Évolution des Endoprothèses Actives

Nouvelles Molécules, Nouveaux concepts

Avec le support de SORIN GROUP
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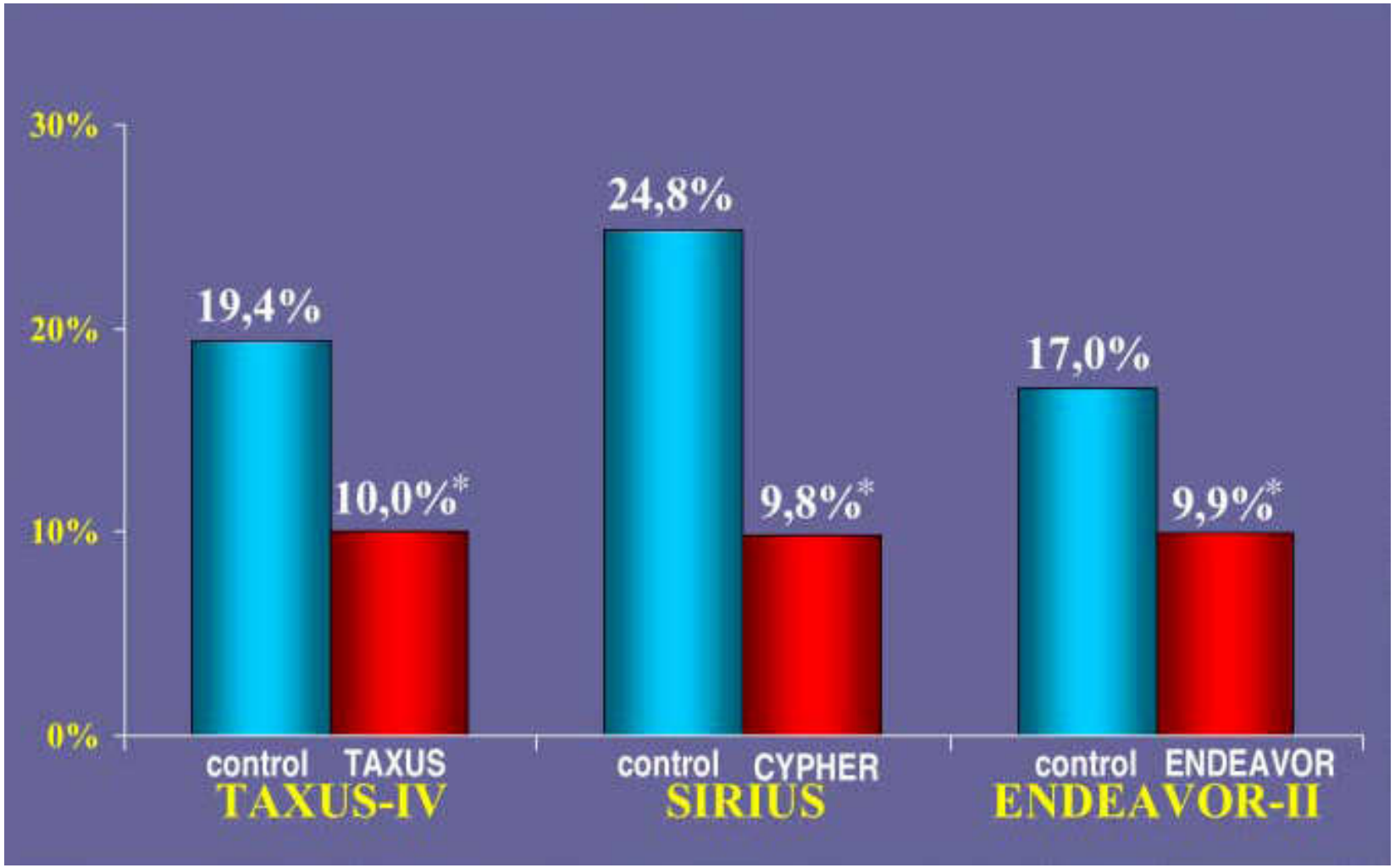
Clinique PASTEUR, Toulouse

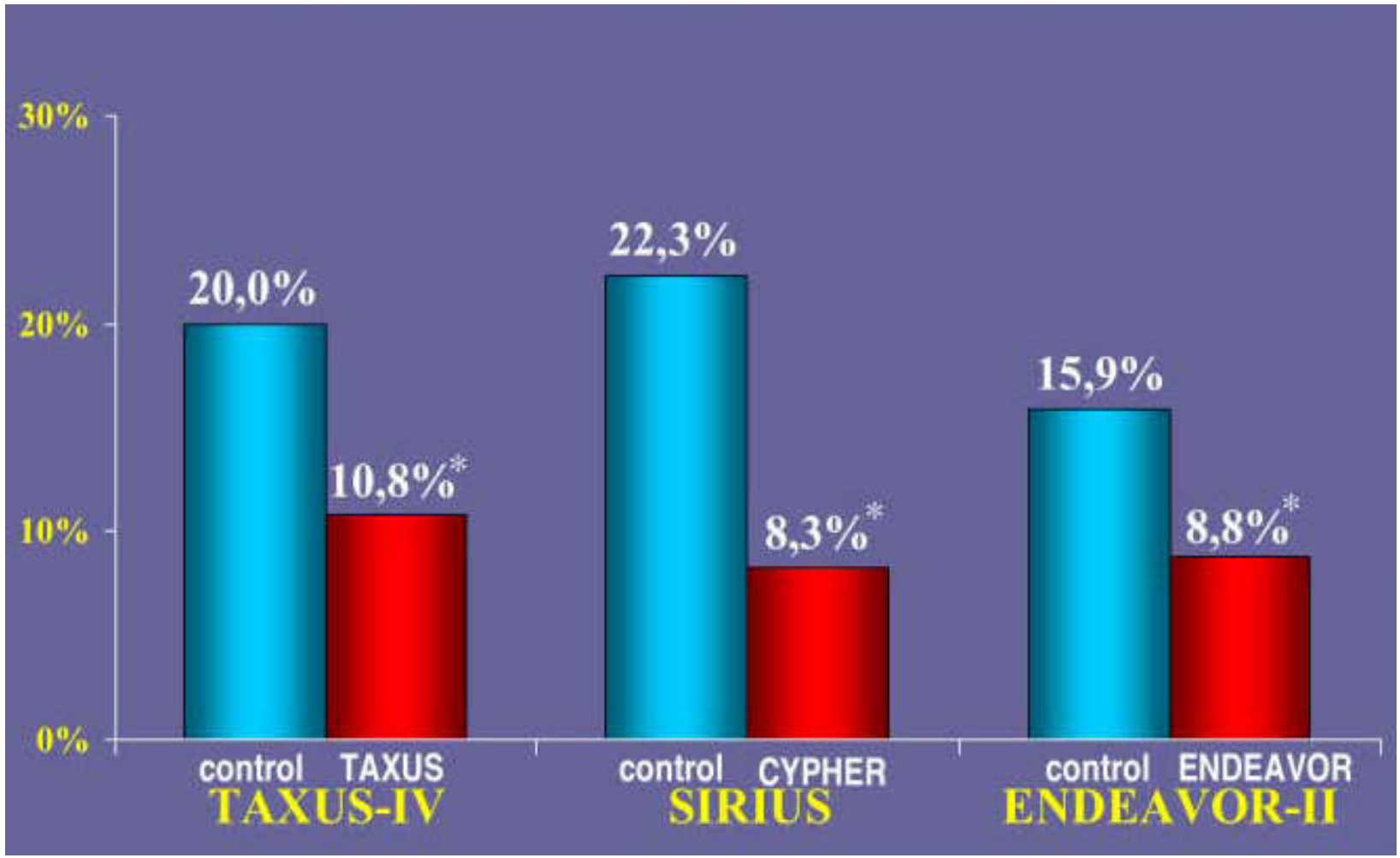
DES et Efficacité Clinique

- Taxus: 3 studies, 2916 patients
- Cypher: 1 study, 1058 patients
- Endeavor: 1 study, 1197 patients

TVF à 1 an


30%
20%
10%
0%
19,4%
10,0%*
24,8%
9,8%*
17,0%
9,9%*
control
TAXUS
TAXUS-IV
control
CYPHER
SIRIUS
control
ENDEAVOR
ENDEAVOR-II

MACE à 1 an


30%
20%
10%
0%
20,0%
10,8%*
22,3%
8,3%*
15,9%
8,8%*
control TAXUS
TAXUS-IV
control CYPHER
SIRIUS
control ENDEAVOR
ENDEAVOR-II

Succès d'une Endoprothèse Active

1. Stent

2. Polymère

3. Drogue

Nouvelles Molécules
Les Analogues de la Rapamycine

❑ **TACROLIMUS**	**SORIN**
❑ **EVEROLIMUS**	**GUIDANT**
❑ **ABT 578**	**ABOTT**

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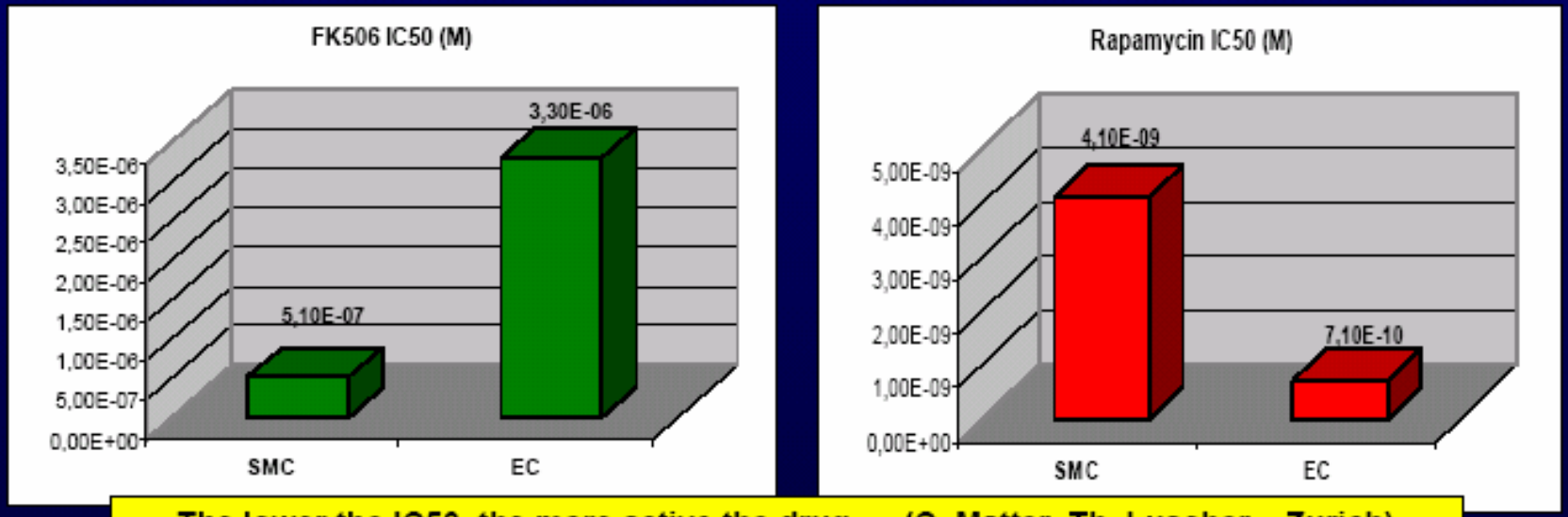
Nouvelles Molécules

Le TACROLIMUS

Tacrolimus selectivity on SMC
(Mohacsi P.J. et al. J Heart Lung Transplant 1997; 16; 484)



The lower the IC50, the more active the drug (C. Matter, Th. Luscher – Zurich)

- **Studies with human smooth muscle cells (SMC) and endothelial cells (EC) showed SMC selectivity of FK 506 (Tacrolimus)**
- **Rapamycin (Sirolimus) has higher potency for ECs compared to SMCs**
- **FK 506 may improve re-endothelialization of damaged vessel wall**

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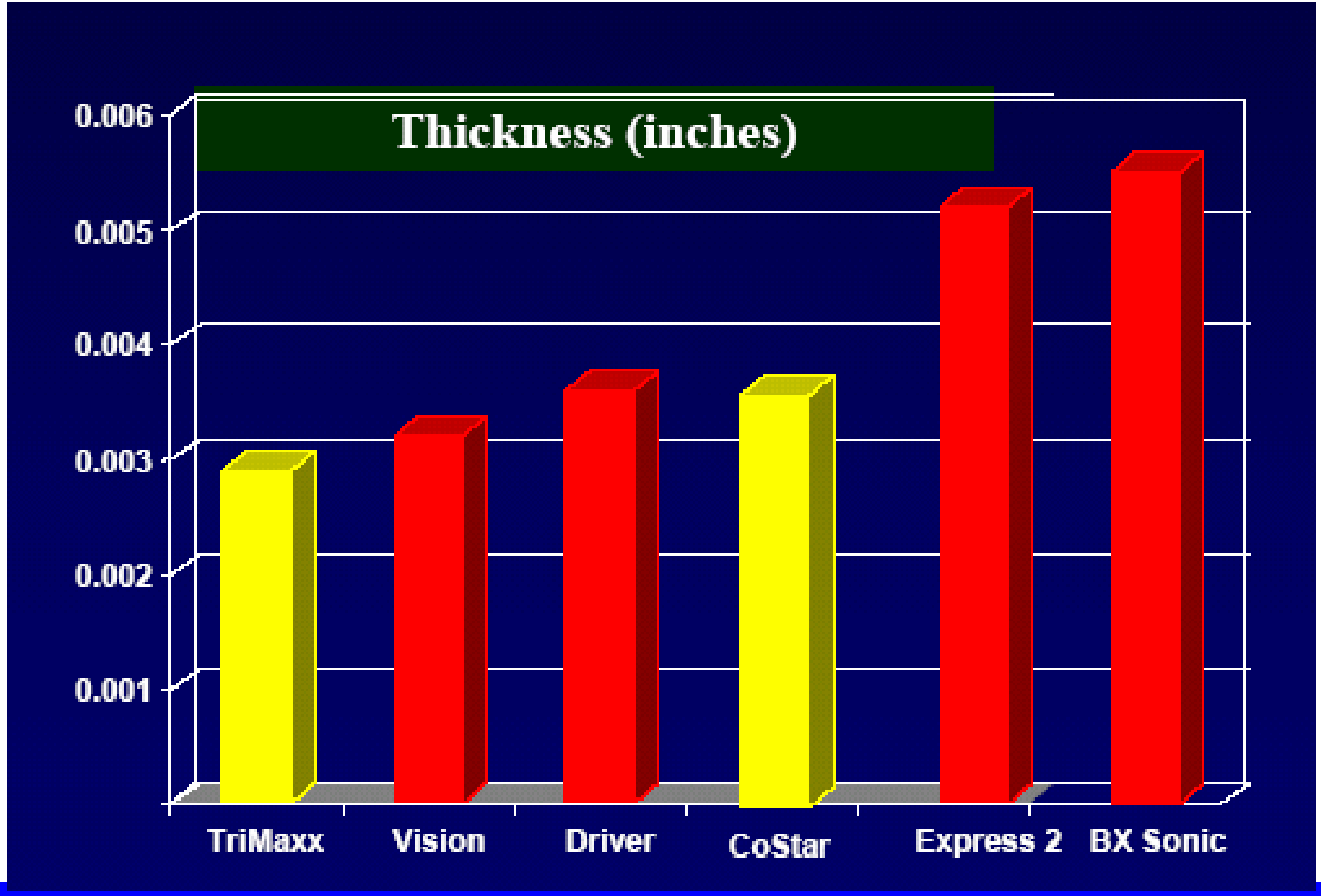
Nouveaux Concepts

Amélioration du Profil des Stents



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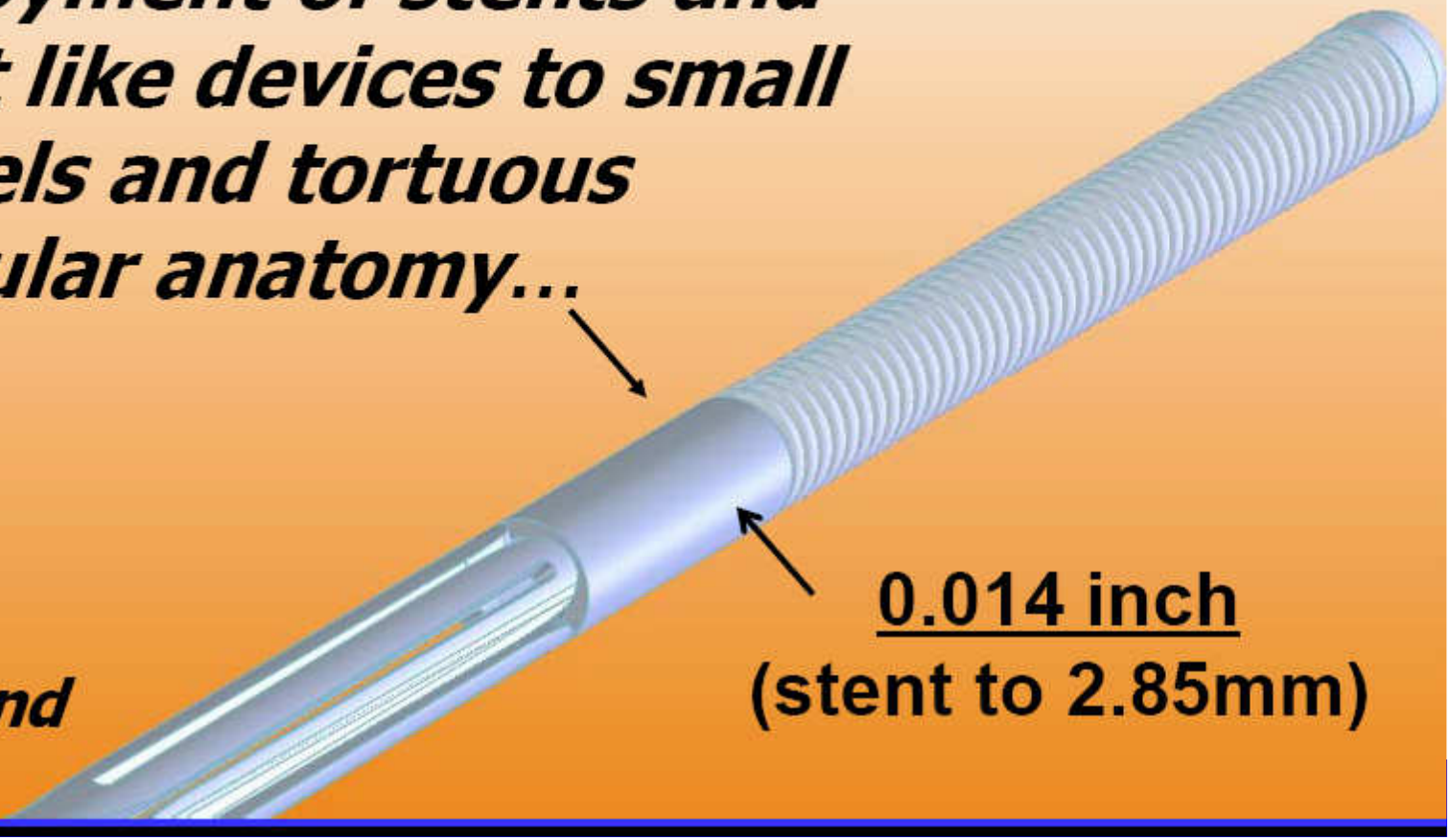
Nouveaux Concepts

Amélioration du Profil des Stents

A guidewire based platform technology for delivery and deployment of stents and stent like devices to small vessels and tortuous vascular anatomy…



0.014 inch
(stent to 2.85mm)

CardioMind

Nouveaux Concepts

- **Stents Biodégradables**
- **Stents Réservoirs**

CONOR
SORIN

Nouveaux Concepts

Intérêts des Stents Biodégradables

1. **Prévention du retour élastique nécessaire pendant seulement 3-6 mois (remodelage positif).**

2. **Pas de Polymère (pas de risque d'inflammation)**

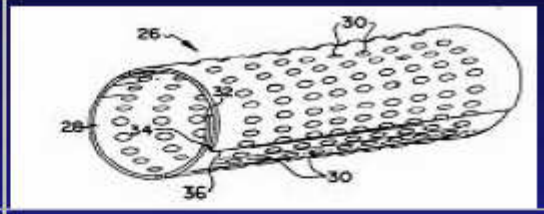
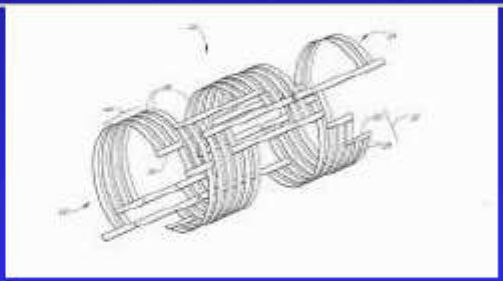
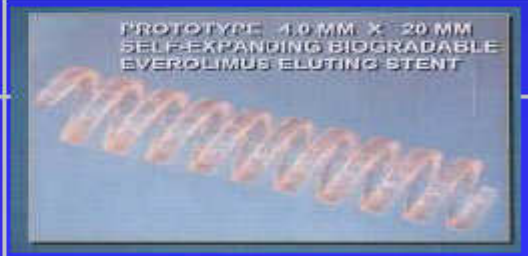
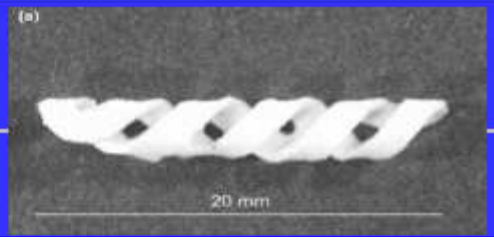
3. **Diminution de la durée de l'association ASA-PLAVIX**

4. **Simplifie la Ré intervention (pas de matériel résiduel)**

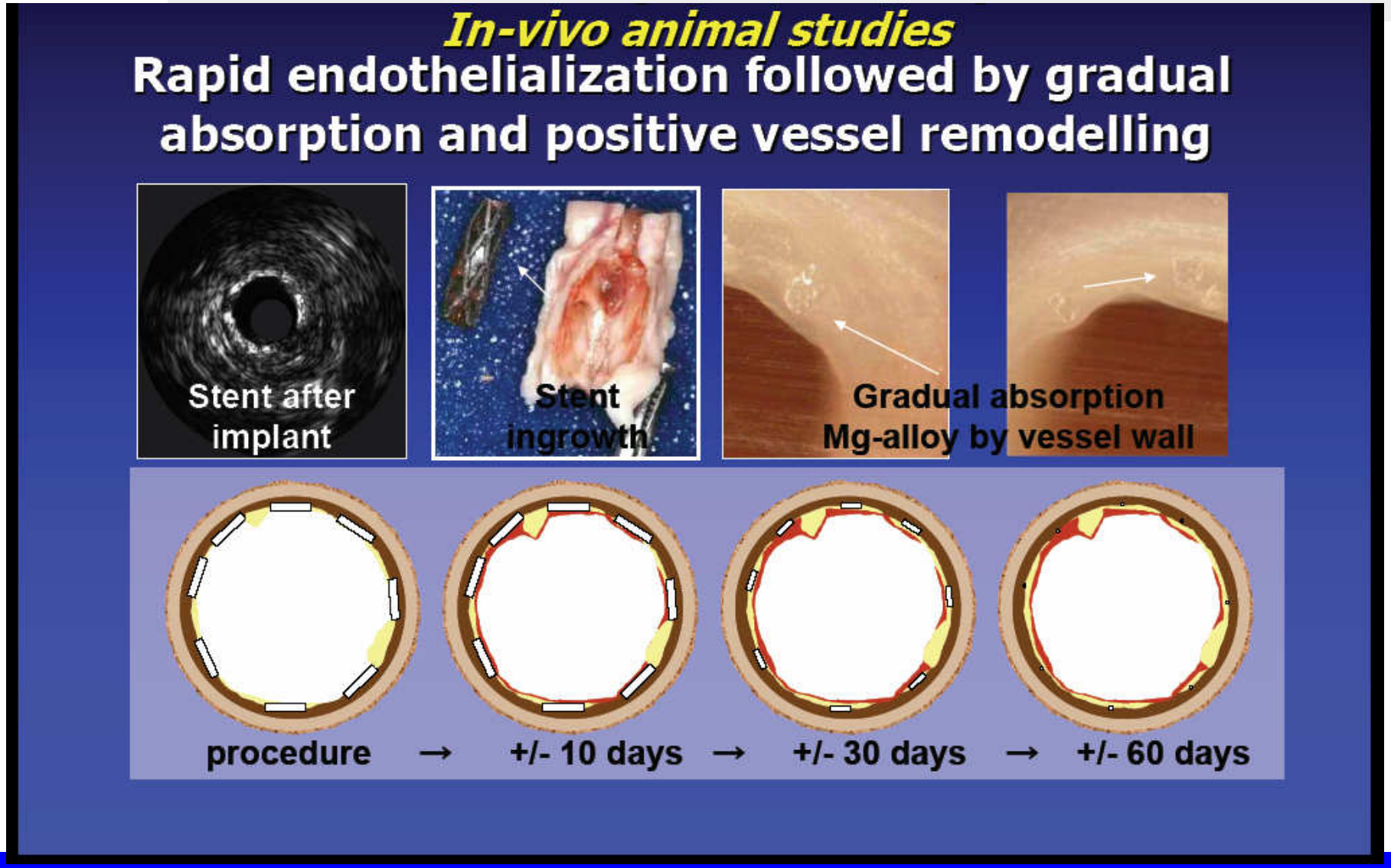
5. **Simplifie l'interprétation IRM et Scanner**

PCR05

#8 BIOABSORBABLE STENT

Company	Picture	Polymer/Drug	Features
Guidant (BVS)		All biodegradable polymers (PLLA) with everolimus	Self expanding and balloon expandable designs.
Igaki-Tamai		PLLA; Transilast	Zig-zag design deployed with a heated balloon
Reva Medical		Poly (DTE carbonate) with Iodine for radiopacity	Design has ratchet links for deployment
Biosensors		Poly (L or DL) lactide with BA9	Self expanding stent with a retractable sheath delivery catheter
Vogt F et al		Poly (D, L)-lactic acid with paclitaxel	Balloon expandable design

Stent Biodégradable Magnésium



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Nouveaux Concepts

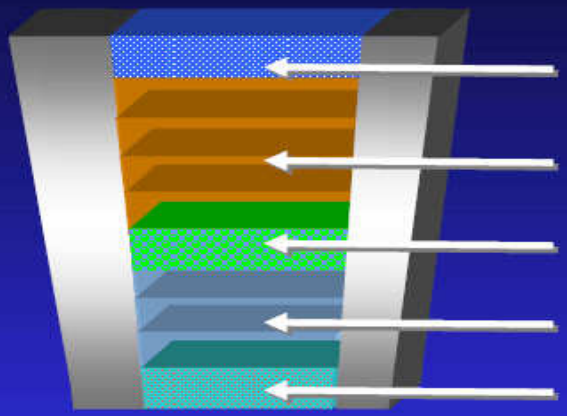
Les Stents Réservoirs

Nouveaux Concepts

Les Stents Réservoirs

Mural Side

Release in 2 Directions



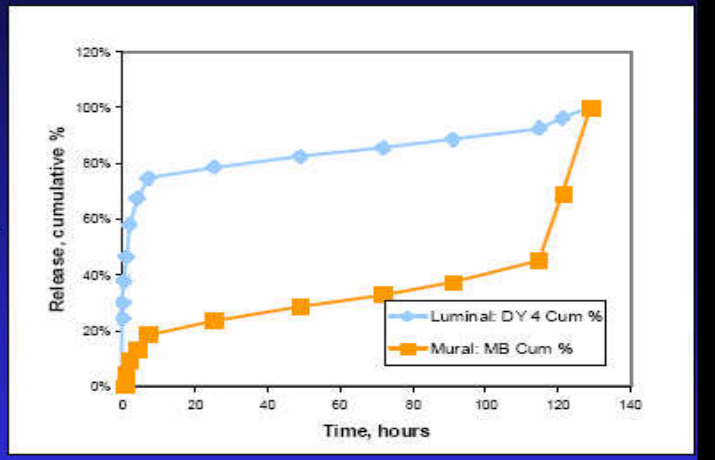
Cap Layer A

Drug A

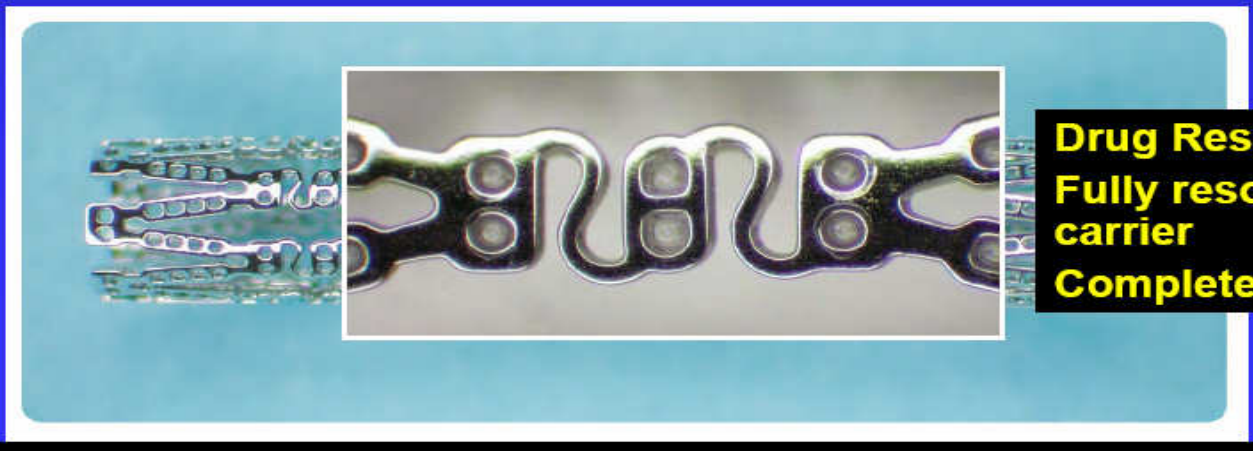
Separation Layer

Drug B

Cap Layer B



Luminal Side



Drug Reservoirs

Fully resorbable polymer carrier

Complete drug release

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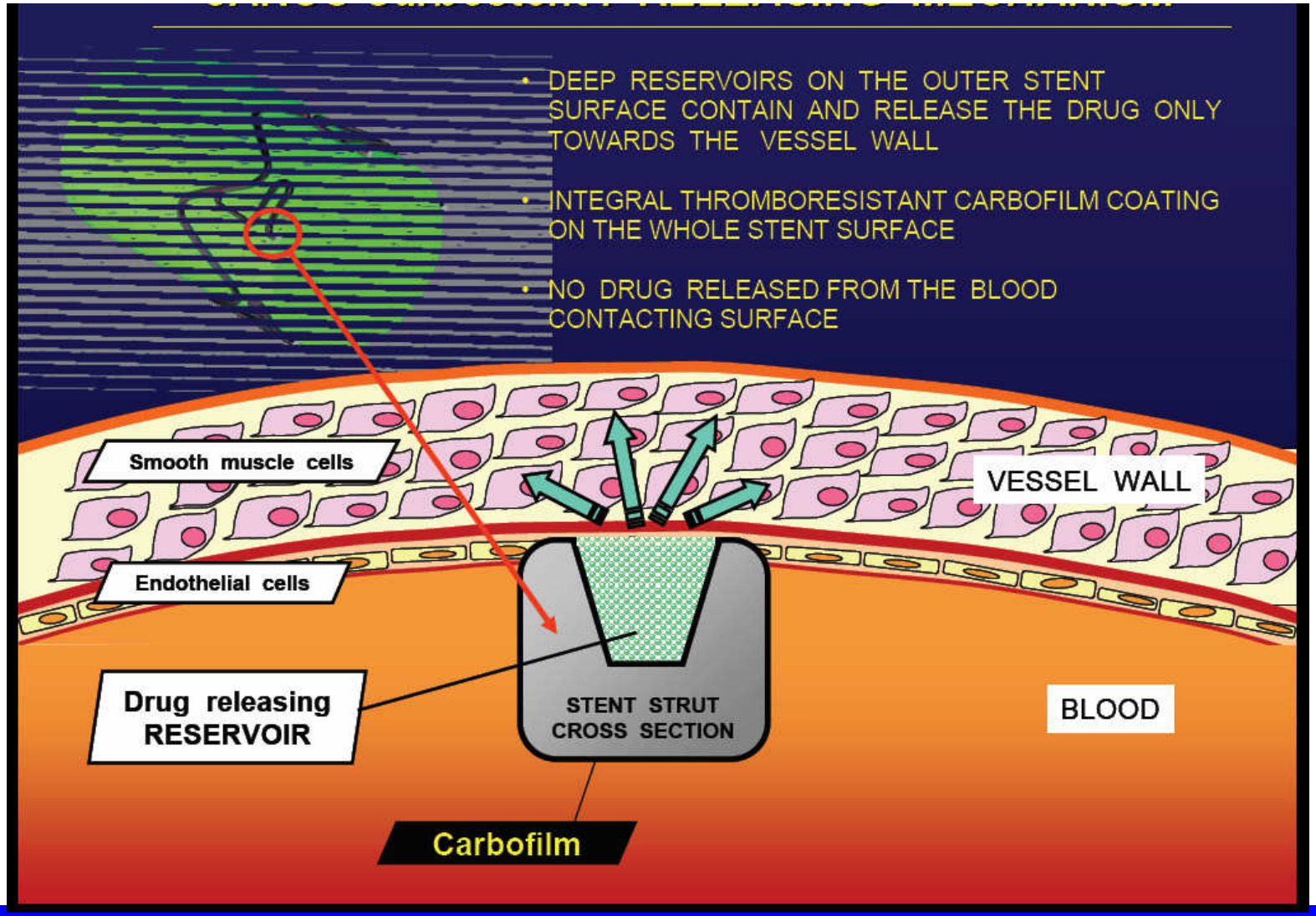
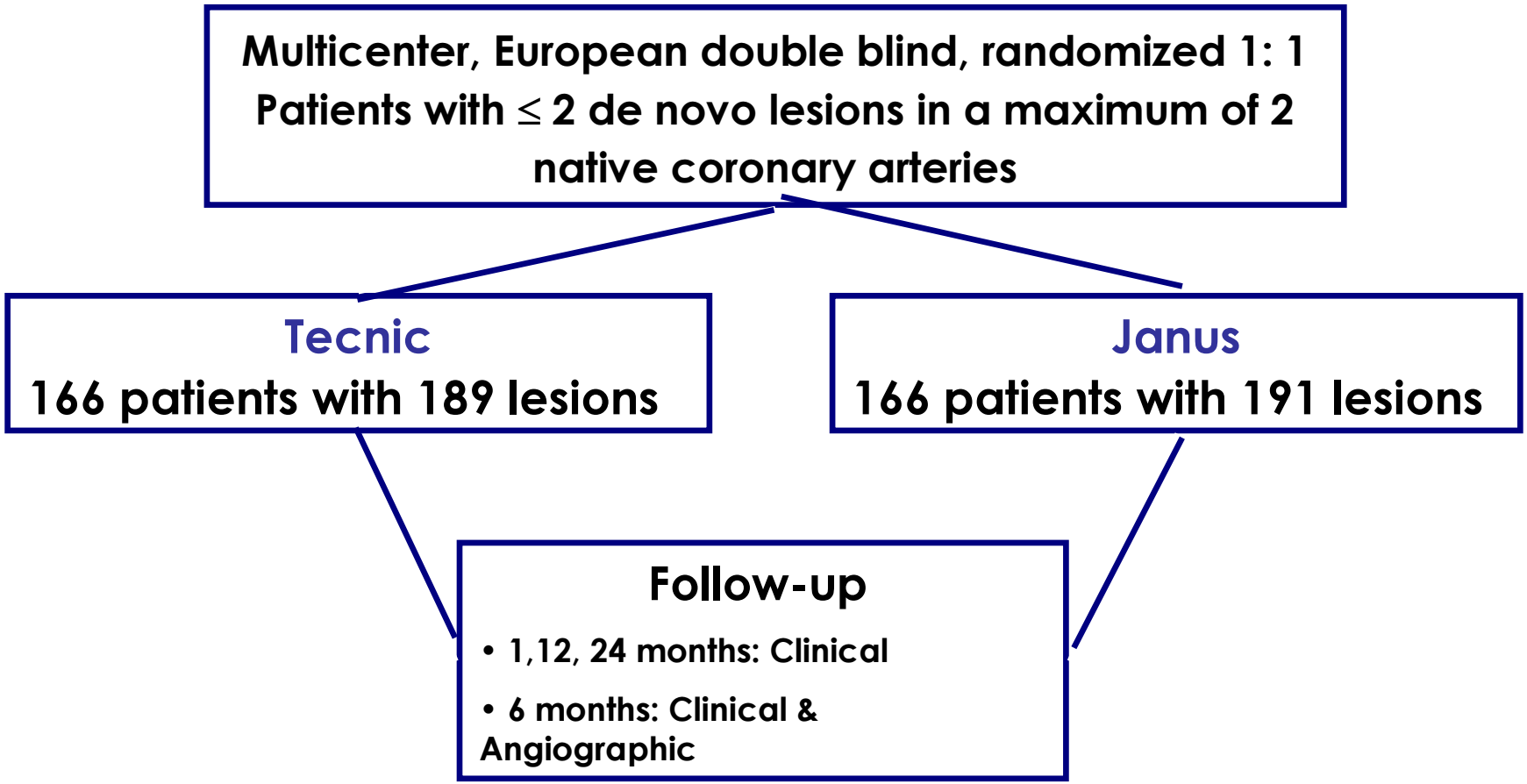
Le Stent JANUS



Étude Jupiter II



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Étude Jupiter II

Major Inclusion/ Exclusion Criteria

Inclusion Criteria:

- Patients > 18 years willing to participate in the study, after signature of informed consent
- Angina CCS class I, II, III, IV (stable)
- Angina Braunwald Class B & C I-II-III (unstable)
- Documented Silent ischemia
- Acute MI over 72 hours (non Q-wave)
- Lesions suitable for direct stenting technique
- Target vessel Ø 2.7 to 4.0 mm
- Lesion length ≤ 20 mm
- Target lesion stenosis ≥ 50% and ≤ 100% (TIMI I)

Exclusion Criteria:

- Acute MI within 7 days (Q-wave)
- LVEF ≤40%
- Less than 1 year life expectancy
- Angiographic evidence of massive thrombus in the target lesion
- Ostial lesions
- Left Main with >50% disease
- Unprotected Left Main
- Total occlusion
- In-stent restenosis
- Lesions involving bifurcation and/or branch vessels with Ø >2 mm

Étude Jupiter II

Données Techniques

	TECNIC (186 lesions)	JANUS (185 lesions)	p-Value
Attempted direct stenting	86.1%	75.9%	.0277
Direct stenting success	99.3%	100%	n.s.
# Stent/patient	1.18 ± 0.45	1.23 ± 0.52	n.s.
# Stent/lesion	1.04 ± 0.19	1.09 ± 0.35	n.s.
Mean Stent Diameter (mm)	3.22 ± 0.25	3.23 ± 0.25	n.s.
Stent max pressure (atm)	13.9 ± 3.3	13.7 ± 3.0	n.s.

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Étude Jupiter II

Résultats Cliniques à 6 mois

	TECNIC 160 patients (compl. 98.2%)	JANUS 157 patients (compl. 96.9%)	*p*-Value
ALL MACE (n)	**11.3% (18)**	**7.6% (12)**	**n.s.**
Stent-Related MACE (n)	**11.3% (18)**	**6.4% (10)**	**n.s.**
Death (n)	**0%**	**0.6% (1*)**	**n.s.**
Cardiac Death	0%	0.6% (1*)	n.s.
MI (n)	**0.6% (1)**	**0.6% (1)**	**n.s.**
Q-Wave	0%	0.6% (1)	n.s.
Non Q-Wave	0.6% (1)	0%	n.s.
TVR (n)	**10.6% (17)**	**6.4% (10)**	**n.s.**
Stent-related TLR (n)	**10.6% (17)**	**5.7% (9)**	**n.s.**
CABG	0%	0.6% (1*)	n.s.
Re-PTCA	2.5% (4)	3.2% (5)	n.s.
Re-PTCA + stent	8.1% (13)	2.5% (4)	.0433

MORICE et al TCT 2005

Étude Jupiter II

Résultats Cliniques à 6 mois

	TECNIC	JANUS	p-Value
Acute Thrombosis (n)	0.6% (1/163)	0% (0/163)	.9999
Sub-acute Thrombosis (n)	0% (0/161)	0% (0/160)	-
Late Thrombosis (n)	0% (0/160)	0% (0/157)	-

Durée recommandée de l'association ASA-PLAVIX de 2 mois

MORICE et al TCT 2005

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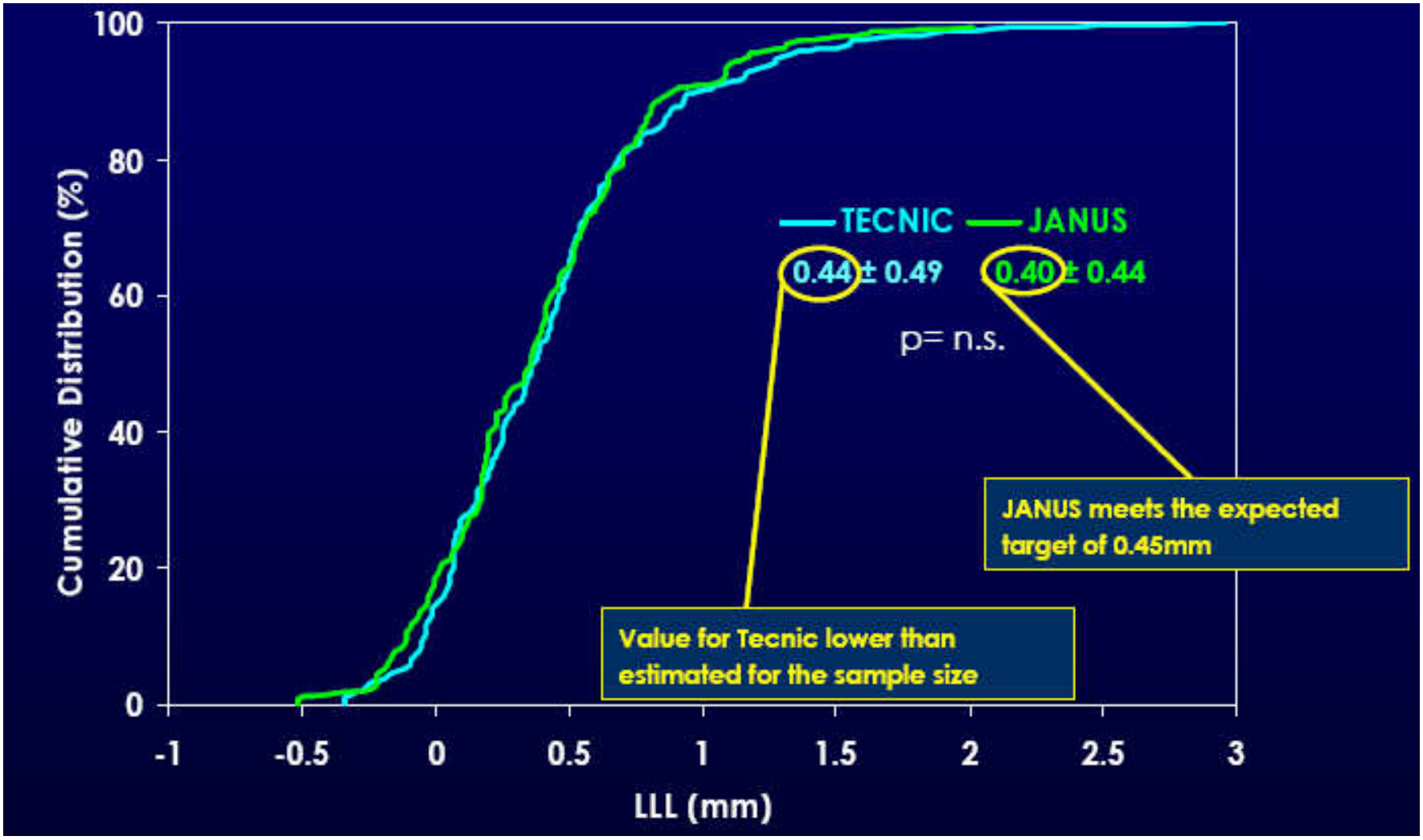
Étude Jupiter II

Résultats Angiographiques à 6 mois. Late loss



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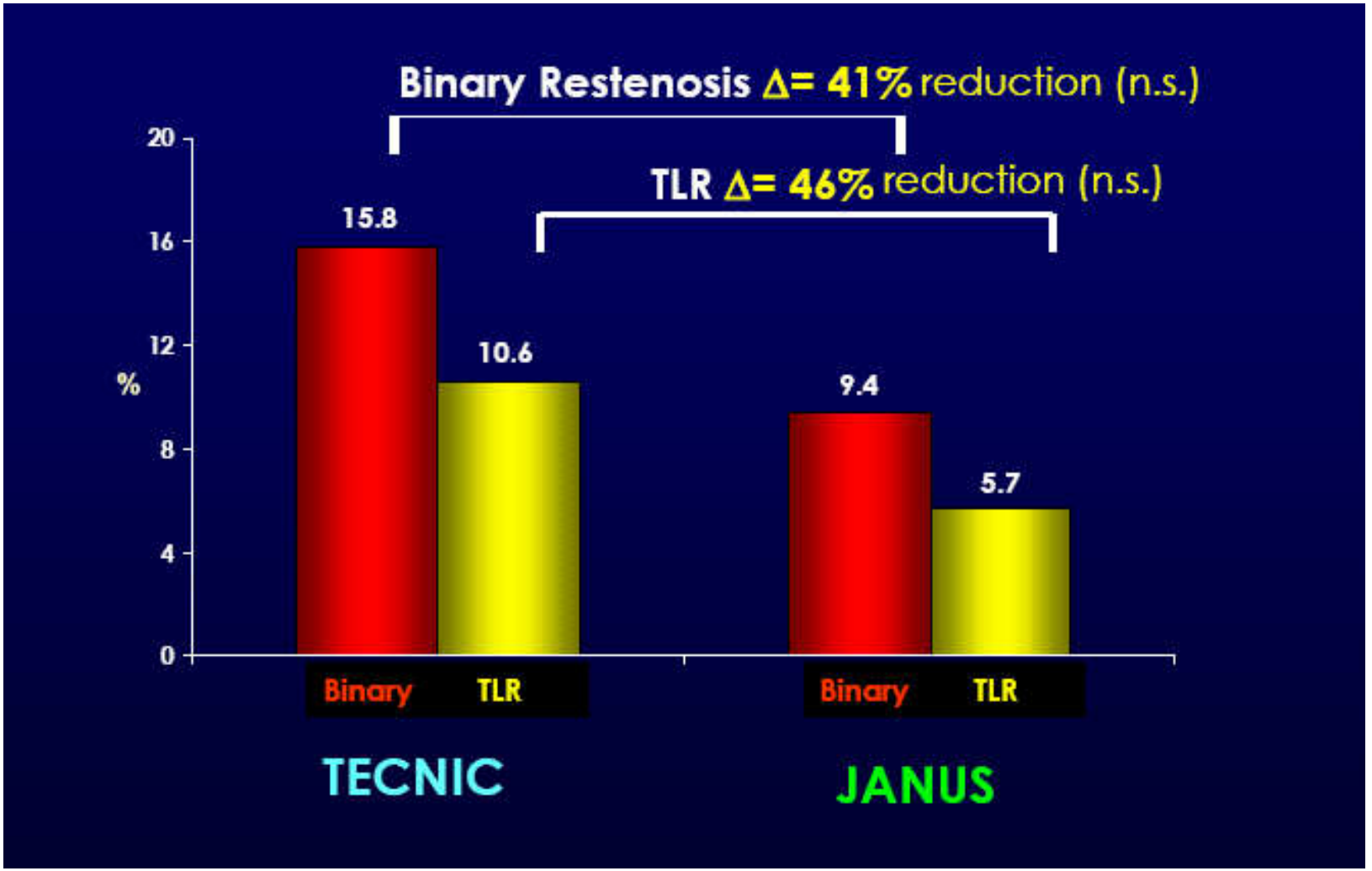
Étude Jupiter II

Résultats Angiographiques à 6 mois.



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Étude Jupiter II

Conclusions

- Late loss (0.40 mm) for the Janus stent achieved predicted expectations
- Late loss for the Tecnic Carbofilm coated stent was much better than predicted
- Thus, despite a trend a lower restenosis rate and less TLR, the trial did not reach its primary endpoint
- The safety of both Janus and Tecnic stents is confirmed

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Score d'évaluation des Études

Evaluation Parameter	Possible Points
Clinical Primary Endpoint (TLR, TVR, TVF, MACE)	Yes = 3 No = 0
Double-Blind (including physicians)	Yes = 1 No = 0
Evaluation Interval of Primary Endpoint ≥ 6 Months	Yes = 1 No = 0
Multi-Center (at least 3 centers)	Yes = 1 No = 0
Clinical Events Committee / Data Safety Monitoring Board Independent from Steering Committee	Yes = 1 No = 0
Primary Endpoint Reached	Yes = 1 No = 0
Power of ≥ 80% for Primary Endpoint Achieved	Yes = 1 No = 0
Follow-up Percentage ≥ 80% for Angiographic Primary Endpoint or Follow-up Percentage of ≥ 95% for Clinical Primary Endpoint	Yes = 1 No = 0
Maximum Score:	**10**