# IL28B SNP genotyping

Dr.Shamma Shetye

- HCV ---
- HCV diagnosis—
- HCV viral load---
- HCV genotyping---
- Genotypes 1,4---24-48 weeks
- Genotypes 2,3---12-24 weeks
- SVR,Sustained virologic response
- **Week 12 <2log dec,Week 24 detect**

**Table 2. Monitoring of on-therapy response to PEG IFN plus ribavirin.**

| | |
|---|---|
| Sustained virological response (SVR) | Undectable HCV RNA level (<50 IU/ml), 24 weeks after treatment |
| Rapid virological response (RVR) | Undectable HCV RNA in a sensitive assay (lower limit of detection ≤50 IU/ml) at week 4 of therapy, maintained up to end of treatment |
| Early virological response (EVR) | HCV RNA detectable at week 4 but undetectable at week 12, maintained up to end of treatment |
| Delayed virological response (DVR) | More than 2 $\log_{10}$ drop but detectable HCV RNA at week 12, HCV RNA undetectable at week 24, maintained up to end of treatment |
| Null response (NR) | Less than 2 $\log_{10}$ IU/ml decrease in HCV RNA level from baseline at 12 weeks of therapy |
| Partial nonresponse (PR) | More than 2 $\log_{10}$ IU/ml decrease in HCV RNA level from baseline at 12 weeks of therapy but detectable HCV RNA at weeks 12 and 24 |
| Breakthrough (BT) | Reappearance of HCV RNA at any time during treatment after virological response |

Treatment should be stopped at week 12 if the HCV RNA decrease is less than 2 $\log_{10}$ IU/ml, i.e. if the baseline HCV RNA level is reduced by less than 99% of the baseline value, as the SVR rate in these patients with standard treatment duration is less than 2%. In patients with detectable HCV RNA (⩾50 IU/ml) at week 24, treatment should also be stopped due to a minimal chance of SVR (1–3%) [55,78,91,92].

Patients with a more than 2 $\log_{10}$ drop or an undetectable HCV RNA at week 12 can be classified into three groups according to their virological response (Table 2): (1) rapid virologic response

(iv) In patients infected with HCV genotypes 2 and 3 with an RVR and low baseline viral load (<400,000–800,000 IU/ml), shortening of treatment duration to 16 weeks can be considered at the expense of a slightly higher chance of post-treatment relapse [81,101–104].

(v) In patients with HCV genotypes 2 and 3 who have advanced fibrosis, cirrhosis or cofactors affecting response (insulin resistance, metabolic syndrome, non-viral steatosis) shortening of treatment duration to 16 weeks should not be considered even if they have low baseline viral

- Interleukin 28B gene present on chromosome 19.
- SNP single nucleotide polymorphism
- Alleles…C or T,
- CC
- CT
- TT

TEST REF

DINESH KUMAR

Age:48.00 Years Sex:MALE

**Reference:Dr.SAMIR SHAH**

Sample Collected At:
DR MEETA ADHIYA
410 DOCTOR HOUSE , 14 PEDDER ROAD
MUMBAI 400026
**Zone 24**

**SID: 1116**
Collecte
16/11/2011 08:0
Registere
16/11/2011 08:0
Reporte
07/12/2011 05:1

## IL28B SNP Genotyping Test

**TEST NAME:** IL28B SNP Genotyping Test

**METHOD:** DNA isolation followed by PCR amplification and SNP genotyping by direct sequencing

**TEST RESULT:** **GENOTYPE "TT" DETECTED**

**TEST INDICATION:** IL28B gene screening in patients with HCV infection

**TEST DETAILS:**

* rs12979860 is a SNP near the IL28B gene, encoding interferon lambda 3 (IFN lambda 3)

## IL28B SNP Genotyping Test

| | |
|---|---|
| **TEST NAME:** | IL28B SNP Genotyping Test |
| **METHOD:** | DNA isolation followed by PCR amplification and SNP genotyping by direct sequencing |
| **TEST RESULT:** | **GENOTYPE " CC " DETECTED** |
| **TEST INDICATION:** | IL28B gene screening in patients with HCV infection |

**TEST DETAILS:**

- **rs12979860 is a SNP near the IL28B gene, encoding interferon-lambda-3 (IFN-lambda-3).**
- The IL28b SNP genotyping test detects the rs12979860 C/T variant upstream of the IL28B gene. **The presence of cytosine (C) is associated with an approximate two-fold improved response rate across** ethnicities compared to thymine (T) at the same position.
- **rs12979860 is the critical predictor for rapid, early and sustained virological response along with end of** treatment in patients of GT1-HCV chronic infection.
- **This test has been developed and its performance validated at Molecular Biology Department,** Metropolis Healthcare Ltd.

**CLINICAL SIGNIFICANCE:**

**Single nucleotide polymorphisms (SNPs) of interleukin-28B (IL28B) have received considerable interest for their** association with sustained virological response (SVR) when treating patients of genotype-1 hepatitis C virus **(GT1-HCV) chronic infection with pegylated interferon and ribavirin (PegIFN/RBV). Patients with rs12979860 SNP** genotypes CC respond to treatment atleast 2 - 3 fold more likely when compared to patients with CT / TT genotypes.

**LIMITATION OF ASSAY:**

**Presence of PCR inhibitors in the sample prevents DNA amplification for IL28b SNP Genotype.**

**REFERENCE:**


1. Thomas DL, Thio CL, Martin MP, et. al., 2009. Nature 461: 798-801.
2. **Alestig E, Arnholm B, Eilard A, et. al., 2011. BMC Infectious Diseases 11:124**

# TEST REPORT

ASGAR IMAM-1334812

Age:33.00 Years Sex:MALE

Reference:Dr.

Sample Collected At:
R & D
REX CHEMBURS, ROOM#83 GROUND FLR,
WH MARG MUMBAI 01,
Zone 007

SID: 111850783
Collected On:
07/02/2012 11:18 AM
Registered On:
07/02/2012 11:18 AM
Reported On:
10/02/2012 06:09 PM

## IL28B SNP Genotyping Test

**TEST NAME:** IL28B SNP Genotyping Test

**METHOD:** DNA isolation followed by PCR amplification and SNP genotyping by direct sequencing

**TEST RESULT:** **GENOTYPE "CT" DETECTED**

**TEST INDICATION:** IL28B gene screening in patients with HCV infection

**TEST DETAILS:**

- **rs12979860 is a SNP near the IL28B gene, encoding interferon-lambda-3 (IFN-lambda-3).**
- The IL28b SNP genotyping test detects the rs12979860 C/T variant upstream of the IL28B gene. **The presence of cytosine (C) is associated with an approximate two-fold improved response rate across** ethnicities compared to thymine (T) at the same position.
- **rs12979860 is the critical predictor for rapid, early and sustained virological response along with end of** treatment in patients of GT1-HCV chronic infection.
- **This test has been developed and its performance validated at Molecular Biology Department,** Metropolis Healthcare Ltd.

**CLINICAL SIGNIFICANCE:**

**Single nucleotide polymorphisms (SNPs) of interleukin-28B (IL28B) have received considerable interest for their** association with sustained virological response (SVR) when treating patients of genotype-1 hepatitis C virus **(GT1-HCV) chronic infection with pegylated interferon and ribavirin (PegIFN/RBV). Patients with rs12979860 SNP** genotypes CC respond to treatment atleast 2 - 3 fold more likely when compared to patients with CT / TT genotypes.

**LIMITATION OF ASSAY:**

**Presence of PCR inhibitors in the sample prevents DNA amplification for IL28b SNP Genotype.**

**REFERENCE:**


1. Thomas DL, Thio CL, Martin MP, et. al., 2009. Nature 461: 798-801.
2. **Aleslig E, Arnholm B, Ellard A, et. al., 2011. BMC Infectious Diseases 11:124**


End of Report



DR SANDEEP WARGHADE
MBBS, MD (PATHOLOGY)

*Refer to conditions of reporting overleaf* ***Referred Test* *Results relate only to the sample as received*

CAP ACCREDITED

METROPOLIS
EXCELLENCE IN DIAGNOSTICS

- **Test Details:**
- **Sample Type**: 2 ml EDTA whole Blood
- **Transportation:** Whole blood is shipped in ambient (18-26 ° C) temperature. Do not freeze whole blood.
  **Methodology**: Conventional PCR followed by sequencing
- **Turn around Time:** Daily batch and reporting 10th Day.

- IL28B is a strong predictor of treatment outcome of chronic hepatitis C.
- Studies have shown that patients with CC genotype have twofold likelihood of SVR as compared to CT and TT.
- CC also correlates with a higher chance of spontaneous virus clearance.
- Most studies are with HCV-1,but also with HCV 2 and 3(and 4).

Thank you