



**Handelsbanken November 18 2009**

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# Pipeline

Project	Indication(s)	Partners / - date of agreement	Terms	Medivir's markets	Explorati ve phase	Optimiz ation	Preclini cal dev.	Phase I	Phase II	Phase III	US NDA EU MAA
<b>Lipsovir®</b> (ME-609)	Labial herpes	In-house									
<b>TMC435</b> (HCV PI)	Hepatitis C	Tibotec / 2004	EUR 80.5 m + royalties FTE funding	Nordic region	[Progress bar: Exploratory phase to Phase II]						
<b>HCV POL</b>	Hepatitis C	Tibotec / 2008	EUR 142-272 m + royalties, FTE funding	Nordic region	[Progress bar: Exploratory phase to Preclinical dev.]						
<b>MIV-710</b> (Cath K)	Osteoporosis, osteoarthritis, bone metastases	In-house			[Progress bar: Exploratory phase to Preclinical dev.]						
<b>MIV-711</b> (Cath K)	Osteoporosis, osteoarthritis, bone metastases	In-house			[Progress bar: Exploratory phase to Preclinical dev.]						
<b>HIV PI</b>	HIV	Tibotec / 2006	EUR 64 m + royalties, FTE funding	Nordic region	[Progress bar: Exploratory phase to Optimization]						
<b>BACE</b>	Alzheimer's	In-house			[Progress bar: Exploratory phase to Optimization]						
<b>Cathepsin S</b>	Neuropathic pain, rheumatoid arthritis, multiple sclerosis	In-house			[Progress bar: Exploratory phase to Optimization]						
<b>COPD PI</b>	COPD	In-house		World exc. China	[Progress bar: Exploratory phase to Optimization]						
<b>Renin</b>	Hypertension	In-house			[Progress bar: Exploratory phase to Optimization]						

■ Protease inhibitor     
 ■ Polymerase inhibitor     
 ■ Polymerase inhibitor/hydrocortisone

## Hepatitis C – Our projects in collaboration with



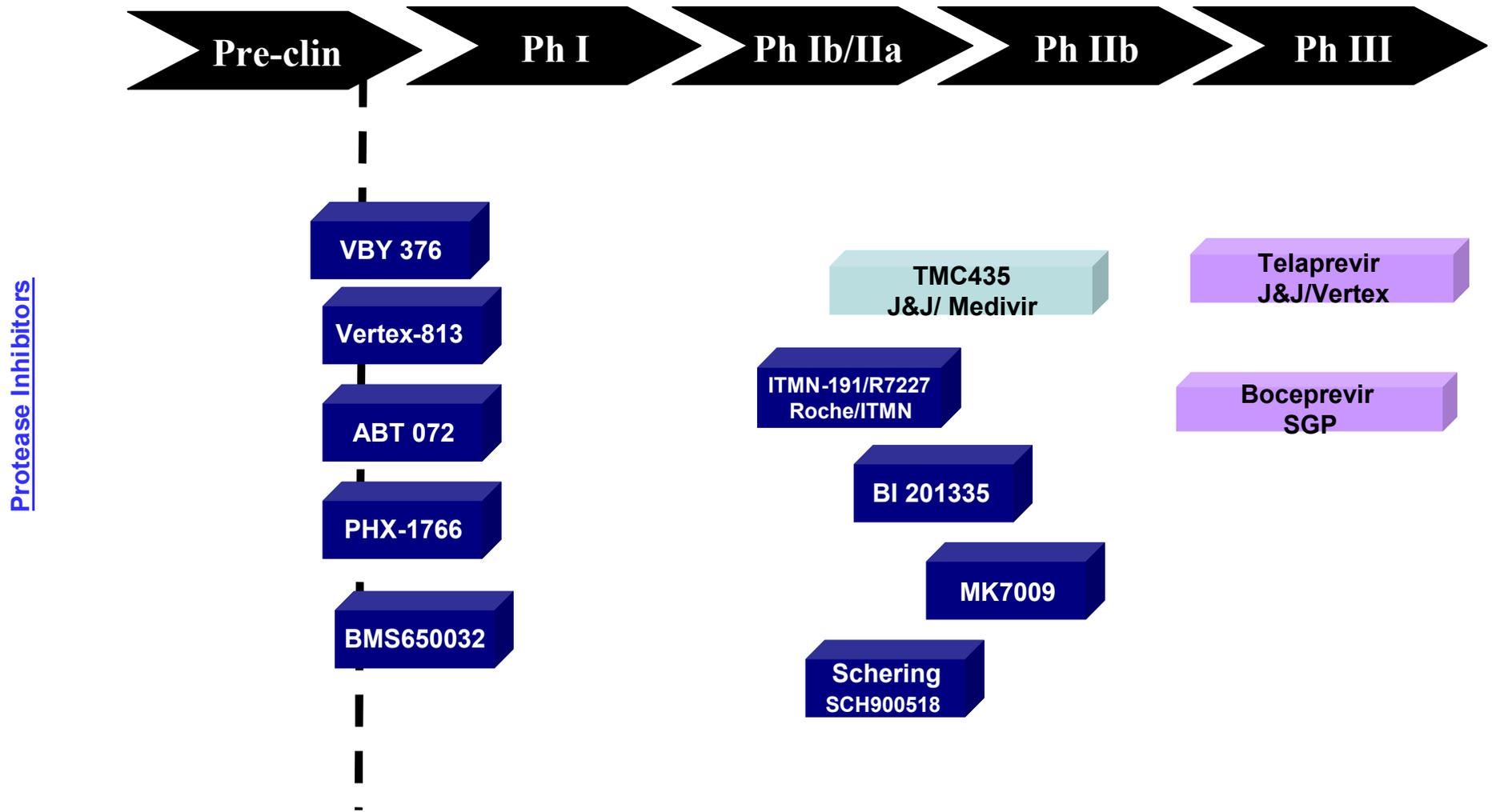
### **TMC435**

HCV-PI advancing through several ongoing clinical trials

### **Nucleoside HCV Polymerase Inhibitor in preclinical IND phase**

Next stage start of phase I trials

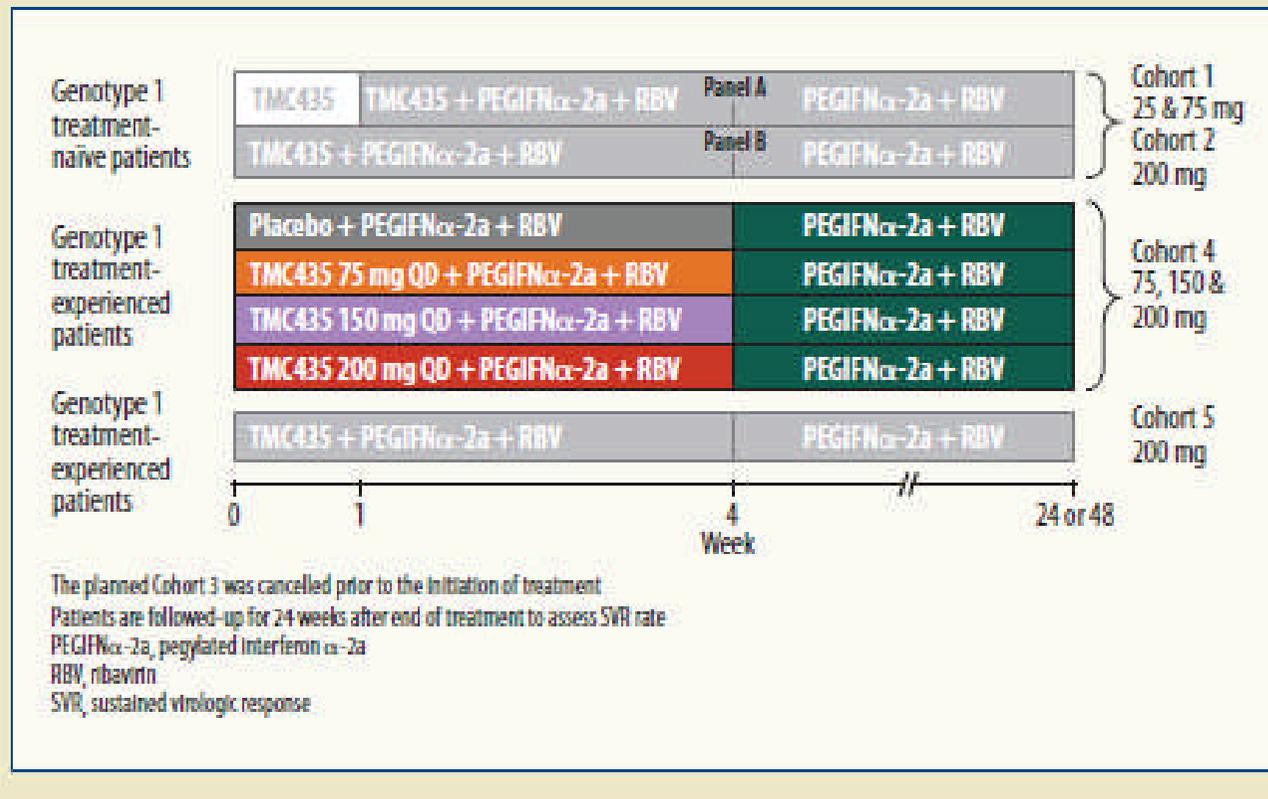
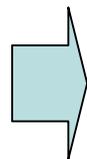
# HCV PI Competitive Landscape



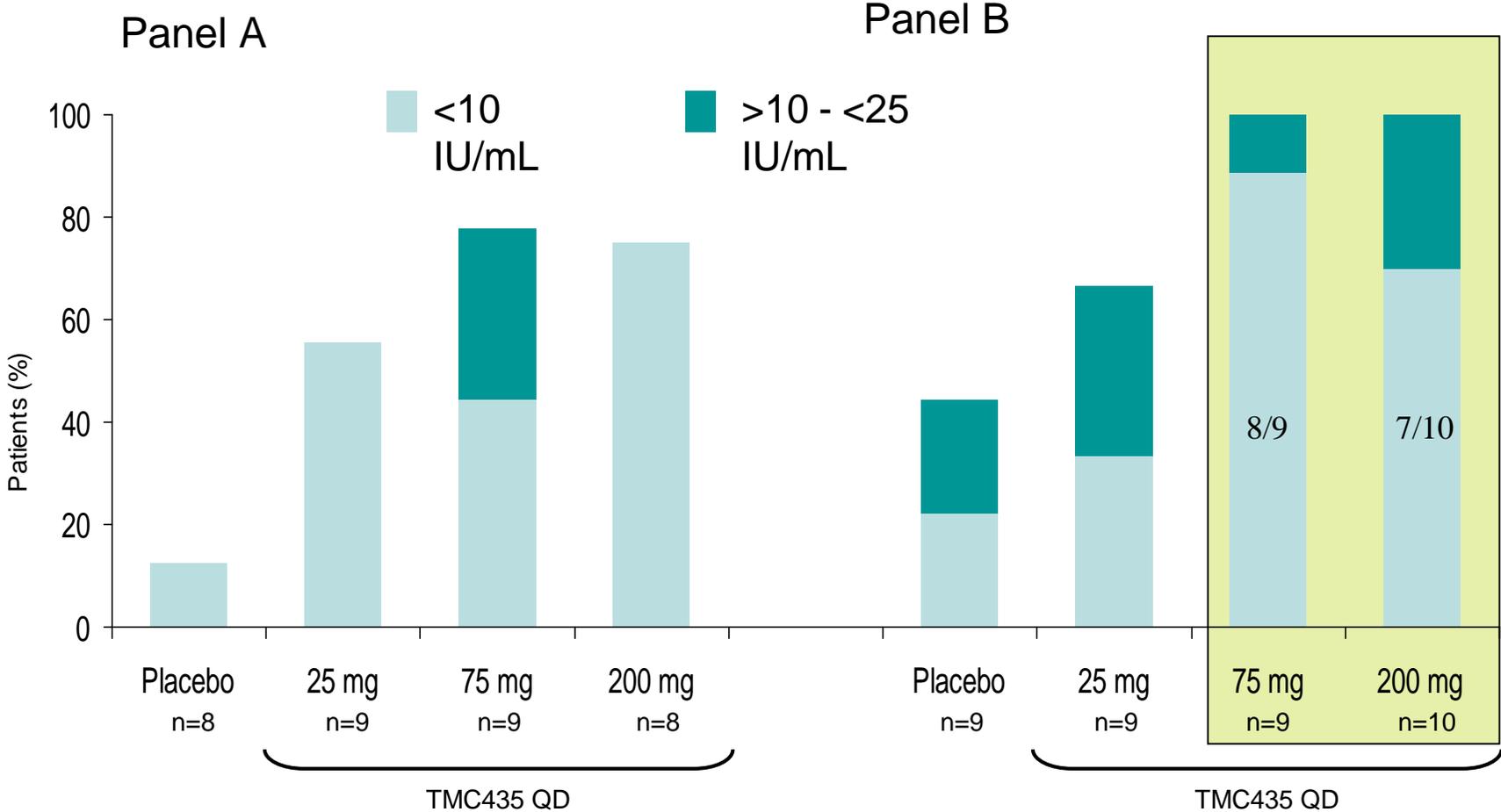
## TMC435 C201 Phase IIa study:

Cohorts 1 and 2 in treatment-naïve and cohorts 4 and 5 in treatment-experienced, genotype-1 HCV-infected patients

Figure 1. OPERA-1 study design.



# TMC435: Cohorts 1 and 2 in treatment-naïve HCV-infected patients - Potent Antiviral Activity at week 4 and at week 12

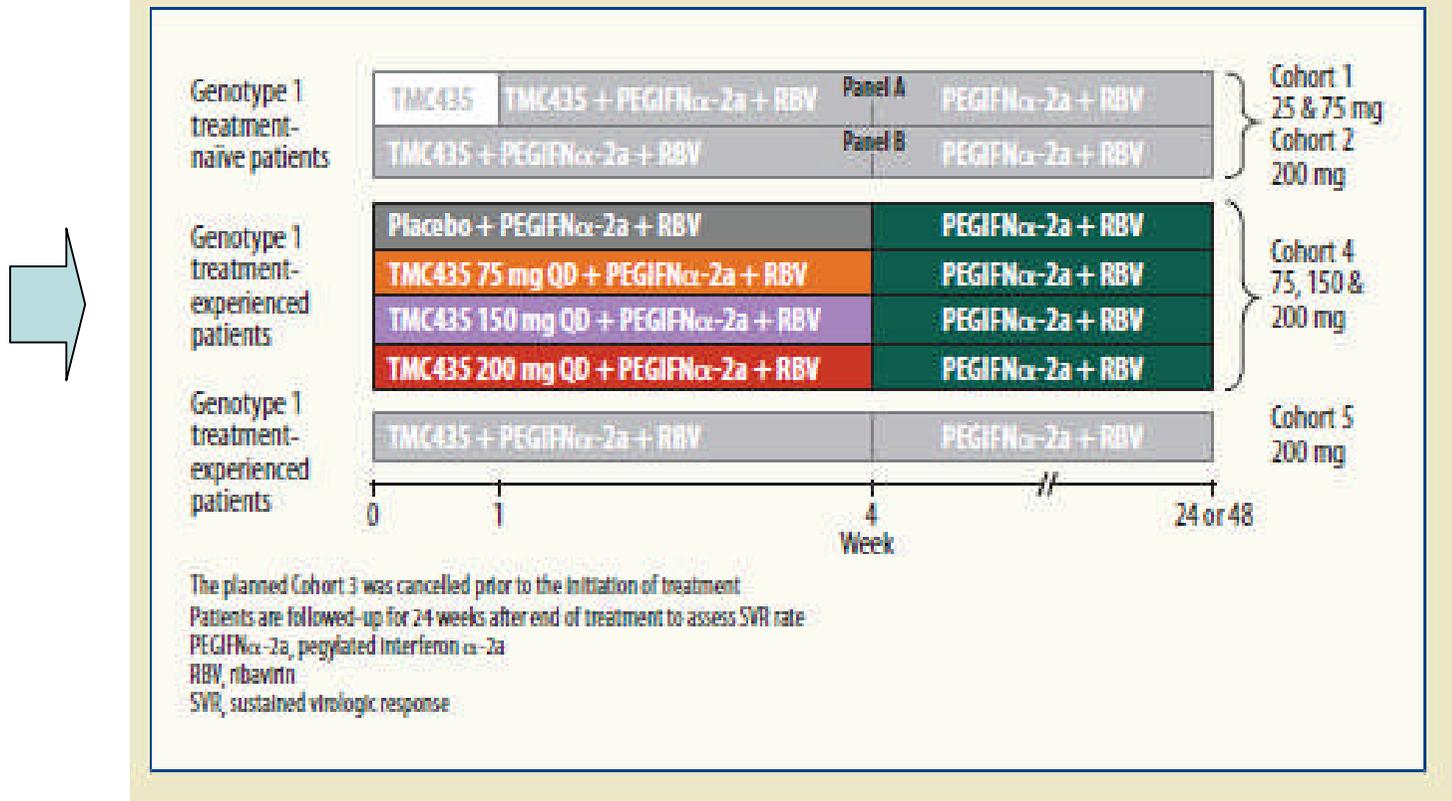


- 9/9 patients (100%) in the 75 mg arm and 10/10 patients (100%) in the 200 mg arm of Panel B had HCV RNA <10 IU/mL (under limit of detection) at Week 12 (e.g. 4-weeks of TMC435/SoC plus 8-weeks of SoC alone)

# TMC435 C201 Phase IIa study:

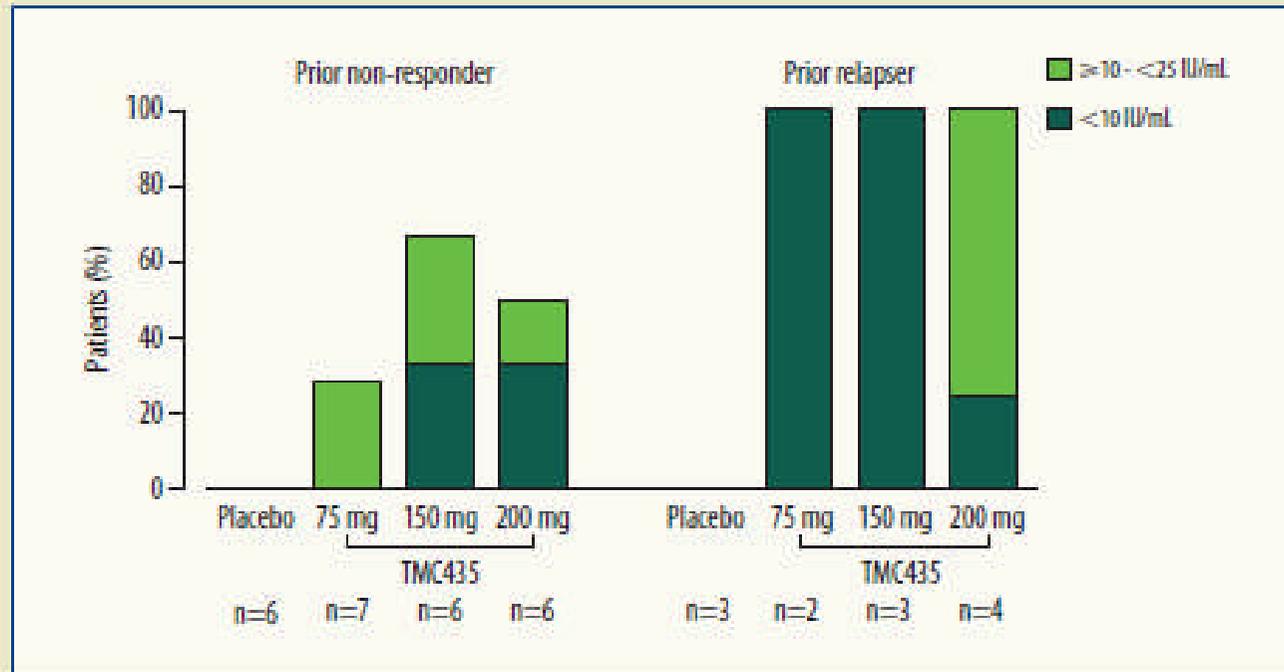
Cohorts 1 and 2 in treatment-naïve and cohorts 4 and 5 in treatment-experienced, genotype-1 HCV-infected patients

Figure 1. OPERA-1 study design.



# Viral load reduction in treatment-experienced patients cohort 4

Figure 3. Response to treatment with once-daily TMC435 75, 150 and 200 mg or placebo in treatment-experienced patients at Day 28.

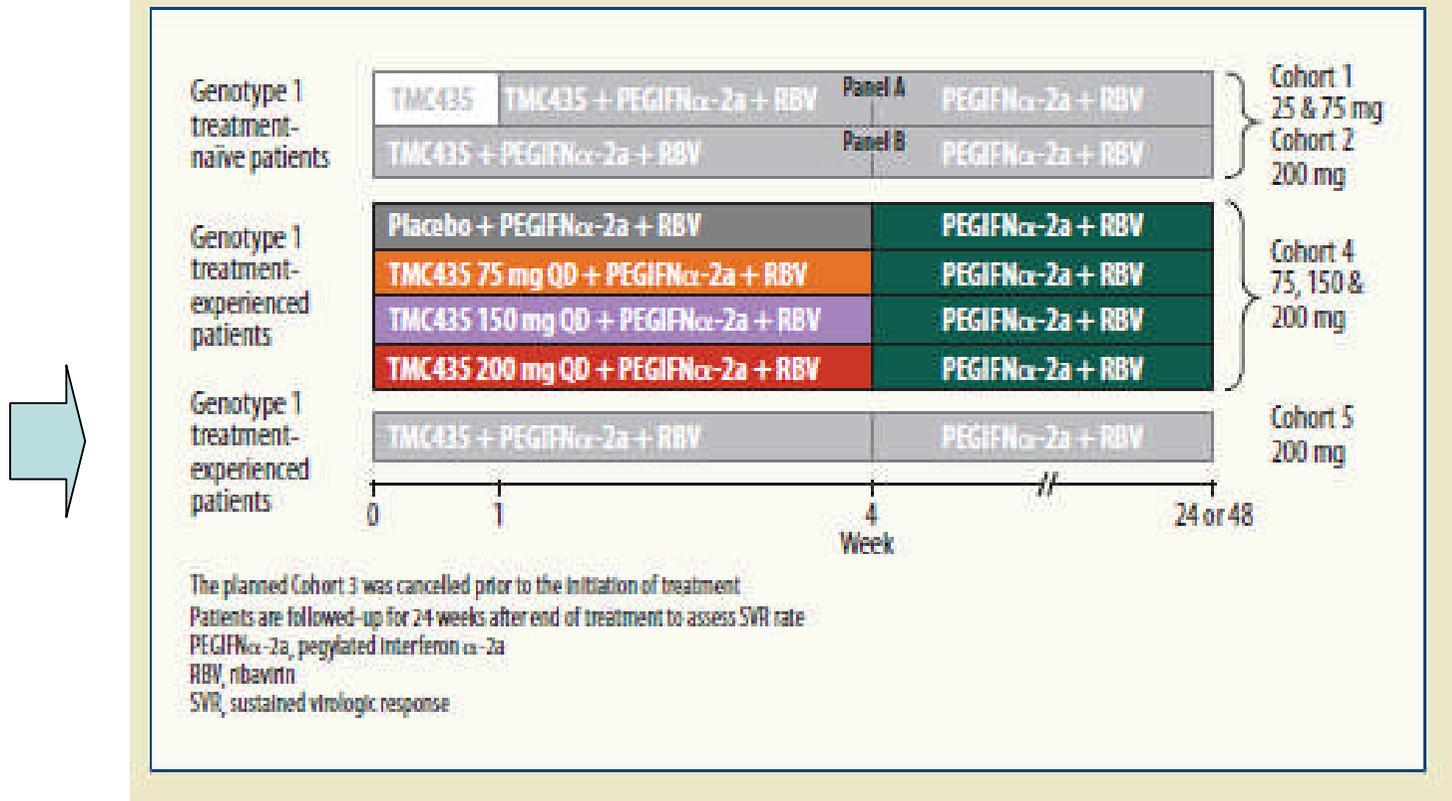


(22%), 5/9 (56%) and 3/10 (30%) patients in 75, 150 and the 200 mg groups reached undetectable levels (< 10 IU/mL) after 4 weeks of treatment, compared to 0/9 patients on placebo.

# TMC435 C201 Phase IIa study:

Cohorts 1 and 2 in treatment-naïve and cohorts 4 and 5 in treatment-experienced, genotype-1 HCV-infected patients

Figure 1. OPERA-1 study design.



# Antiviral activity and safety of TMC435 combined with pegylated interferon and ribavirin in hepatitis C patients with genotype 1 who had previous exposure to TMC435

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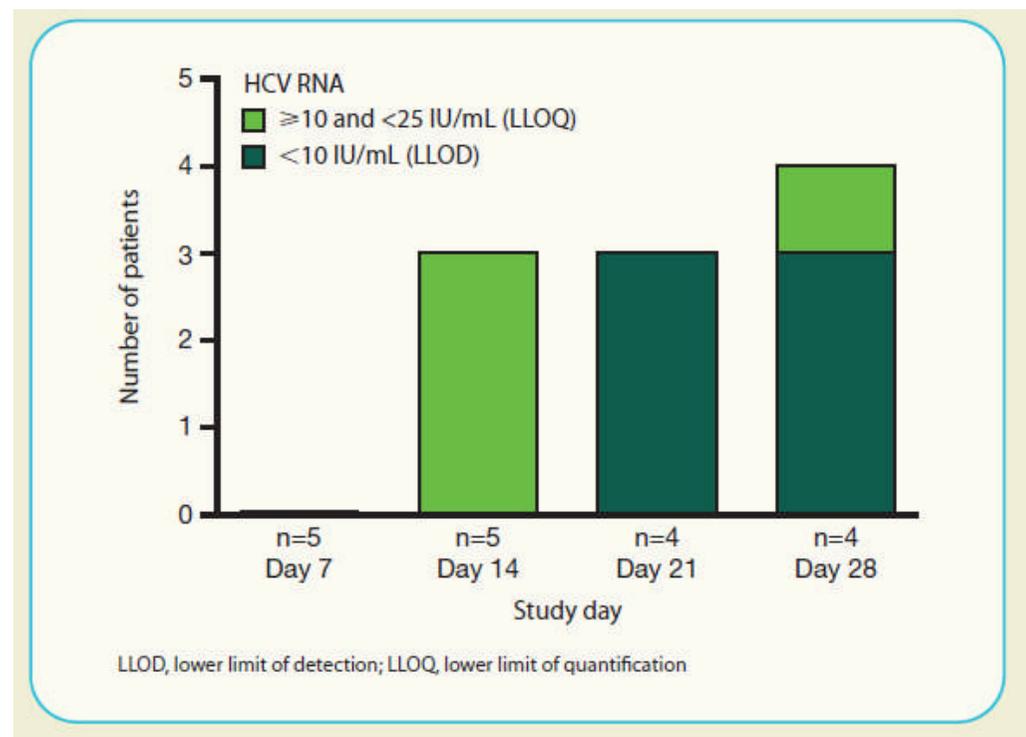
OPERA-1 is a Phase IIa double-blind, randomized, placebo-controlled trial investigating different doses of TMC435 in both treatment-naïve and treatment-experienced patients across multiple cohorts. Cohort 5 comprised prior non-responders and relapsers to interferon (IFN)-based therapy who had previously received 5 days of monotherapy with TMC435 200 mg once daily (QD) in a Phase Ib trial (Study C101).

Four out of five patients completed triple therapy with TMC435 200 mg QD whilst one patient discontinued due to increased blood bilirubin. At Day 28, all four patients who completed treatment achieved HCV RNA <25 IU/mL with an overall mean change from baseline of 5.86 log<sub>10</sub> IU/mL. Three of those four patients had HCV RNA below the lower limit of detection (<10 IU/mL) at Day 28.

No viral breakthroughs (defined as >1 log<sub>10</sub> IU/mL increase from nadir in HCV RNA) were observed within 4 weeks.

The most common adverse event (AE) during triple therapy was influenza-like illness (n=4). There were no serious AEs.

ALT and AST levels decreased over the 4-week treatment period. Other than an increase in bilirubin, no clinically relevant changes were observed in any other laboratory parameters, ECG parameters, or vital signs.

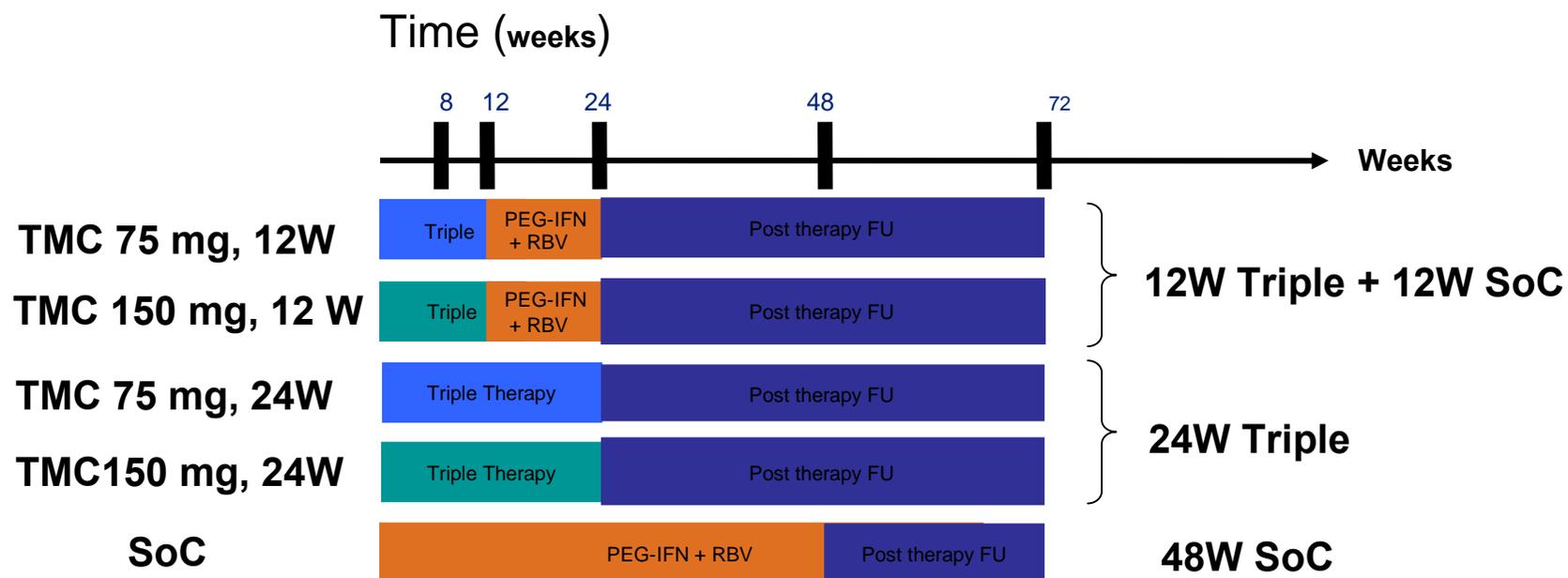


## **Conclusions - from phase IIa studies (Opera-1) in treatment naïve and treatment experienced**

**In both treatment-naïve and treatment experienced patients infected with HCV genotype-1, TMC435 in combination with SoC over 4 weeks of treatment:**

- **demonstrated potent antiviral activity**
- **was generally safe and well tolerated**
- **was not associated with AE-related treatment discontinuations.**
- **Mild and reversible increases in bilirubin was observed, mostly observed in the highest dose groups (200 mg). The mechanism of action has been investigated**
  - **No evidence of hepatotoxicity**

## Phase IIb study (C205) in treatment-naïve HCV patients – patient enrolment completed

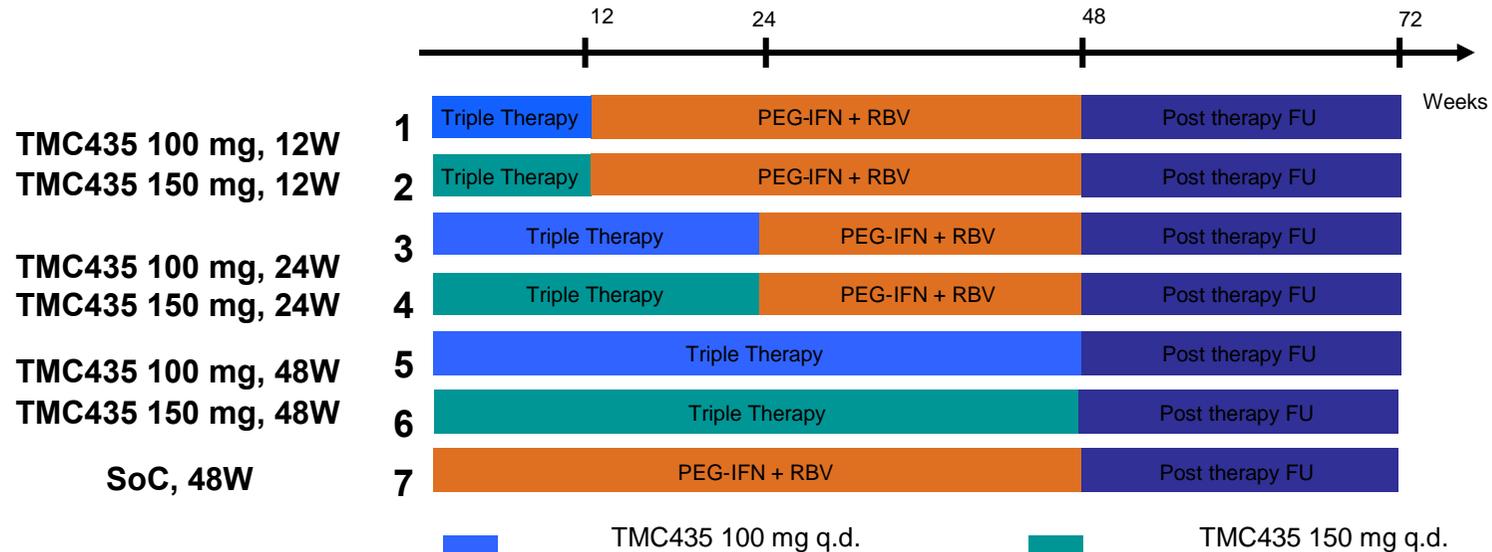


**N = 400**

**Primary endpoint:** Proportion of patients with undetectable virus levels 24 weeks after planned end-of-treatment (SVR24)

**SoC:** Ribavirin 1000-1200 mg BID + pegIFNalpha-2A 180 µg weekly

## Phase IIb study (C206) in treatment-experienced HCV patients with TMC435 started late September



**N = 455**

**Primary endpoint:** Proportion of patients with undetectable virus levels 24 weeks after planned end-of-treatment (SVR24)

**SoC:** Ribavirin 1000-1200 mg BID + pegIFNalpha-2A 180 µg weekly

# TMC435 – additional ongoing key clinical trials

- **TMC435-C215: A phase IIb study in Japan in treatment naïve genotype-1 HCV patients**
  - Patients will receive TMC435 (50 or 100 mg) for a duration of 12 or 24 weeks.
  - In treatment arms 1 and 2, subjects will receive 12 weeks of triple therapy with TMC435 once daily plus SoC followed by 12 weeks of treatment with SoC.
  - In treatment arms 3 and 4, patients will receive 24 weeks of triple therapy with TMC435 once daily plus SoC.
  - In treatment arm 5 (control group), patients will be treated with SoC treatment for 48 weeks
- **TMC435-C202 in treatment naïve genotype 2 to 6 HCV patients**
  - Patients will receive TMC435 during 7 days, once daily dosing at 200mg, as monotherapy. Subsequently, they can continue with Standard of Care (SoC) treatment consisting of pegylated interferon and ribavirin upon agreement with the study doctor

# Nucleoside HCV Polymerase Inhibitors

# Hepatitis C Polymerase

## Medivir/J&J program

### Status

- Partnership with Tibotec / Johnson & Johnson since May 2008, triggering a € 5 m milestone & 1 year research funding
- Candidate Drug selected in December 2008, milestone of € 2.6m
- Presently in preclinical development phase towards phase I

### Next step

- Start of phase Ia

### Patents

- Extensive and non-limiting IP filed

### Licensing agreement

- Remaining milestones of € 137m + royalties on sales for one product reaching market.
- Additional € 130m for second compound and indication reaching market + royalties on sales.
- FTE Funding for one year, ended May 2009
- All development costs covered by JNJ
- Nordic rights retained by Medivir

