



## Clinical trial results: Rosuvastatin versus Protease Inhibitor Switching for Hypercholesterolaemia in HIV-infected Adults.

### Summary

EudraCT number	2013-000486-37
Trial protocol	ES
Global end of trial date	30 September 2014

### Results information

Result version number	v1 (current)
This version publication date	09 August 2025
First version publication date	09 August 2025

### Trial information

#### Trial identification

Sponsor protocol code	SOS
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#### Additional study identifiers

ISRCTN number	-
ClinicalTrials.gov id (NCT number)	NCT01935674
WHO universal trial number (UTN)	-

Notes:

### Sponsors

Sponsor organisation name	Fundació Clínic per a la Recerca Biomèdica
Sponsor organisation address	Carrer de Villarroel, 170, Barcelona, Spain,
Public contact	Joan Albert Arnaiz, Clinical Trial Unit, +34 9322754009838,
Scientific contact	Joan Albert Arnaiz, Clinical Trial Unit, +34 9322754009838,

Notes:

### Paediatric regulatory details

Is trial part of an agreed paediatric investigation plan (PIP)	No
Does article 45 of REGULATION (EC) No 1901/2006 apply to this trial?	No
Does article 46 of REGULATION (EC) No 1901/2006 apply to this trial?	No

Notes:

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**Results analysis stage**

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Analysis stage	Final
Date of interim/final analysis	01 September 2015
Is this the analysis of the primary completion data?	Yes
Primary completion date	30 September 2014
Global end of trial reached?	Yes
Global end of trial date	30 September 2014
Was the trial ended prematurely?	No

Notes:

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**General information about the trial**

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Main objective of the trial:

To compare the effect of rosuvastatin to protease inhibitor switching on fasting total cholesterol over 12 weeks

Protection of trial subjects:

The study was approved by the relevant ethics committees at all participating sites. All participants provided written informed consent. The trial was conducted in accordance with the International Conference on Harmonisation Good Clinical Practice (ICH-GCP) guidelines.

Background therapy: -

Evidence for comparator: -

Actual start date of recruitment	04 March 2013
Long term follow-up planned	No
Independent data monitoring committee (IDMC) involvement?	Yes

Notes:

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**Population of trial subjects**

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**Subjects enrolled per country**

Country: Number of subjects enrolled	Australia: 21
Country: Number of subjects enrolled	Spain: 22
Worldwide total number of subjects	43
EEA total number of subjects	22

Notes:

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**Subjects enrolled per age group**

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In utero	0
Preterm newborn - gestational age < 37 wk	0
Newborns (0-27 days)	0
Infants and toddlers (28 days-23 months)	0
Children (2-11 years)	0
Adolescents (12-17 years)	0
Adults (18-64 years)	43
From 65 to 84 years	0
85 years and over	0

## Subject disposition

### Recruitment

#### Recruitment details:

A total of 60 HIV-positive adults with hypercholesterolaemia and elevated cardiovascular risk were planned for recruitment across 9 sites in Australia and Spain. 43 participants were enrolled between June 2012 and April 2014. All provided written informed consent.

### Pre-assignment

#### Screening details:

Participants were screened up to 14 days prior to randomisation. Eligibility was based on HIV-1 infection, stable PI-based ART, fasting total cholesterol  $\geq 5.5$  mmol/L, and elevated cardiovascular risk. Exclusion criteria included prior statin use, comorbidities, or contraindications.

### Period 1

Period 1 title	Overall trial (overall period)
Is this the baseline period?	Yes
Allocation method	Randomised - controlled
Blinding used	Not blinded

### Arms

Are arms mutually exclusive?	Yes
<b>Arm title</b>	Rosuvastatin arm

#### Arm description:

Participants continued their ritonavir-boosted protease inhibitor-based ART and commenced rosuvastatin 10 mg daily (5 mg daily for Asian participants). Treatment lasted 12 weeks with assessments at baseline, week 4, and week 12.

Arm type	Experimental
Investigational medicinal product name	Rosuvastatin
Investigational medicinal product code	
Other name	Crestor
Pharmaceutical forms	Film-coated tablet
Routes of administration	Oral use

#### Dosage and administration details:

10 mg once daily (5 mg once daily in Asian participants), taken orally with or without food, for 12 weeks.

<b>Arm title</b>	PI/r switch
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#### Arm description:

Participants switched from their current ritonavir-boosted protease inhibitor (PI/r) to an alternative antiretroviral agent with lower impact on lipid levels. Switch options included raltegravir, rilpivirine, and unboosted atazanavir. Treatment lasted 12 weeks with assessments at baseline, week 4, and week 12.

Arm type	Experimental
Investigational medicinal product name	PI/r switch
Investigational medicinal product code	
Other name	Raltegravir, Rilpivirine, unboosted Atazanavir, Elvitegravir/cobicistat, Lamivudine, Etravirine, Tenofovir, Emtricitabine
Pharmaceutical forms	Film-coated tablet
Routes of administration	Ocular use

#### Dosage and administration details:

Participants switched from their current ritonavir-boosted PI to an alternative ART agent with lower lipid impact, selected by the investigator. Most common substitutions were raltegravir (45%), rilpivirine (20%), and unboosted atazanavir (16%). Dosing followed standard clinical guidelines for each agent.

<b>Number of subjects in period 1</b>	Rosuvastatin arm	PI/r switch
Started	23	20
Completed	23	20

## Baseline characteristics

### Reporting groups

Reporting group title	Rosuvastatin arm
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Reporting group description:

Participants continued their ritonavir-boosted protease inhibitor-based ART and commenced rosuvastatin 10 mg daily (5 mg daily for Asian participants). Treatment lasted 12 weeks with assessments at baseline, week 4, and week 12.

Reporting group title	PI/r switch
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Reporting group description:

Participants switched from their current ritonavir-boosted protease inhibitor (PI/r) to an alternative antiretroviral agent with lower impact on lipid levels. Switch options included raltegravir, rilpivirine, and unboosted atazanavir. Treatment lasted 12 weeks with assessments at baseline, week 4, and week 12.

Reporting group values	Rosuvastatin arm	PI/r switch	Total
Number of subjects	23	20	43
Age categorical Units: Subjects			
In utero			0
Preterm newborn infants (gestational age < 37 wks)			0
Newborns (0-27 days)			0
Infants and toddlers (28 days-23 months)			0
Children (2-11 years)			0
Adolescents (12-17 years)			0
Adults (18-64 years)			0
From 65-84 years			0
85 years and over			0
Age continuous Units: years			
arithmetic mean	53	56	
standard deviation	± 8.7	± 8.2	-
Gender categorical Units: Subjects			
Female	1	0	1
Male	22	20	42

## End points

### End points reporting groups

Reporting group title	Rosuvastatin arm
Reporting group description: Participants continued their ritonavir-boosted protease inhibitor-based ART and commenced rosuvastatin 10 mg daily (5 mg daily for Asian participants). Treatment lasted 12 weeks with assessments at baseline, week 4, and week 12.	
Reporting group title	PI/r switch
Reporting group description: Participants switched from their current ritonavir-boosted protease inhibitor (PI/r) to an alternative antiretroviral agent with lower impact on lipid levels. Switch options included raltegravir, rilpivirine, and unboosted atazanavir. Treatment lasted 12 weeks with assessments at baseline, week 4, and week 12.	

### Primary: Percentage Change From Baseline in Total Cholesterol at 12 Weeks

End point title	Percentage Change From Baseline in Total Cholesterol at 12 Weeks
End point description: The outcome was defined as the percentage change in fasting total cholesterol from baseline (week 0) to week 12. Fasting blood samples were collected after a 12-hour fast, and total cholesterol was measured in mmol/L. The percentage change was calculated for each participant and compared between the rosuvastatin and PI/r switch groups using an intention-to-treat analysis.	
End point type	Primary
End point timeframe: 12 weeks from baseline (week 0 to week 12)	

End point values	Rosuvastatin arm	PI/r switch		
Subject group type	Reporting group	Reporting group		
Number of subjects analysed	23	20		
Units: Percent (%)				
arithmetic mean (standard deviation)	21.4 (± 19.2)	8.7 (± 10.8)		

### Statistical analyses

Statistical analysis title	Comparison of percentage change in total cholesterol
Comparison groups	Rosuvastatin arm v PI/r switch
Number of subjects included in analysis	43
Analysis specification	Pre-specified
Analysis type	superiority
P-value	= 0.003 <sup>[1]</sup>
Method	Wilcoxon (Mann-Whitney)
Parameter estimate	Mean difference (net)
Point estimate	12.7

Confidence interval	
level	95 %
sides	2-sided
lower limit	2.9
upper limit	22.5
Variability estimate	Standard deviation
Dispersion value	19.2

Notes:

[1] - Two-sided Wilcoxon rank-sum test; significance threshold  $\alpha = 0.05$ . Standard deviation corresponds to the rosuvastatin group (SD = 19.2), as only one value can be entered.

## Adverse events

### Adverse events information

Timeframe for reporting adverse events:

12 weeks

Assessment type	Systematic
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### Dictionary used

Dictionary name	MedDRA
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Dictionary version	22.1
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### Reporting groups

Reporting group title	Rosuvastatin
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Reporting group description:

Not related to study drug

Reporting group title	PI/r Switch
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Reporting group description: -

Serious adverse events	Rosuvastatin	PI/r Switch	
Total subjects affected by serious adverse events			
subjects affected / exposed	1 / 23 (4.35%)	1 / 20 (5.00%)	
number of deaths (all causes)	0	0	
number of deaths resulting from adverse events	0	0	
Cardiac disorders			
Unstable angina requiring coronary artery stenting			
subjects affected / exposed	1 / 23 (4.35%)	0 / 20 (0.00%)	
occurrences causally related to treatment / all	0 / 1	0 / 0	
deaths causally related to treatment / all	0 / 0	0 / 0	
Musculoskeletal and connective tissue disorders			
Tibial fracture	Additional description: Not related to study drug		
subjects affected / exposed	0 / 23 (0.00%)	1 / 20 (5.00%)	
occurrences causally related to treatment / all	0 / 0	0 / 1	
deaths causally related to treatment / all	0 / 0	0 / 0	

Frequency threshold for reporting non-serious adverse events: 5 %



<b>Non-serious adverse events</b>	Rosuvastatin	PI/r Switch	
Total subjects affected by non-serious adverse events			
subjects affected / exposed	14 / 23 (60.87%)	14 / 20 (70.00%)	
General disorders and administration site conditions			
Fatigue			
subjects affected / exposed	0 / 23 (0.00%)	2 / 20 (10.00%)	
occurrences (all)	0	2	
General disorders (unspecified)			
subjects affected / exposed	13 / 23 (56.52%)	6 / 20 (30.00%)	
occurrences (all)	13	6	
Gastrointestinal disorders			
Nausea			
subjects affected / exposed	1 / 23 (4.35%)	4 / 20 (20.00%)	
occurrences (all)	1	4	
Diarrhoea			
subjects affected / exposed	0 / 23 (0.00%)	4 / 20 (20.00%)	
occurrences (all)	0	4	
Skin and subcutaneous tissue disorders			
Rash			
subjects affected / exposed	0 / 23 (0.00%)	1 / 20 (5.00%)	
occurrences (all)	0	1	

## More information

### Substantial protocol amendments (globally)

Were there any global substantial amendments to the protocol? No

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### Interruptions (globally)

Were there any global interruptions to the trial? No

### Limitations and caveats

Limitations of the trial such as small numbers of subjects analysed or technical problems leading to unreliable data.

Small sample size and short duration (12 weeks), limiting generalizability and long-term outcome assessment.
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Notes:

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### Online references

<http://www.ncbi.nlm.nih.gov/pubmed/26987376>