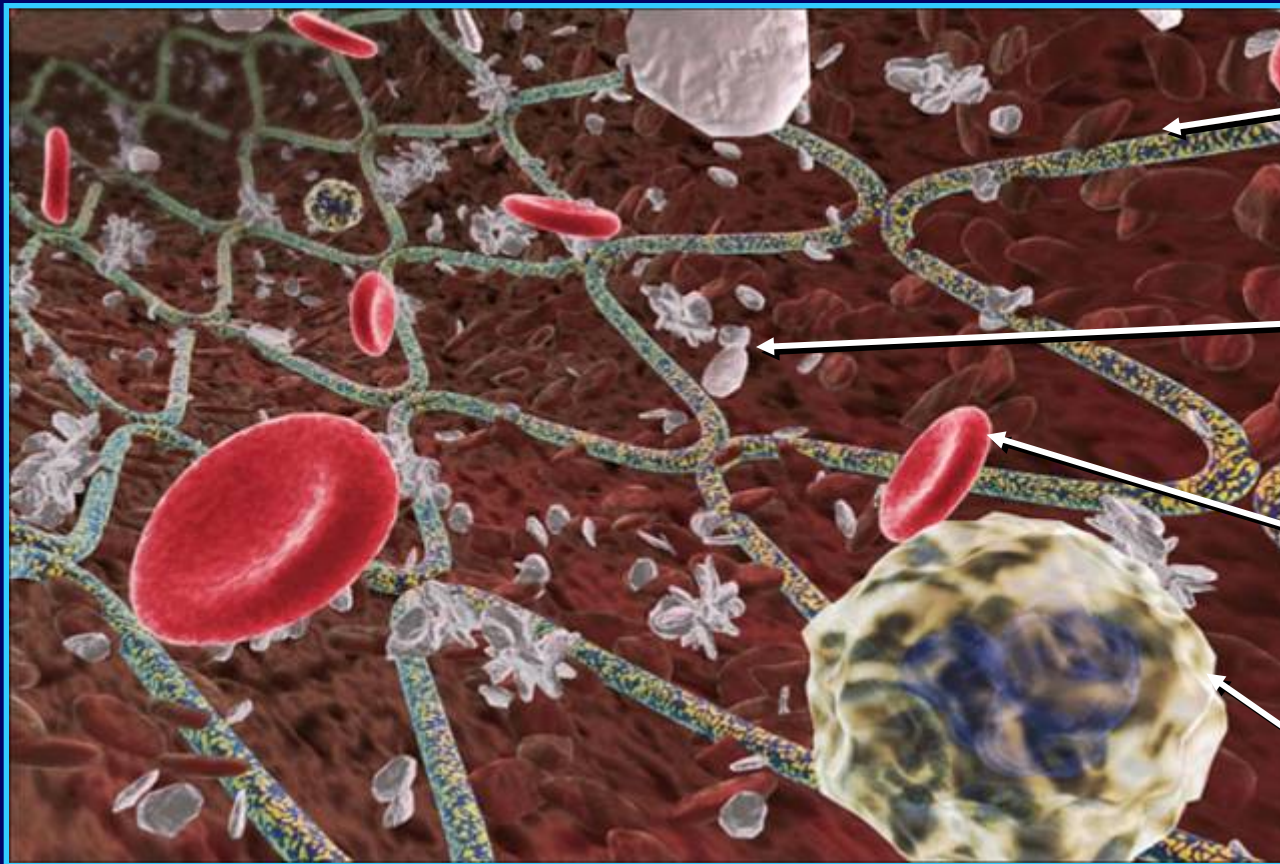


Endeavor Clinical Program

Marco A Costa, MD, PhD, FSCAI, FACC
Assistant Professor of Medicine, Director of Research
& Cardiovascular Imaging Core Laboratory

Platelet Aggregation and Activation



Drug-eluting stent struts

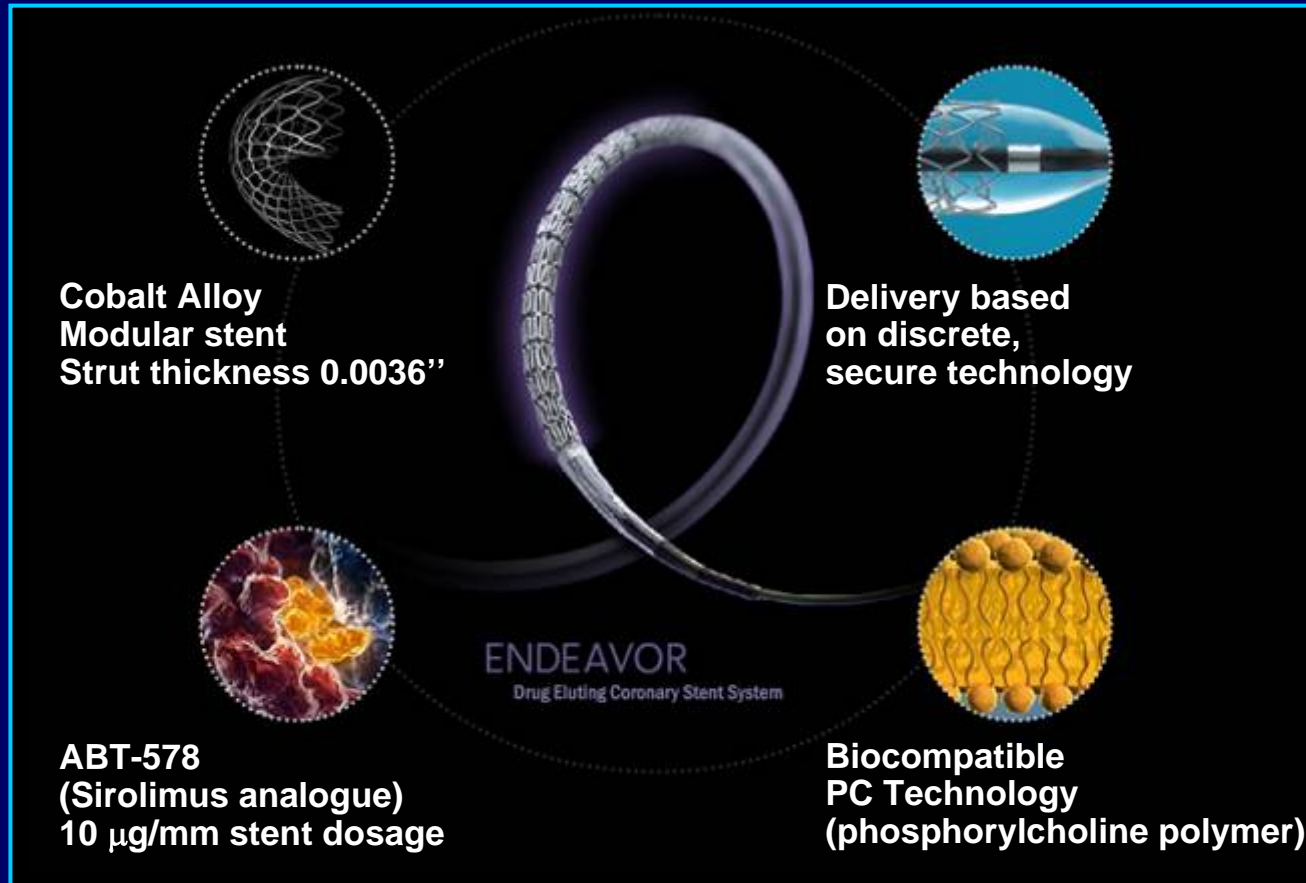
Platelets

Red blood cells

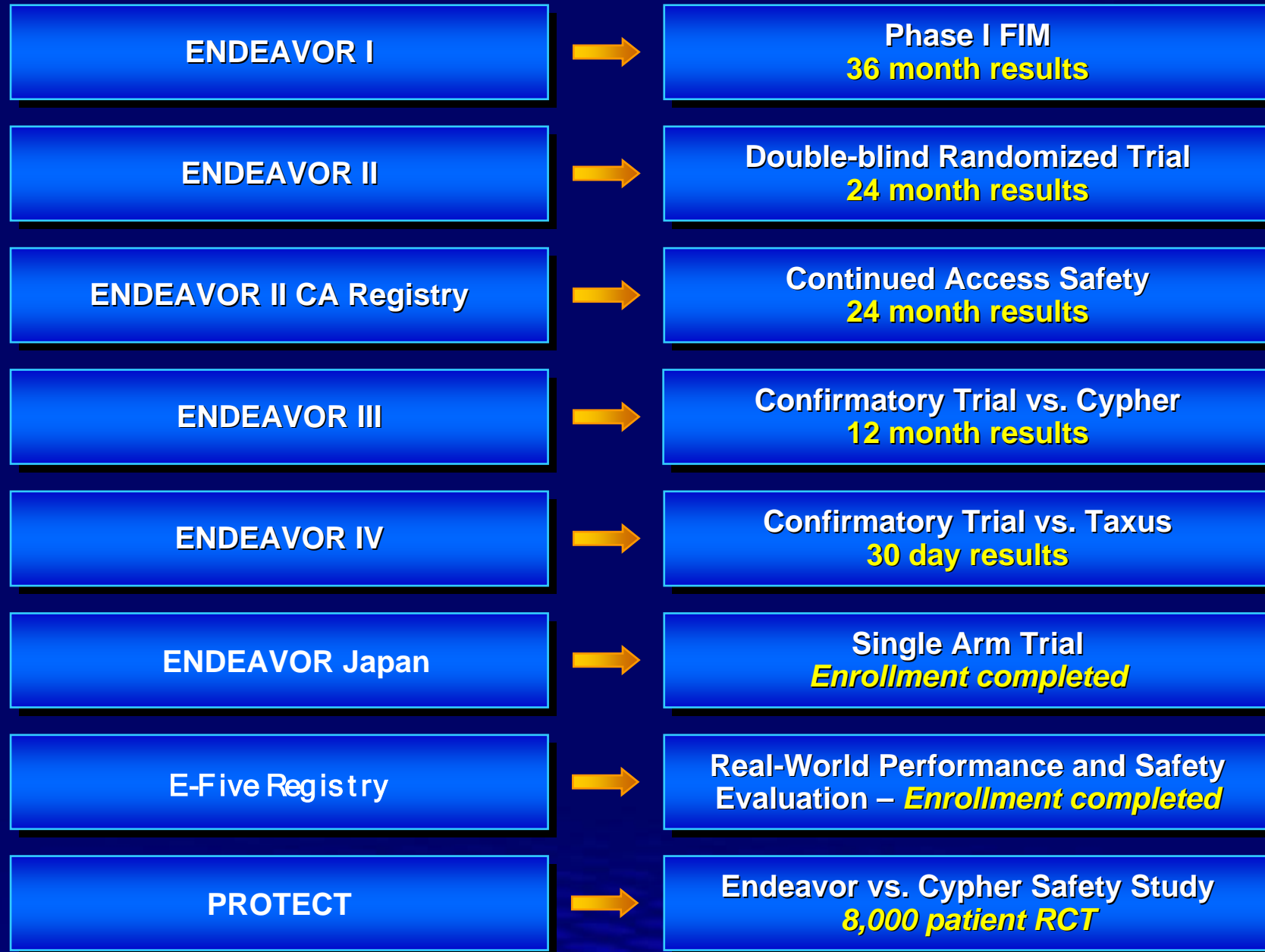
Inflammatory cells

Platelet deposition and activation occur at the injury site, leading to the release of cell-signaling molecules.

Components of the Endeavor Stent



ENDEAVOR Clinical Program



Endeavor Clinical Program

Extensive Clinical Experience

30 days 1 year 2 years 3 years

EI
n = 100



EII
n = 598



EII CA
n = 296



EIII
n = 323



EIV
n = 773

- ~ 2,100 patients in FMA dossier
- ~ 1,000 patients studied for >2 years
- ~ 1,300 patients studied for >1 year
- Cumulative experience will exceed 14,000 patients

E-Five
n = 8,000

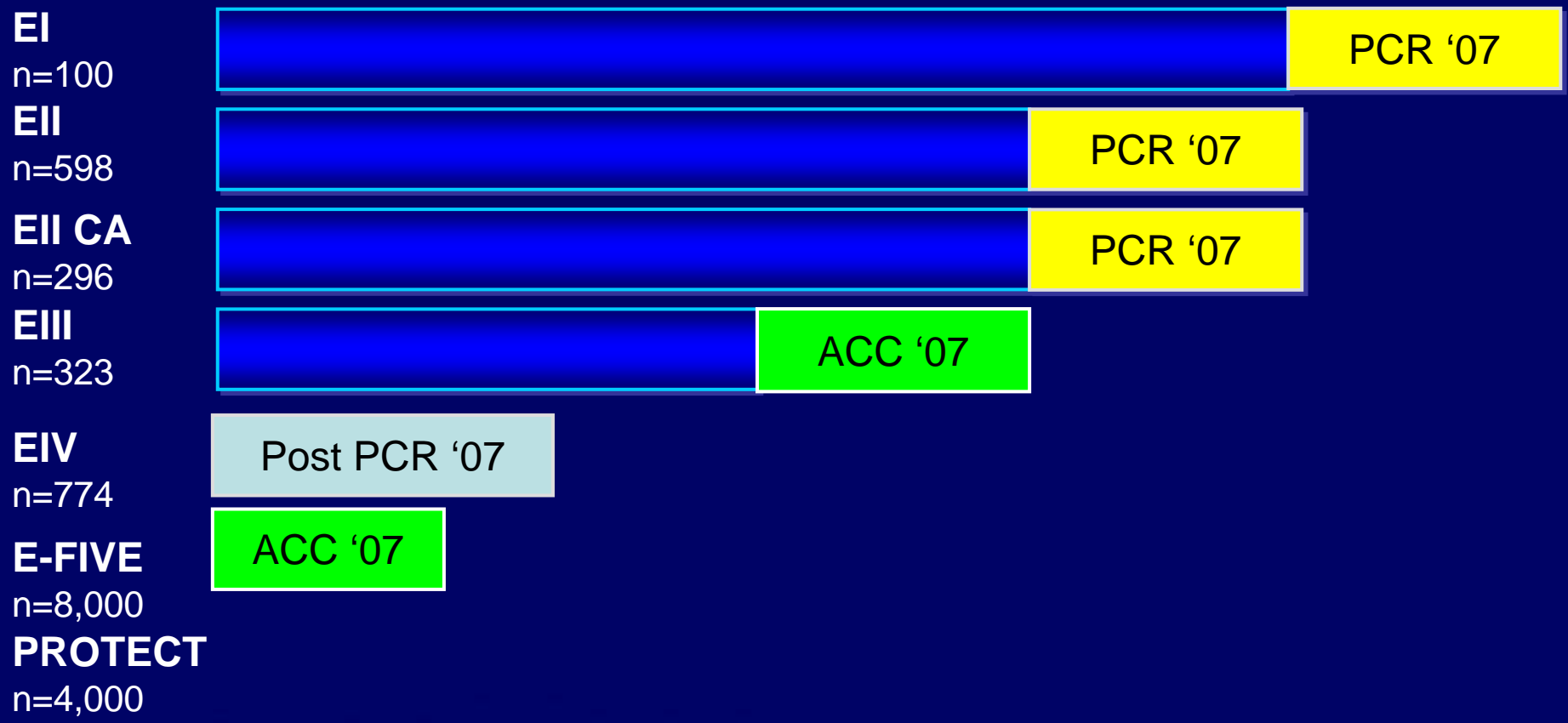
PROTECT
n = 4,000

Total: N > 14,000

Endeavor Clinical Program

Extensive Clinical Experience

6 mo 9 mo 1 year 2 years 3 years 4 years



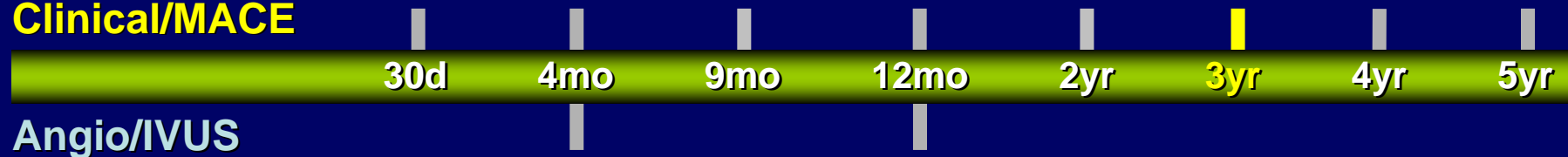
ENDEAVOR I

Phase I Trial "First In Man"

Single *De Novo* Native
Coronary Artery Lesions (Type A-C)
Stent Diameter: 3.0-3.5 mm
Stent Length: 18 mm
Lesion Length: <15 mm
Pre-dilatation required

N = 100 patients
8 sites
Australia and New Zealand

Clinical/MACE

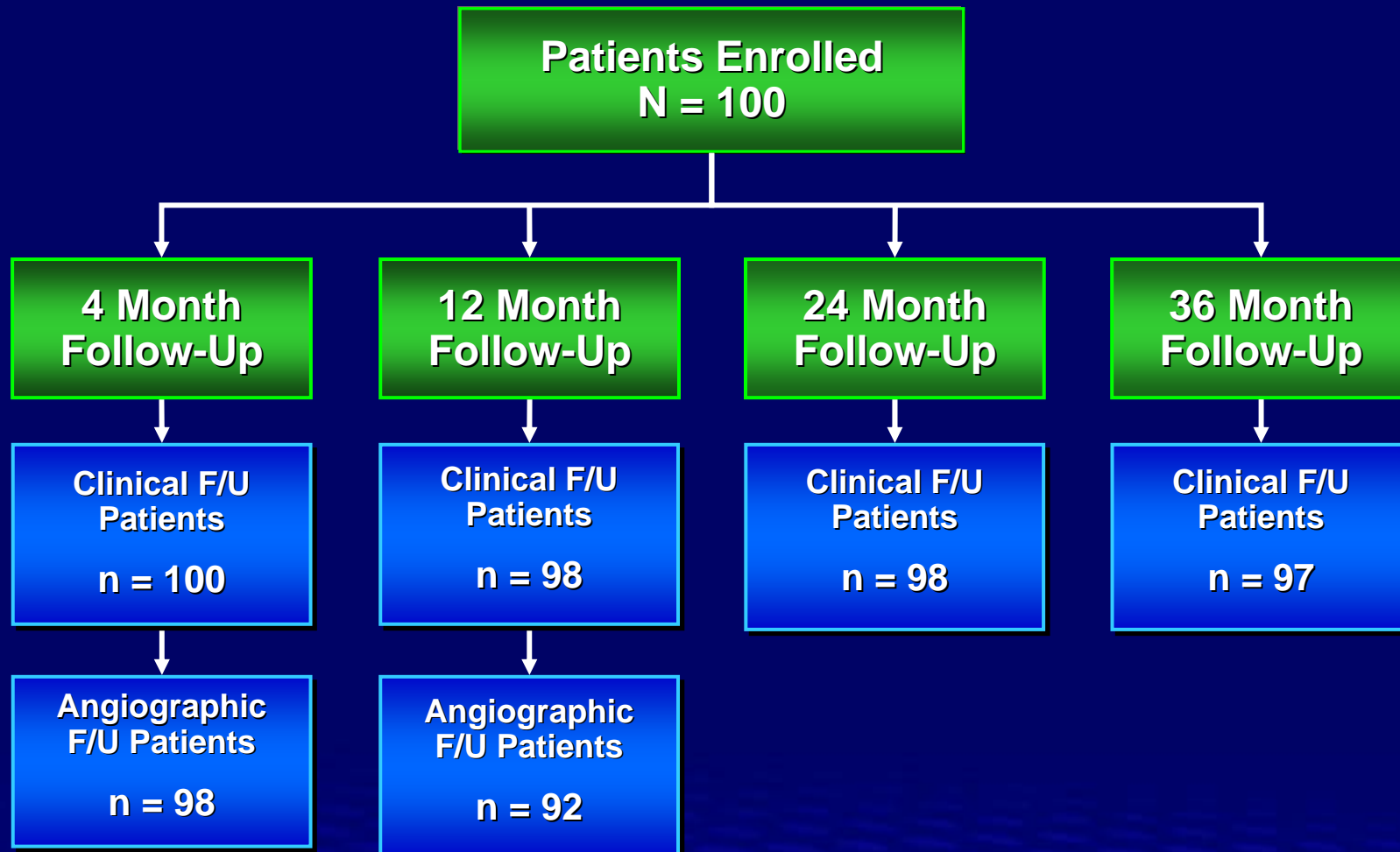


Angio/IVUS

Primary Endpoints: MACE at 30 days and late loss (QCA) at 4 months
Secondary Endpoints: TVF and TLR at 9 months, late loss at 12 months
Antiplatelet therapy for 3 months 10 µg Zotarolimus per mm stent length

ENDEAVOR I

Patient Flowchart



ENDEAVOR I

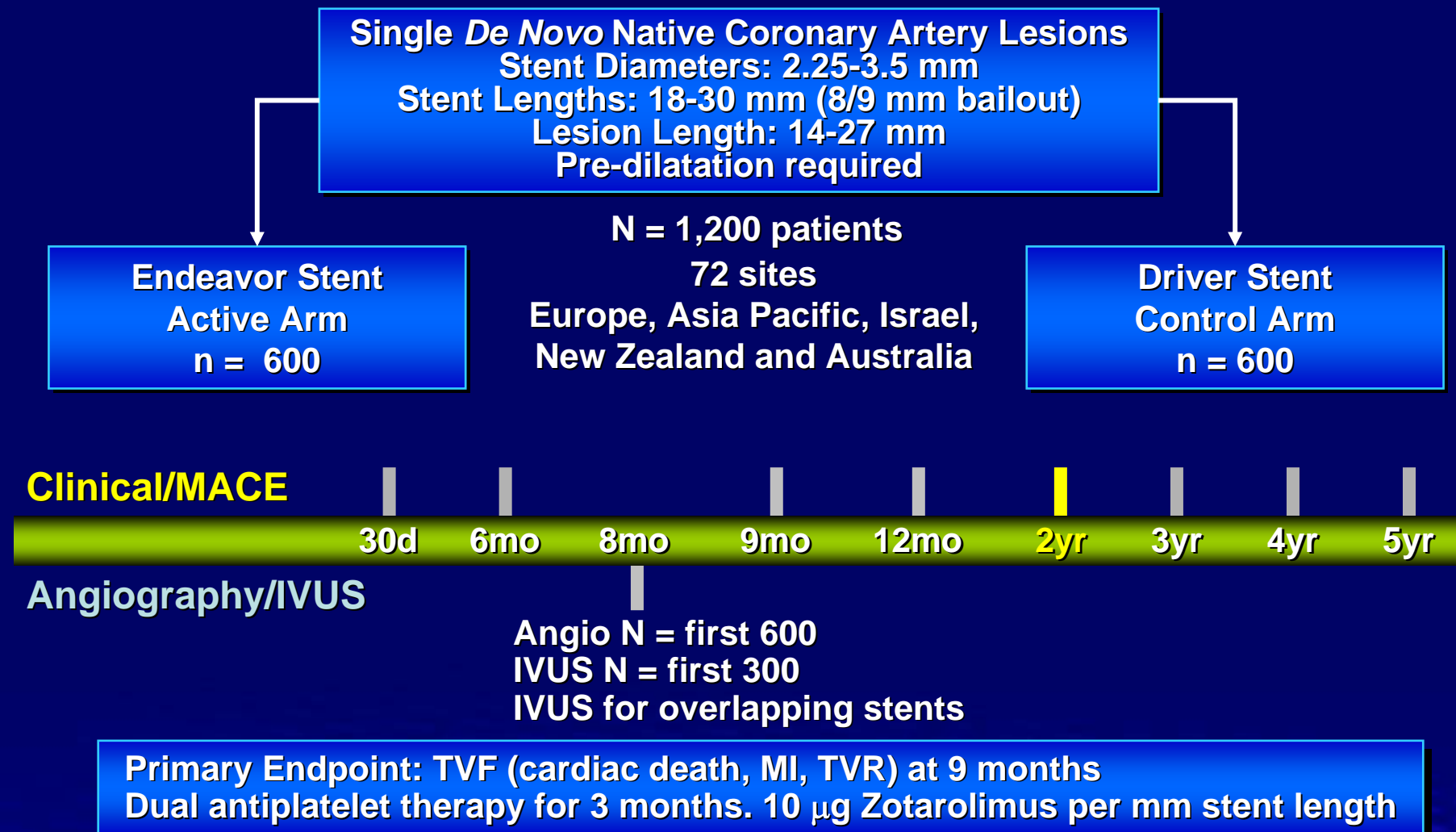
Clinical Events to 3 Years

	0 - 12 Months n = 98	12 - 24 Months n = 98	24 - 36 Months n = 97	0 - 36 Months N = 97
MACE	2%	1%	3%	6%
Death	0	1%*	2%*	3%*
MI (all)	1%	0	0	1%
Q-wave	0	0	0	0
Non Q-wave	1%	0	0	1%
TLR	2%	0	1%	3%
TVR (non-TL)	0	2%	0	2%
TVF	2%	2%	1%	5%

*1x Metastatic melanoma 1x Metastatic adenocarcinoma, 1x Small cell bladder carcinoma.

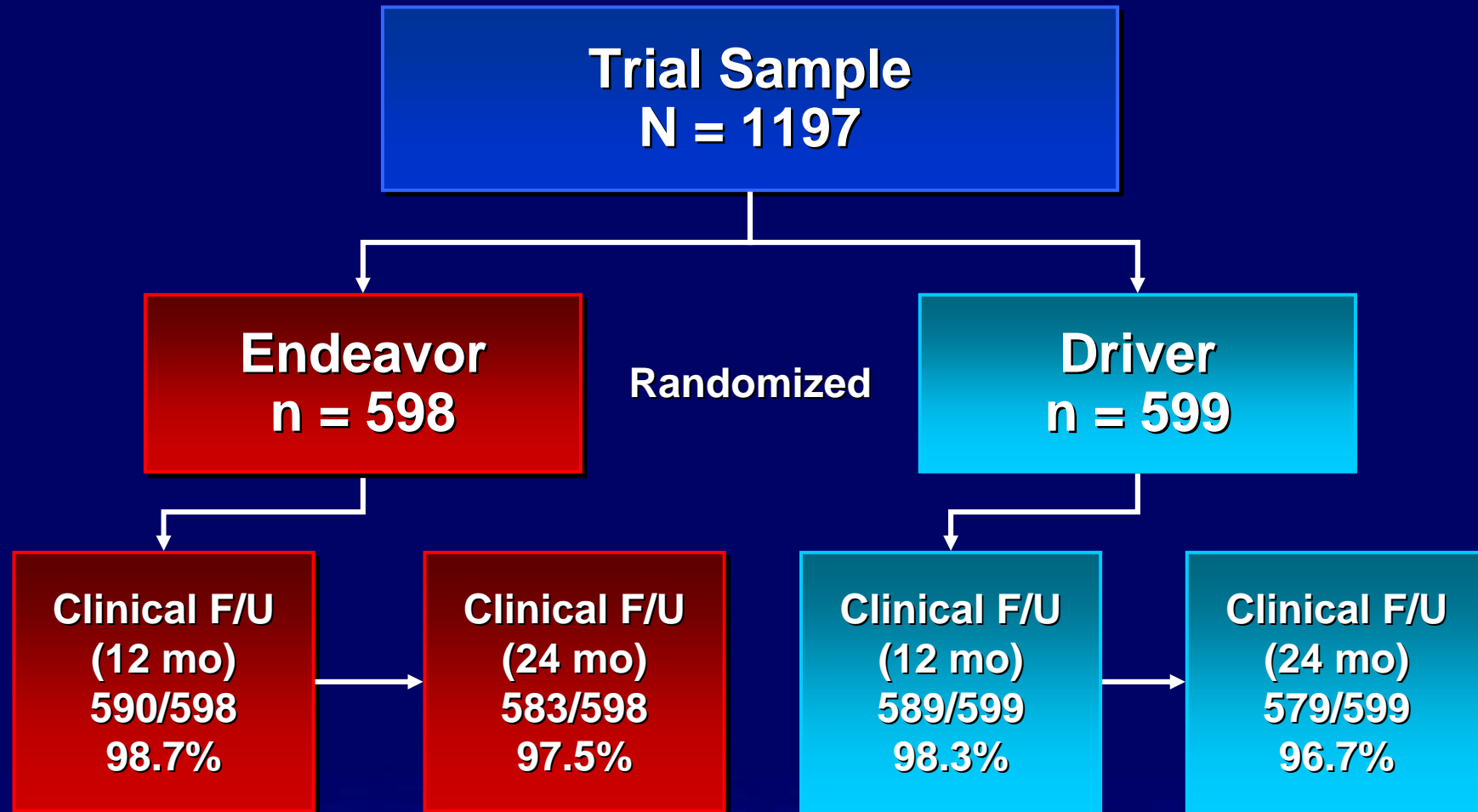
ENDEAVOR II

Randomized, Double-Blind Trial Design



ENDEAVOR II

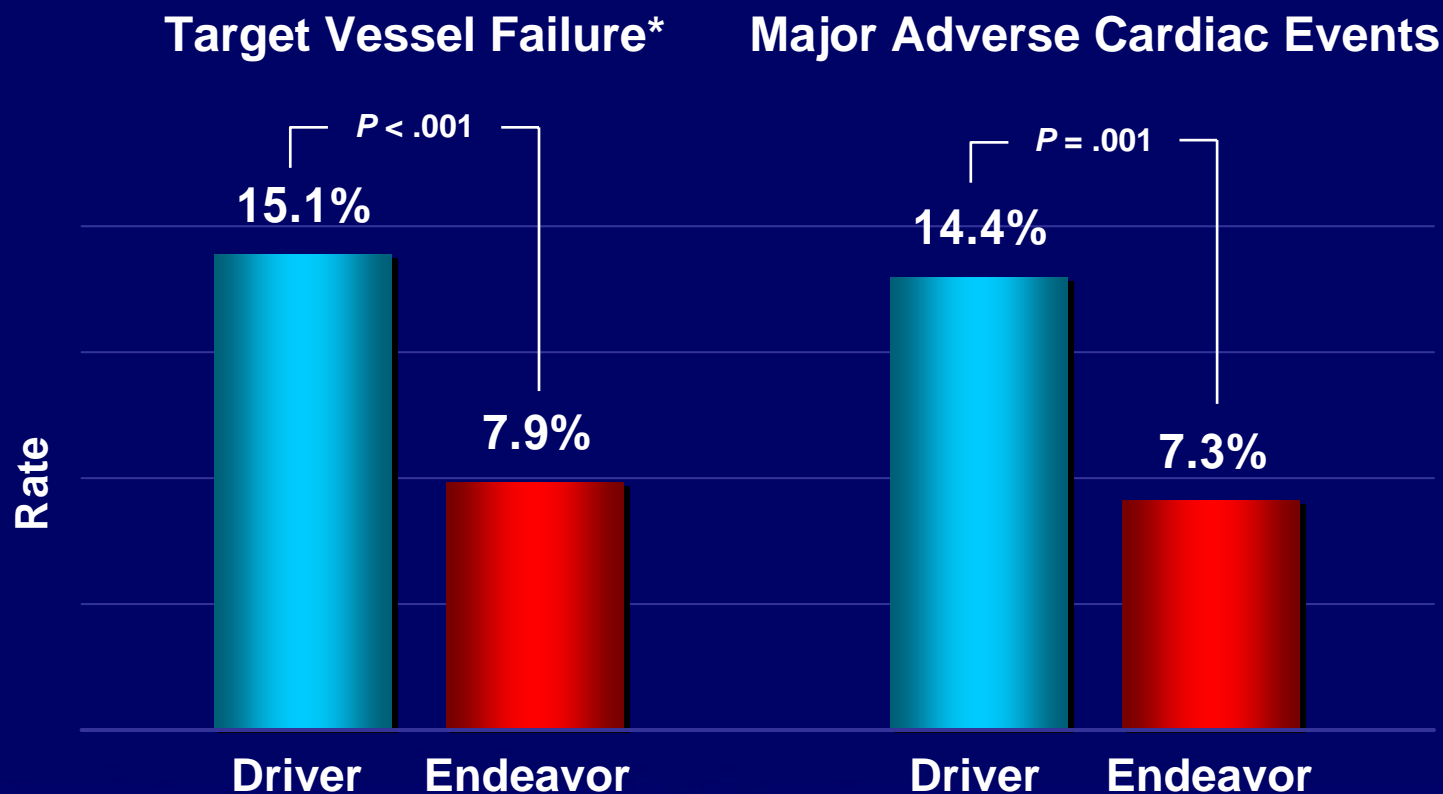
Patient Flowchart



ENDEAVOR II

Clinical Outcomes

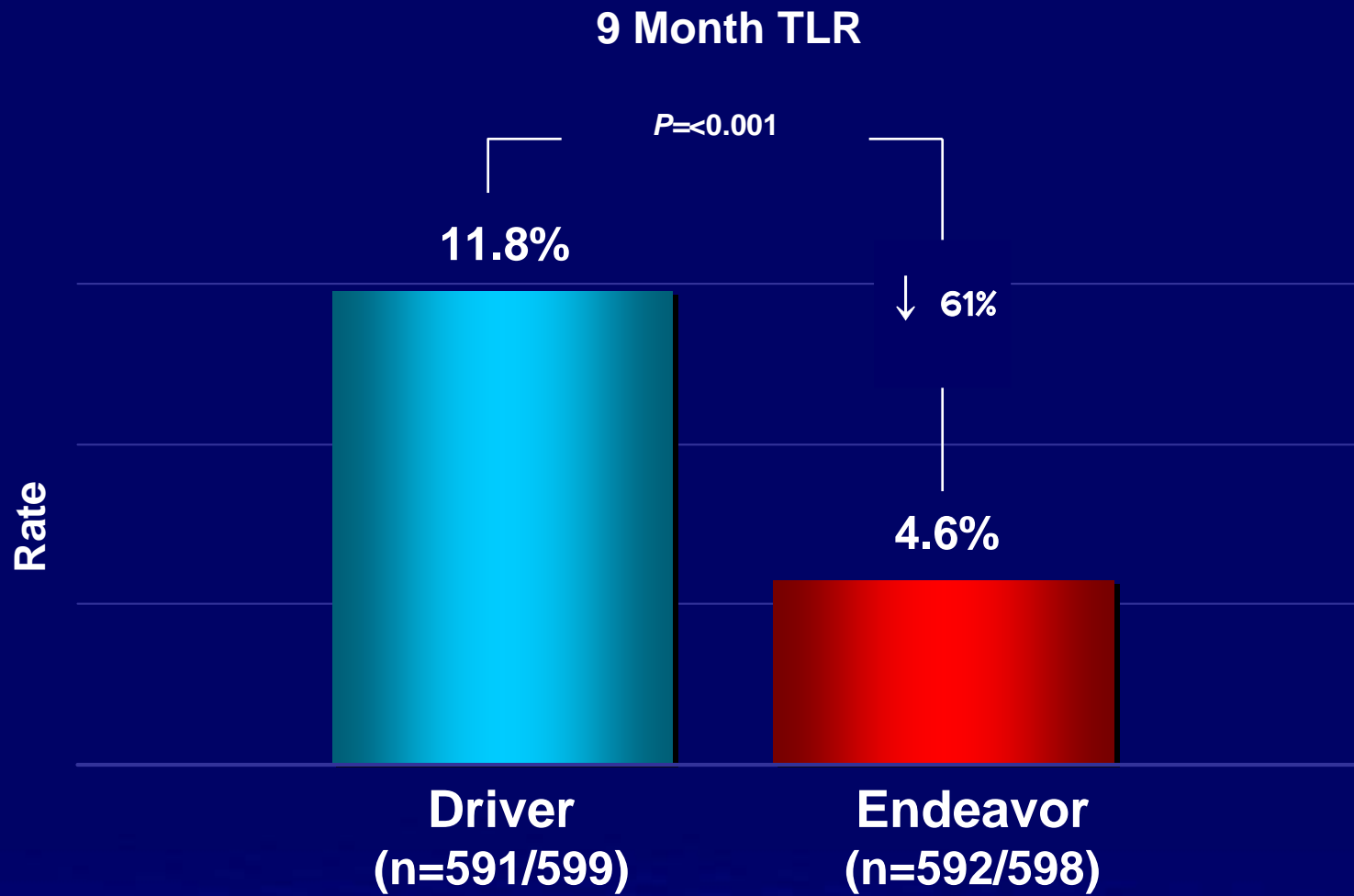
Primary Endpoint at 9 Month Follow-up



*Target Vessel Failure is a composite of target vessel revascularization, Q- or non Q-wave MI, or cardiac death.
Fajadet et al. *Circulation*. 2006;114:98-806.

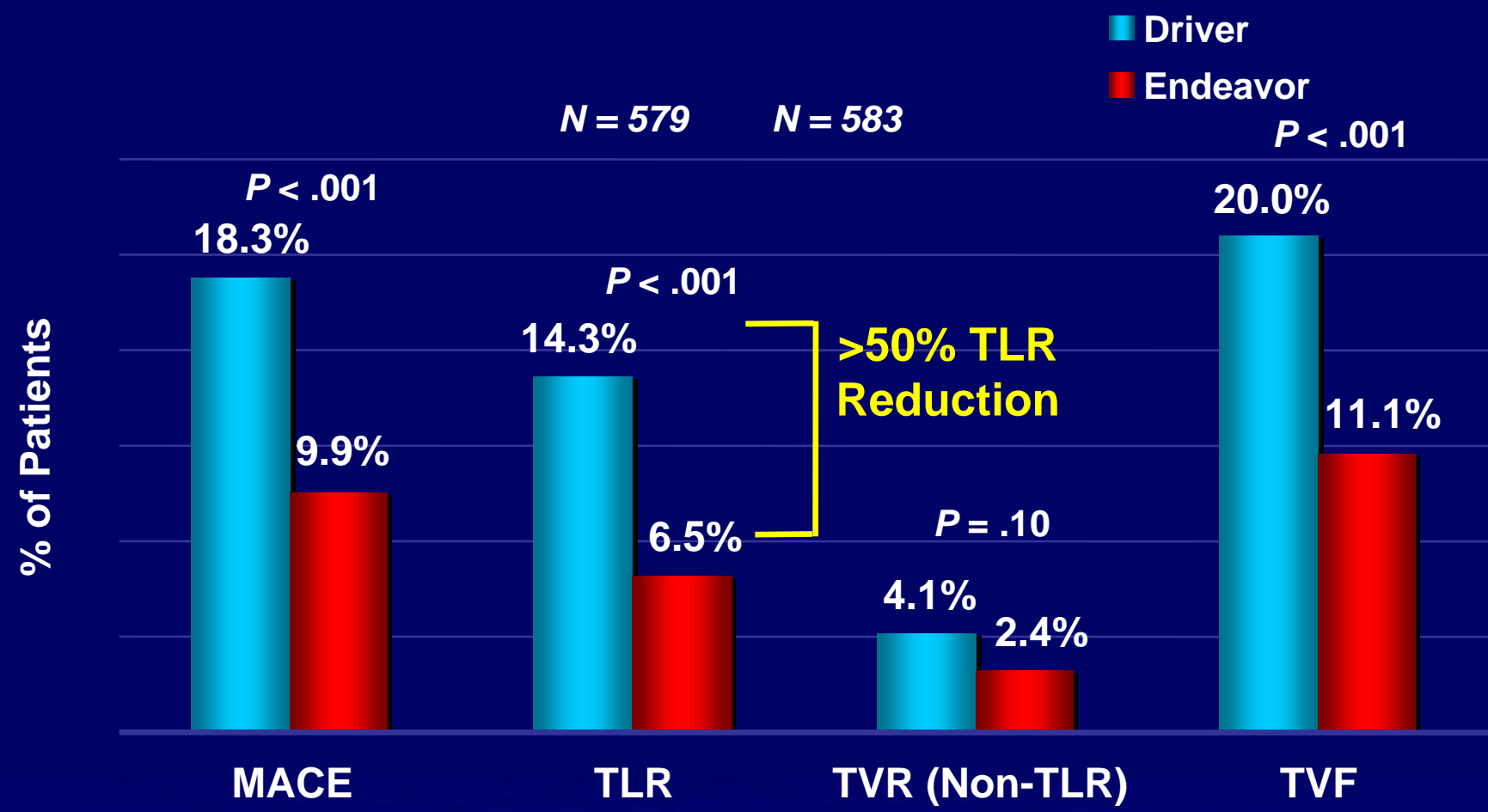
ENDEAVOR II

TLR at 9 Months



ENDEAVOR II

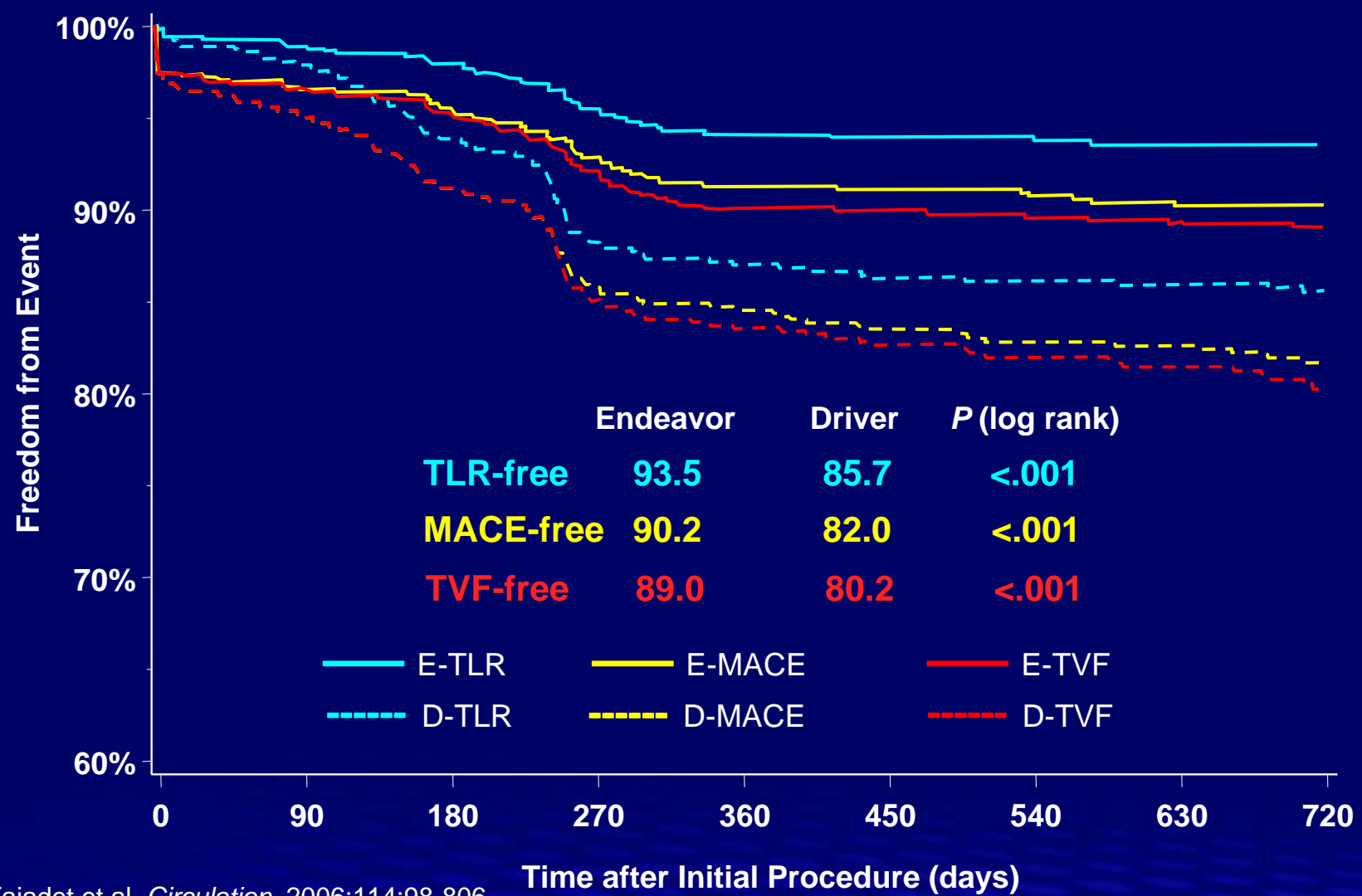
Clinical Events at 24 Months



Fajadet et al. *Circulation*. 2006;114:98-806.

ENDEAVOR II

Event Free Survival at 2 Years



Fajadet et al. *Circulation*. 2006;114:98-806.

ENDEAVOR III

Multicenter Randomized Trial

3:1 Randomization
Single Blind - Single Vessel - No Staging

Single *De Novo* Native Coronary Lesion
Vessel Diameter: 2.5-3.5 mm
Lesion Length: 14-27 mm
Stent Lengths: 18-30 mm (8/9) mm bailout
Pre-dilatation required

Endeavor Stent
n = 327

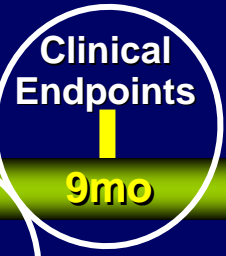
N = 436 patients
30 sites
United States

Control Cypher Stent
n = 109

Clinical/MACE



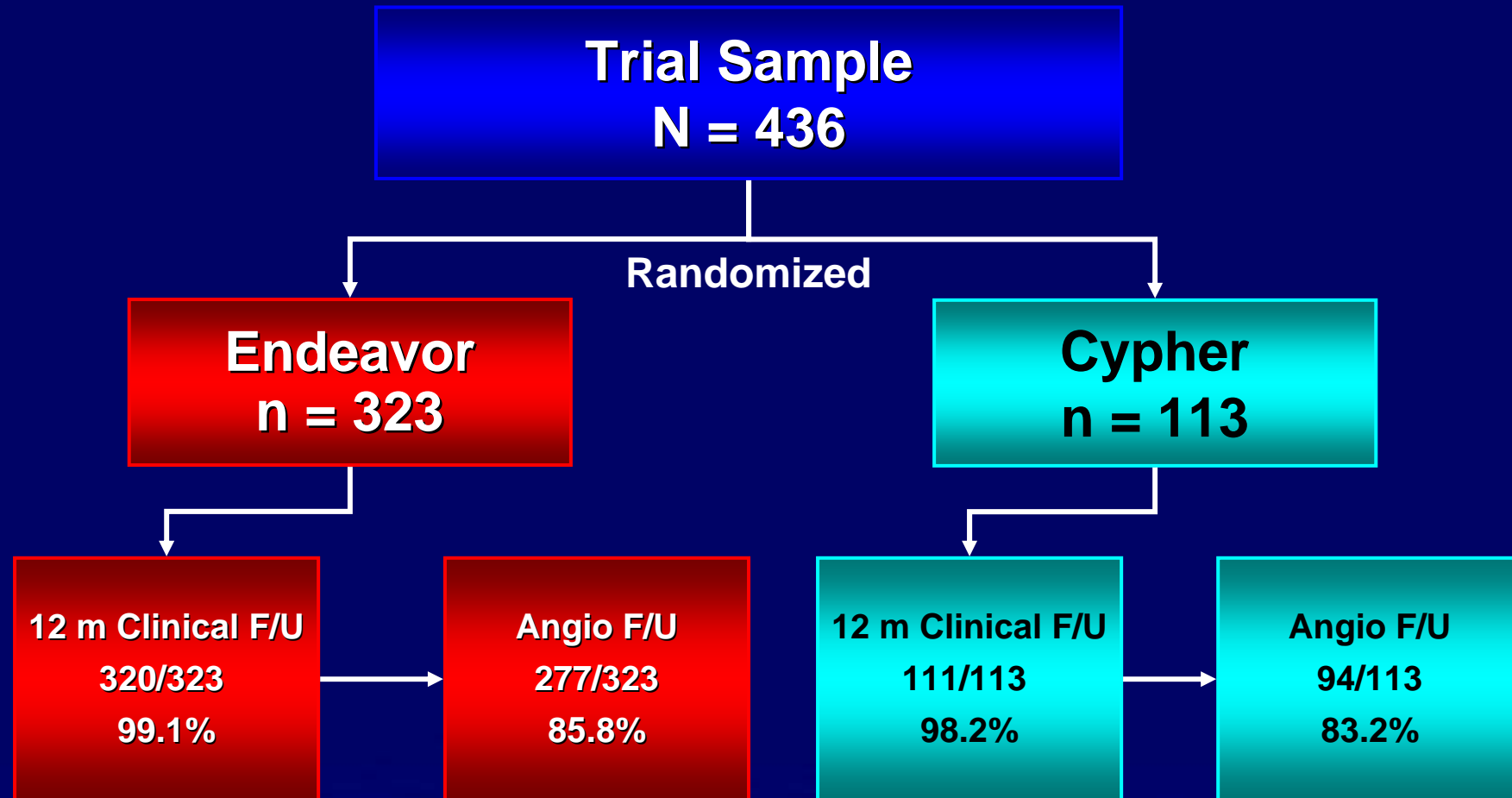
Angio/IVUS



Primary Endpoint: In-segment late lumen loss by QCA at 8 months
Secondary Endpoints: TLR, TVR, TVF at 9 months & ABR at 8 months
Antiplatelet therapy for 33 months 10 µg Zotarolimus per mm stent length

ENDEAVOR III

Patient Flowchart



ENDEAVOR III

Angiographic and IVUS Results at 8 Months

	Endeavor n = 277	Cypher n = 94	P- value
Angiographic f/u % (N)	85.8 (323)	83.2 (113)	.54
Pre RVD (mm)	2.75	2.79	.49
MLD (mm) In-Stent	2.06	2.52	<.001
In-Segment	1.91	2.16	<.001
DS (%) In-Stent	24.9	11.0	<.001
In-Segment	30.4	23.9	<.001
BAR (%) In-Stent	9.7	2.1	.01
In-Segment	12.3	4.3	.03
Late Loss (mm) In-Stent	0.62	0.15	<.001
In-Segment	0.36	0.13	<.001
Volume Obstruction (%)	15.9 (n = 187)	2.7 (n = 61)	<.001
Late Incomplete Apposition (%)	0.5 (1/189)	5.9 (4/68)	.02

ENDEAVOR III

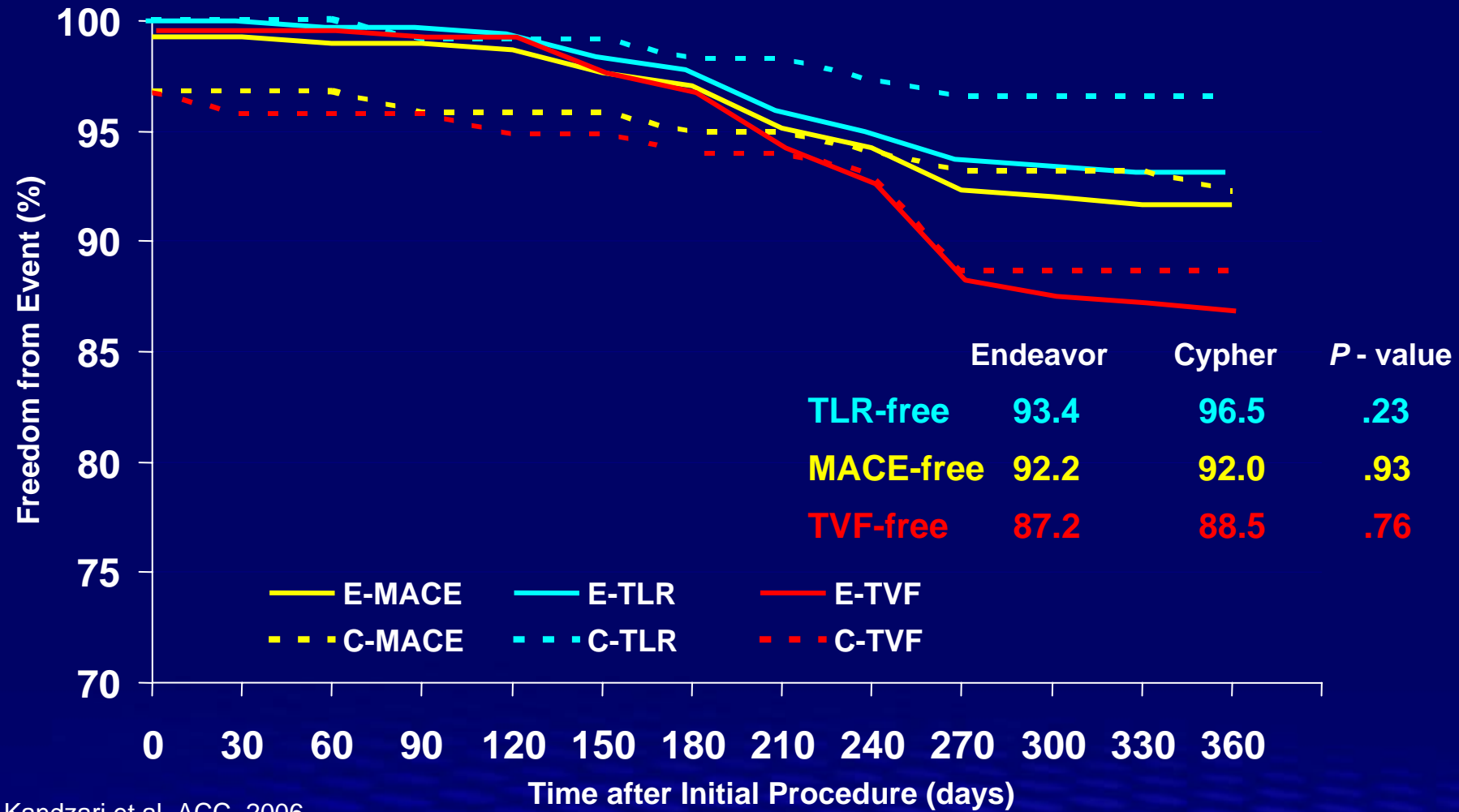
Clinical Results at 12 Months

	Endeavor n = 320	Cypher n = 111	P- value
MACE (%)	7.8 (25)	8.1 (9)	1.00
Death	0.6 (2)*	0.9 (1)	1.00
Q-Wave MI	0	0	—
Non Q-Wave MI	0.6 (2)	3.6 (4)	.04
Emergent CABG	0	0	—
TLR	6.6 (21)	3.6 (4)	.35
CABG	0.9 (3)	0	.57
PCI	5.6 (18)	3.6 (4)	.62
Stent Thrombosis (%)	0	0	—
TVR (non-TL) (%)	6.6 (21)	5.4 (6)	.82
TVF (%)	12.8 (41)	11.7 (13)	.87

*Non cardiac deaths (lung cancer and cerebral hemorrhage).
Kandzari et al. ACC, 2006.

ENDEAVOR III

Event Free Survival to 360 Days



Kandzari et al. ACC, 2006.

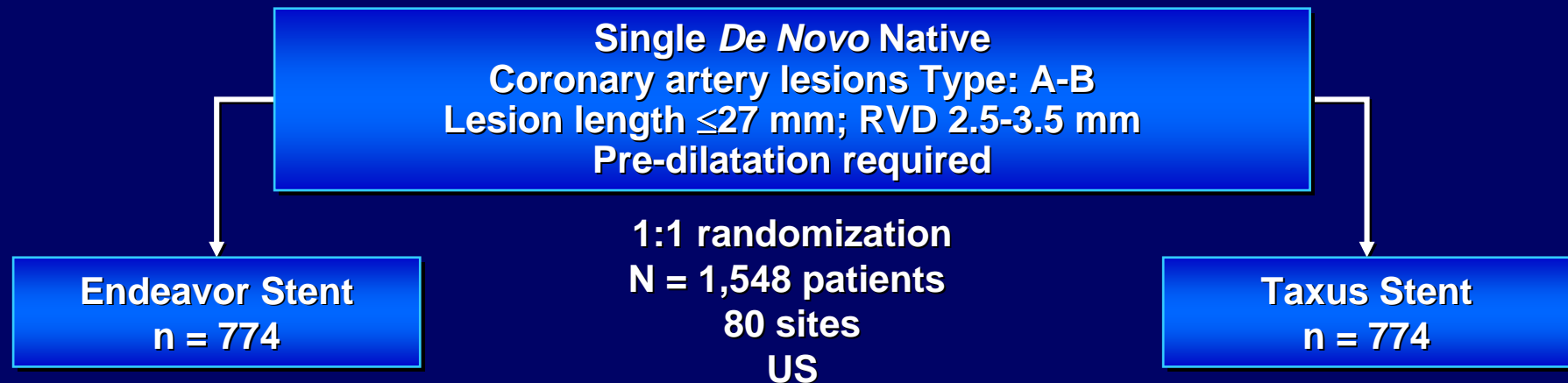
ENDEAVOR II and III

Angiographic and Clinical Results

Angiographic Results (8 months)		E III n = 277	E II n = 264	P- value
Angiographic f/u %		85.8	88.6	.34
BAR (%)	In-Stent	9.7	9.5	1.00
	In-Segment	12.3	13.3	.80
Late Loss (mm)	In-Stent	0.62	0.62	.89
	In-Segment	0.36	0.36	.90
Clinical Results (9 months)		E III n = 277	E II n = 264	P- value
TLR (%)		6.9	5.7	.60
MACE (%)		7.9	8.3	.88
TVF (%)		12.6	9.1	.22

ENDEAVOR IV

Randomized, Single-Blind, Multicenter Trial



Clinical/MACE



Angio/IVUS

QCA & IVUS
Subset
(328 total)

QCA/IVUS at 8 months for
patients receiving >1 stent

Primary Endpoint: TVF at 9 mos

Secondary Endpoints: In-segment % DS at 8 mos; TSR and TVR at 9 mos; MACE 1, 6, 9, 12 mos

Antiplatelet therapy for ≥ 6 months. $10 \mu\text{g}$ Zotarolimus per mm stent length

ENDEAVOR Japan

*Prospective, Multicenter, Single-Arm Study
Assessing Safety and Efficacy in a Japanese Population*

Single *De Novo* Native
Coronary Artery Lesions (Type A-B2)
Stent Diameter: 2.25-3.5 mm
Stent Lengths: 18-30 mm (8/9 mm bailout)
Lesion Length: 14-27mm
Pre-dilatation required

N = 99 patients (includes 20 PK Sub-Study Patients)
11 sites in Japan

Clinical/MACE

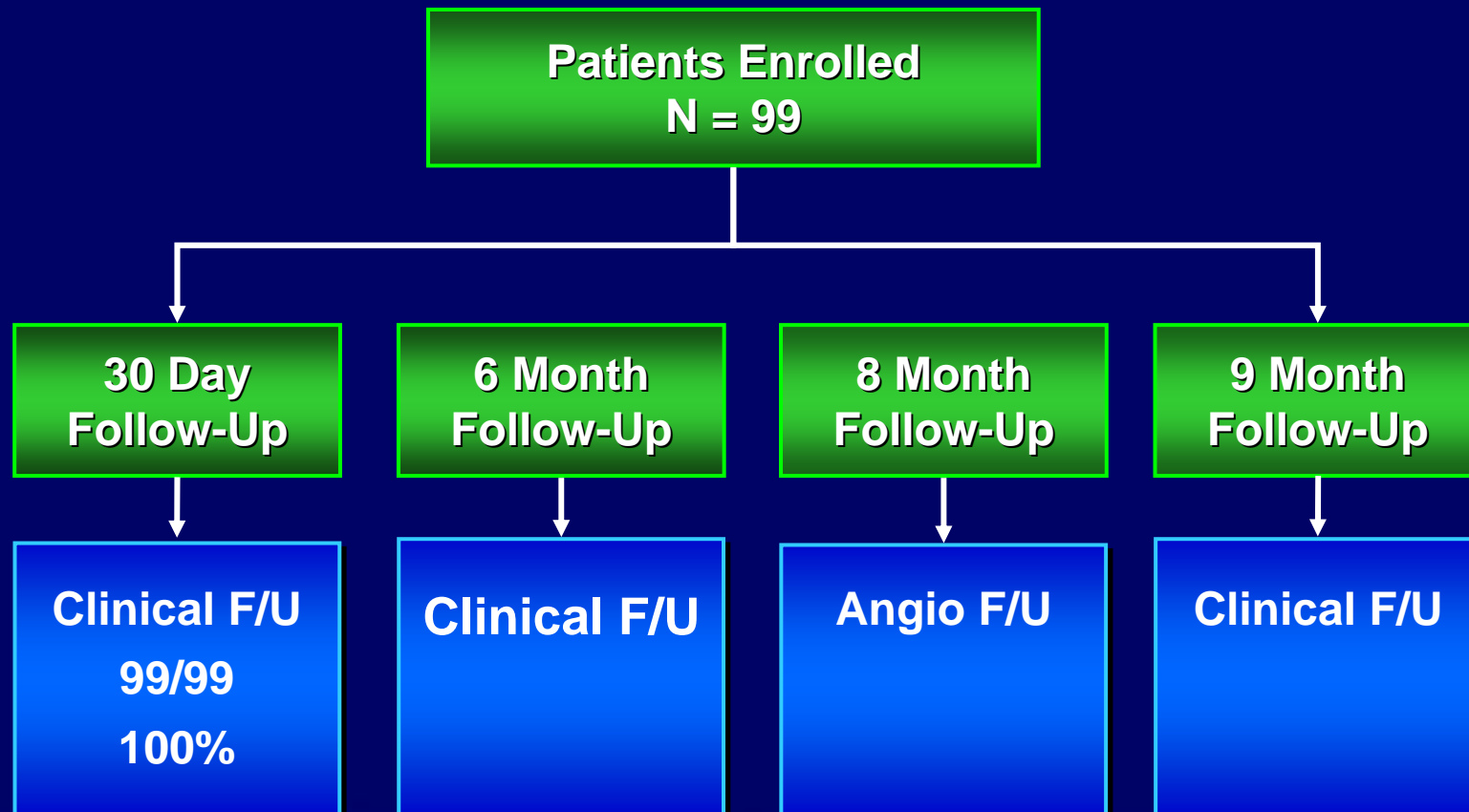


Angio

Angio N = 99 patients

Primary Endpoint: TVF (cardiac death, MI, TVR) at 9 months
Dual antiplatelet therapy for 3 months 10 μ g Zotarolimus per mm stent length

Patient Flowchart



Clinical Results at 30-Day

	ENDEAVOR Japan N = 99	ENDEAVOR II N = 596	<i>P</i> Value
Composite MACE (%)	2.0	2.9	1.000
Death	0	0.2	1.000
Q-Wave MI	0	0.3	1.000
Non Q-Wave MI	2.0	2.3	1.000
Emergent CABG	0	0	—
TLR	0	0.8	1.000
TL-CABG	0	0	—
TL-PCI	0	0.8	1.000
TVR (%)	0	1.2	.601
Stent Thrombosis (%)	0	0.5	1.000
Acute ST	0	0.2	1.000
Sub-acute ST	0	0.3	1.000

E-Five

Prospective, Multicenter Registry Assessing Safety in a Real World Patient Population

Single and Multiple Coronary Artery Lesions
Stent Diameters: 2.25-4.0 mm
Stent Length: 8/9-30 mm

N = 8,000 patients
200 sites
Europe, Asia Pacific, Israel, New Zealand,
South America

Clinical/MACE



Primary Endpoint: MACE at 12 months

Secondary Endpoints: MACE at 30 days and 6 mo, Stent thrombosis, procedure success rate; device success rate; lesion success rate

Antiplatelet therapy for ≥ 3 months

10 μg Zotarolimus per mm stent length

*Limited number of centers and specific patient subset.

E-Five

Patient Demographics

	n = 2015
Male Gender (%)	76.6%
Age (years)	63.0±11.5
Prior MI (%)	37.4%
Non Q-wave MI	12.4%
Q wave MI	25.0%
Prior PCI (%)	24.0%
Prior CABG (%)	6.7%
Diabetes Mellitus (%)	35.2%
(Recent) MI (%)	21.8%
Unstable Angina (%)	31.5%

E-Five

Baseline Angiography (visual measurement)

	Endeavor n=2458*
LAD (%)	48.6
B2/C Lesions (%)	59.9
RVD (mm)	2.92
Lesion Length (mm)	18.28
Pre-procedure MLD (mm)	0.54
Pre-procedure DS (%)	81.53
Post-procedure DS (%)	2.13

*Number of lesions
Lotan et al. TCT, 2006.

E-Five

Procedure Characteristics

n = 2458

Total Stent Length (mm)	23.4±12.0
Lesion Length (mm)	18.3±9.9
Stent:Lesion Length	1.4±0.5
Long lesions (>16 mm) (%)	45.2%

Smallest Endeavor Stent Diameter

2.25 mm (%)	6.0%	} 44%
2.5 mm (%)	21.4%	
2.75 mm (%)	16.2%	
3.0 mm (%)	34.9%	
3.5 mm (%)	17.6%	
4.0 mm (%)	3.8%	

E-Five

30-Day MACE

n =1982

Non Hierarchical

MACE	1.7% (34)
Death	0.9% (17)
MI (all)	0.9% (17)
Q-wave	0.3% (6)
Non Q-wave	0.6% (11)

Emergent CABG	0
TLR	0.4% (8)
TL-CABG	0
TL-PTCA	0.4% (8)

PROTECT Clinical Trial Design

Proposed



Clinical Follow-up



Primary Endpoint: Definite or Probable Stent Thrombosis to 3 years
Secondary Endpoints: Death/NF MI, Cardiac death/NF MI, TVR, TLR
Co-PIs: W. Wijns (Belgium), P. Serruys (Netherlands), G. Steg (France),
E. Camezind (Switzerland), B. O'Neill (USA)