BIOSCIENCE

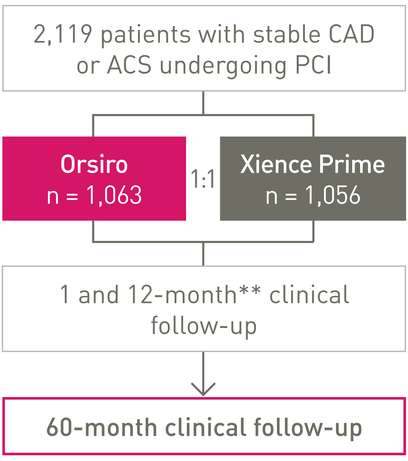
Randomized comparison of Ultrathin Strut Orsiro with Xience Prime. All-comers results out to 5 years

Conclusions

- In this 2,119 patient, randomized, all-comers trial, Orsiro® demonstrated non-inferiority to Xience Prime* for TLF at 12 months. At 5 years, TLF rates show no significant difference
- Landmark analysis provided an indication that Orsiro may reduce the rate of Stent Thrombosis (ST) after the first year of follow-up
- A meta-analysis including the BIOSCIENCE 5-year data shows lower rates of Myocardial Infarction (MI) for Orsiro versus Xience which could be attributed to Orsiro's ultrathin struts[1]

Study design

Prospective, all-comers, multi-center, randomized, non-inferiority design



Endpoints

Primary endpoint

- Target Lesion Failure (TLF)

Secondary endpoints

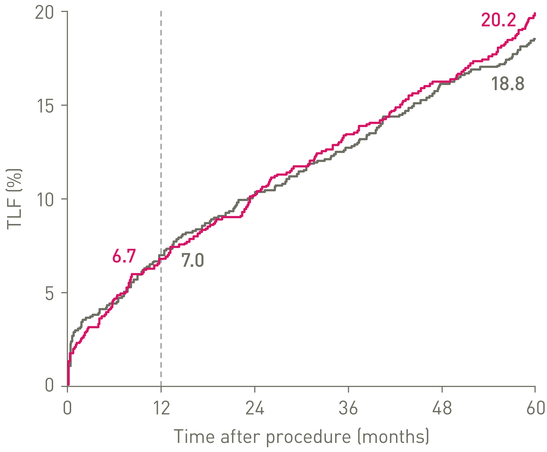
- Death
- Cardiac death
- Myocardial Infarction (MI)
- Target Lesion Revascularization (TLR)
- Target Vessel Revascularization (TVR)
- Definite ST§
- Definite or Probable ST
- Target Vessel Failure (TVF)

Patient characteristics[2]	Orsiro n = 1,063	Xience Prime n = 1,056
Diabetes	24%	22%
Indication		
Unstable angina	7%	7%
NSTEMI	27%	27%
STEMI	20%	19%
Stable angina	31%	31%
Silent ischemia	15%	16%

Lesion characteristics[2]	Orsiro n = 1,594¤	Xience Prime n = 1,454¤
Left main artery	2%	2%
Left anterior descending artery	41%	44%
Left circumflex artery	23%	22%
Right coronary artery	32%	29%
Coronary artery bypass graft	11%	9%
Long lesion (>20 mm)	54%	57%
Small vessel (<2.75 mm)	29%	32%

* Xience and Xience Prime are registered trademarks of Abbott Cardiovascular Systems
**Primary endpoint
§ ST as per ARC definition
¤ Number of lesions

TLF rates - all subjects out to 5 years[3, 4]



20.2%
60-m TLF
Orsiro

18.8%
60-m TLF
Xience Prime

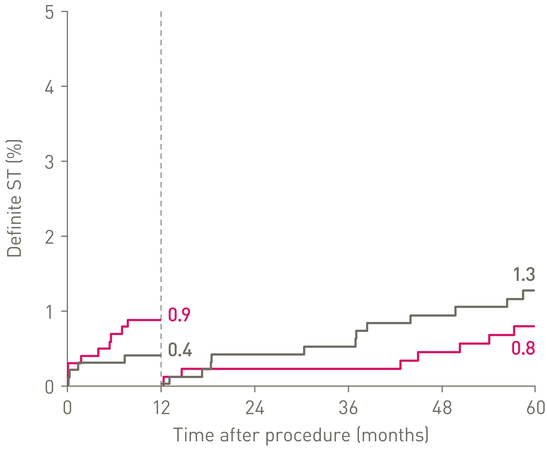
— Orsiro
— Xience Prime

] p-value = 0.49
] Rate ratio (95% CI) = 1.07 (0.88-1.31)

Components of TLF[4]

12 months	Orsiro n = 1,063	Xience Prime n = 1,056	p-value
Cardiac death	1.9%	2.1%	0.7627
Target Vessel MI	2.9%	3.3%	0.6057
Clinically indicated TLR	3.5%	2.4%	0.1498
60 months			
Cardiac death	8.6%	7.5%	0.5686
Target Vessel MI	6.3%	7.1%	0.5950
Clinically indicated TLR	10.8%	10.0%	0.5036

Landmark analysis for definite ST[3]



0.8%
ST from
12 to 60-m
Orsiro

1.3%
ST from
12 to 60-m
Xience Prime

— Orsiro
— Xience Prime

ST at 1 year,** between 1 year and 5 years, and at 5 years[4]

	Orsiro n = 1,063	Xience Prime n = 1,056	p-value
Definite ST			
At 1 year	0.9%	0.4%	0.1650
From 1 to 5 years	0.8%	1.3%	0.2861
At 5 years	1.6%	1.6%	0.9497
Definite or Probable ST			
At 1 year	2.8%	3.6%	0.2623
From 1 to 5 years	3.6%	4.3%	0.6389
At 5 years	6.3%	7.7%	0.2637

**Includes additional ST events identified by sites after the 12-month follow-up. Therefore, this rate updates the original analysis reported in Pilgrim T et al. The Lancet 384.9960 (2014): 2111-2122.

Principal investigator

Prof. Stephan Windecker, Bern, Switzerland

1. Pilgrim T. et al. Randomized comparison of a novel, ultrathin cobalt-chromium biodegradable polymer sirolimus-eluting stent with a thin strut durable polymer everolimus-eluting stent for percutaneous coronary revascularization – final 5 year outcomes; Presented at: ESC Congress; August 28, 2018; Munich, Germany; ClinicalTrials.gov: NCT01443104; 2. Pilgrim T. et al. BIOSCIENCE: a randomised, single-blind, noninferiority trial." The Lancet 384.9960 (2014): 2111-2122; 3. Pilgrim T, Piccolo R, Heg D, et al. Ultrathin-strut, biodegradable-polymer, sirolimus-eluting stents versus thin-strut, durable-polymer, everolimus-eluting stents for percutaneous coronary revascularisation: 5-year outcomes of the BIOSCIENCE randomised trial. The Lancet. 2018 Sep 1;392(10149):737-46; 4. Pilgrim T. et al. 5-year outcomes of the BIOSCIENCE randomised trial. Supplementary appendix; Lancet 2018; published online Aug 28. http://dx.doi.org/10.1016/S0140-6736(18)31715-X.

Clinical data conducted with Orsiro, Orsiro Mission's predecessor device can be used to illustrate Orsiro Mission clinical outcomes.

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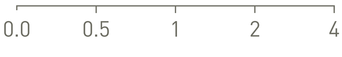
Conclusions

- In this 2,119 patient, randomized, all-comers trial, Orsiro® demonstrated non-inferiority to Xience Prime* for TLF at 12 months. At 5-years, TLF rates show no significant difference
- Landmark analysis provided an indication that Orsiro may reduce the rate of Stent Thrombosis (ST) after the first year of follow-up
- A meta-analysis including the BIOSCIENCE 5-year data shows lower rates of Myocardial Infarction (MI) for Orsiro versus Xience which could be attributed to Orsiro's ultrathin struts[1]

Meta-analysis of five RCTs comparing Orsiro vs. Xience[1]

Clinical outcomes by trial	Follow-up	Sample size	Risk ratio (95% CI)
TLF			
PRISON IV	12-m	330	1.50 (0.69-3.24)
BIOFLOW-V	12-m	1,334	0.65 (0.44-0.96)
BIOFLOW-IV	12-m	530	1.10 (0.51-2.38)
BIOFLOW-II	60-m	452	0.82 (0.48-1.40)
BIOSCIENCE	60-m	2,119	1.04 (0.87-1.25)
Overall (I^2 = 38%, p = 0.169)			**0.93 (0.72-1.20)**
All cause death			
PRISON IV	12-m	330	0.33 (0.04-3.17)
BIOFLOW-V	12-m	1,334	0.59 (0.20-1.76)
BIOFLOW-II	60-m	452	0.52 (0.25-1.06)
BIOSCIENCE	60-m	2,119	1.32 (1.04-1.67)
Overall (I^2 = 65%, p = 0.035)			**0.76 (0.39-1.50)**
Cardiac death			
PRISON IV	12-m	330	0.50 (0.05-5.46)
BIOFLOW-V	12-m	1,334	0.17 (0.02-1.63)
BIOFLOW-IV	12-m	530	0.25 (0.02-2.72)
BIOFLOW-II	60-m	452	0.65 (0.18-2.37)
BIOSCIENCE	60-m	2,119	1.06 (0.78-1.43)
Overall (I^2 = 12%, p = 0.340)			**0.83 (0.51-1.37)**
MI			
PRISON IV	12-m	330	1.00 (0.06-15.9)
BIOFLOW-V	12-m	1,334	0.56 (0.37-0.87)
BIOFLOW-IV	12-m	530	1.21 (0.51-2.86)
BIOFLOW-II	60-m	452	0.75 (0.33-1.71)
BIOSCIENCE	60-m	2,119	0.83 (0.65-1.07)
Overall (I^2 = 0%, p = 0.482)			**0.77 (0.63-0.95)**
Definite/probable ST			
PRISON IV	12-m	330	1.00 (0.06-15.9)
BIOFLOW-V	12-m	1,334	0.68 (0.15-3.02)
BIOFLOW-II	60-m	452	0.17 (0.01-4.22)
BIOSCIENCE	60-m	2,119	0.81 (0.59-1.12)
Overall (I^2 = 0%, p = 0.811)			**0.79 (0.58-1.09)**



1. Pilgrim T. et al. Randomized comparison of a novel, ultrathin cobalt-chromium biodegradable polymer sirolimus-eluting stent with a thin strut durable polymer everolimus-eluting stent for percutaneous coronary revascularization – final 5 year outcomes; Presented at: ESC Congress; August 28, 2018; Munich, Germany.

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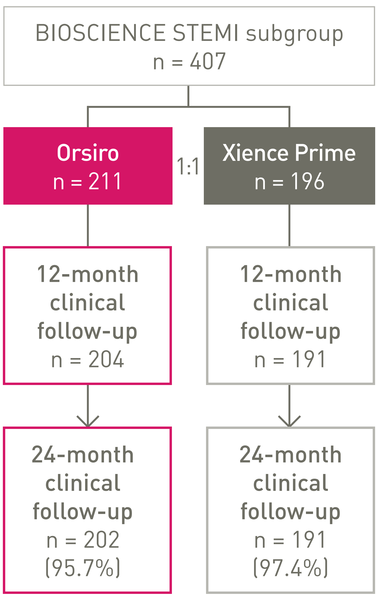
24-month clinical follow-up from the ST-segment Elevation Myocardial Infarction (STEMI) Subgroup

Conclusions

- In the BIOSCIENCE all-comers trial, Orsiro® proved superior to Xience Prime* in STEMI patients out to 24 months
- Orsiro shows significantly lower rates in Target Lesion Failure (TLF) compared to Xience Prime in the high-risk subgroup of STEMI out to 24 months
- Orsiro shows numerically lower Stent Thrombosis (ST) rates compared to Xience Prime

Study design

STEMI Subgroup analysis from a large-scale, all-comers, investigator-initiated, single blind, multicentre, randomized, non-inferiority trial



Endpoints

Primary endpoint
TLF at 12 months follow-up defined as the composite of:
- Cardiac death
- Target Vessel-Myocardial Infarction (TV-MI)
- Clinically-indicated Target Lesion Revascularization (TLR)

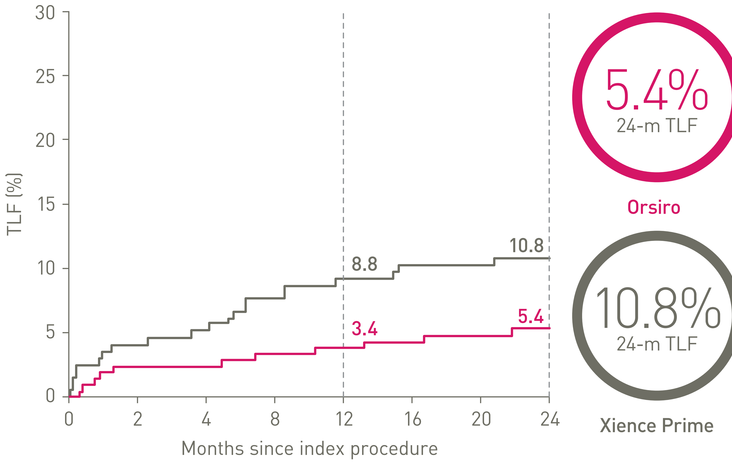
Selected secondary endpoints
- Individual components of the primary endpoint
- Definite or Probable Stent Thrombosis (Def/Prob ST)

Patient characteristics[1]	Orsiro n = 211	Xience Prime n = 196
Age, yrs**	61.3 ± 12.4	61.7 ± 12.7
Male gender	80.6%	77%
Diabetes mellitus	14.2%	13.8%
Hypertension	48.6%†	50.3%†
Hypercholesterolemia	52.1%	51.5%
Previous MI	4.7%	4.6%
Previous PCI	5.7%	4.1%
Previous CABG	2.4%	0.5%
Renal Failure (GFR<60 ml/min)	7.7%	9.6%
Left ventricular ejection fraction, %	49.5 ± 10.9††	48.3 ± 11.1††
Time to balloon inflation (from symptoms onset) (min)	248 (165-470)§	284 (162-534)§
Time from arrival at hospital to balloon inflation (min)	53 (32-94)	51 (33-95)

Procedural and lesion characteristics[1]	Orsiro n = 289¤	Xience Prime n = 267¤
No. of treated lesions per patient**	1.37 ± 0.73	1.36 ± 0.62
Thrombus aspiration per lesion	39.8%	34.7%
TIMI Flow per lesion	n = 282¤	n = 263¤
0 or 1	57.8%	51.7%
2	13.1%	17.9%
3	29.1%	30.4%

* Xience and Xience Prime are registered trademarks of Abbott Cardiovascular Systems
** Data shown as mean ± SD
¤ Number of lesions
† Orsiro: n = 210; Xience Prime: n = 195
†† Orsiro: n = 167; Xience Prime: n = 157
§ Orsiro: n = 158; Xience Prime: n = 145

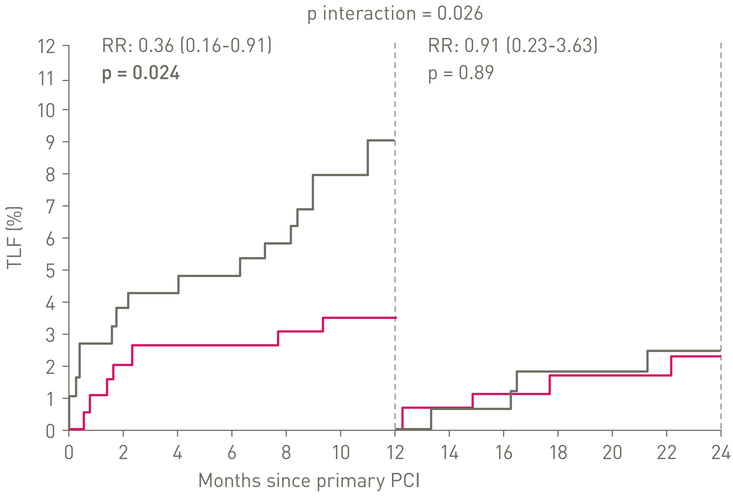
Primary endpoint outcomes out to 24 months[1,2]



— Orsiro
— Xience Prime

] p = 0.043
] Rate ratio (95% CI) = 0.48 (0.23-0.99)

TLF landmark analysis 1 - 2 years[2]



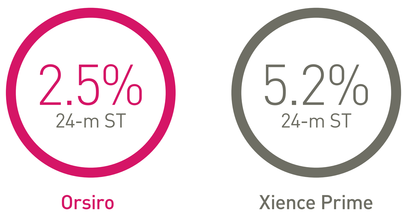
— Orsiro
— Xience Prime

Secondary endpoints outcomes

12 months[1]	Orsiro n = 211	Xience Prime n = 196	p-value
Cardiac death	1.5%	4.7%	0.062
Target Vessel MI	0.5%	2.6%	0.082
Clinically-indicated TLR	1.5%	2.1%	0.631
Stent Thrombosis (Def/Prob ST)	1.4%	4.7%	0.060

24 months[2]			
Cardiac death	2.0%	4.6%	0.13
Target Vessel MI	1.5%	3.2%	0.26
Clinically-indicated TLR	3.0%	4.3%	0.49
Stent Thrombosis (Def/Prob ST)	2.5%	5.2%	0.14

Stent Thrombosis rate out to 24 months[2]



Principal investigator

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1. Pilgrim T et al. Biodegradable polymer sirolimus-eluting stents versus durable polymer everolimus-eluting stents for primary percutaneous coronary revascularisation of acute myocardial infarction. EuroIntervention, 2016, 12. Jg., Nr. 11, S. e1343-e1354. 2. Piccolo R et al. Biodegredable polymer sirolimus-eluting stents vs. durable polymer everolimus-eluting stents in patients with STEMI: 2-year follow-up of the BIOSCIENCE trial. Presented at EuroPCR 2016; ClinicalTrials.gov: NCT01443104.

For indications please see Instructions For Use.

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