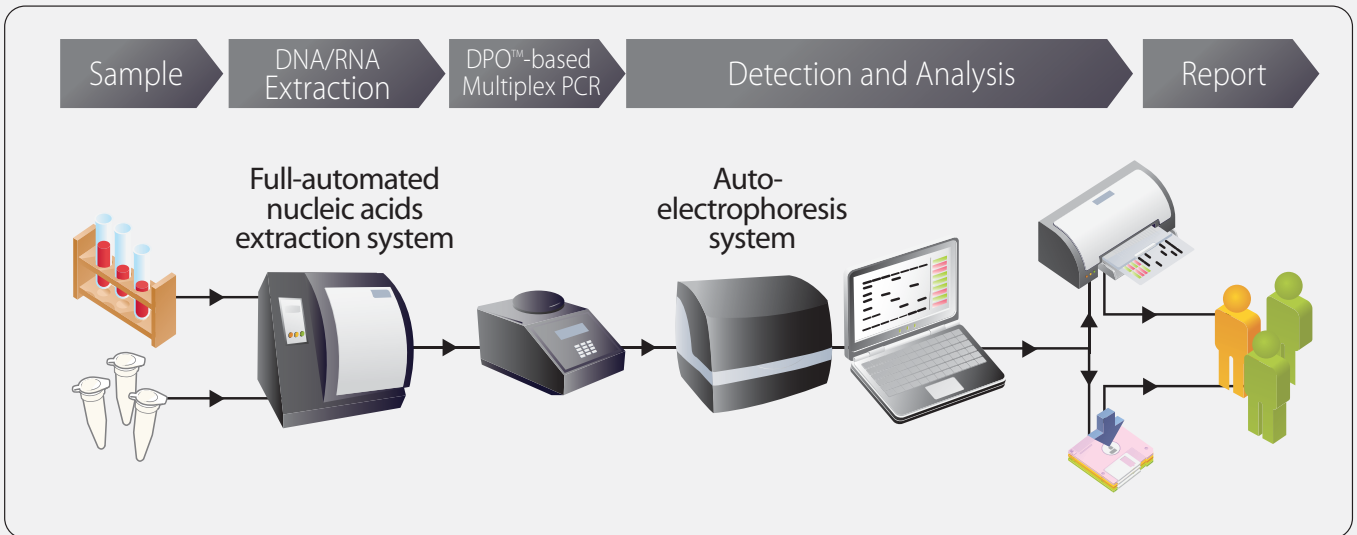
Sample ID	B2-MLT21	C2-MLT22	D2-MLT23	E2-MLT24	F2-MLT26	G2-MLT26	H2-MLT27
HBV	+	+	+	+	+	+	+
YVDD	-	-	-	-	-	-	-
L528M	+	+	+	+	+	+	+
YIDD, YSDD	-	-	-	-	-	-	-
IC	+	+	+	+	+	+	+
Unidentified	0	0	0	0	0	0	0

Positive (Red)  
Negative (Green)

\* Test results were obtained using HLT Primer1 & HLT Primer2 on sample #1~7.

**Reference**  
J.-K. Kim et al., Direct detection of lamivudine-resistant hepatitis B virus mutants by a multiplex PCR using dual-priming oligonucleotide primers. *Journal of Virological Methods*, 149 (2008) 76-84

# ■ Seeplex® System for Automatic Detection



## ■ Seeplex® Key Products

<b>Sepsis</b>	Group Screening for 64 Sepsis-causing Pathogens Identification of 25 Sepsis-causing Pathogens Discrimination of 4 Drug Resistance Genes
<b>Respiratory Pathogen</b>	Detection of 12, 6, or 7 Respiratory viruses Detection of 6 Pneumonia bacteria Detection of 13 Respiratory viruses and 5 Pneumonia bacteria
<b>HPV</b>	Detection of 18 HPV types (13 high-risk and 5 low-risk HPV Types) Screening for HPVs (16, 18, High-risk, and Low-risk common) Screening for 2 STD pathogens (CT, NG) and HPVs (High-risk, Low-risk common) Genotyping of 6 HPV types (Pre-screening for HPV vaccination)
<b>STD</b>	Detection of 9, 7, 6, or 4 STD pathogens Screening for 2 STD pathogens (CT, NG) and HPVs (High-risk, Low-risk common)
<b>Drug Resistance</b>	Detection of Vancomycin-resistant Enterococci (van A, van B) Detection of Clarithromycin-resistant H. pylori (A2143G, A2142G) Detection of Lamivudine-resistant HBV (YVDD, YIDD, L528M, YSDD)
<b>SNP</b>	MTHFR C677T/A1298C genotyping CYP2C19 genotyping ApoE genotyping
<b>TB</b>	MTB and NTM discrimination for culture specimens MTB and M. bovis BCG discrimination for various specimens MTB Detection for various specimens (Nested PCR or Single PCR)

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