

Leave Nothing: *Growing Evidence of DEB*



“the miracle of healed foot”

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DEB for Lower Extremity Intervention

- **SFA**
- **Infrapopliteal ???**

DCB in SFA : 22 Trials presented, 3 metanalysis

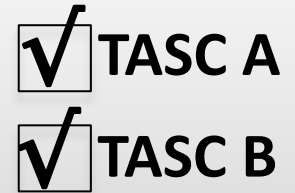
7 Proof-of-Concept [1-2-3-4-5-6-7]

1 Registry with 2-year functional outcome [8]

3 Explorative studies (DCB, Atherectomy, Ca++) [9-10-11]

1 Pivotal RCT DCB vs. PTA [12]

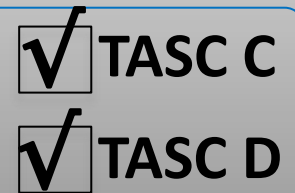
3 Meta-analysis [13-14-15]



[1] G.Tepe et al. THUNDER, NEJM 2008; [2] M.Werk et al. FEMPAC, Circulation 2008; [3] D.Scheinert et al. LEVANT I, JACC CI 2014; [4] M.Werk et al. PACIFIER Circulation CI 2012; [5] D.Scheinert BIOLUX, EuroPCR 2012; [6] D.Scheinert ADVANCE PTX, LINC 2013; [7] S.Duda ILLUMENATE, EuroPCR 2013; [8] A.Micari et al. DEB SFA IT Registry, JACC CI 2013; [9] A.Cioppa et al. Card. Rev. Med. 2012; [10] S.Sixt et al. J Vasc Surg 2013 (in press); [11] F.Fanelli, LINC 2013; [12] IN.PACT SFA; [13] S.Cassese et al. Circulation CI 2012; [14] M.Fusaro et al. Int J Cardiol 2013; [15] Kaerns British Journal of Surgery 2013

4 DCB in long lesions [16-17-18-19]

includes 1 retrospective DEB vs. DES and 1 RCT DEB+BMS vs. BMS



[16] F.Fanelli et al. DEBELLUM, J EVT 2012; [17] A.Schmidt LINC 2013; [18] T.Zeller Charing Cross 2013; [19] F.Liistro et al. JACC CI 2013

5 DCB for in-Stent-Restenosis [20-21-22-23-24]

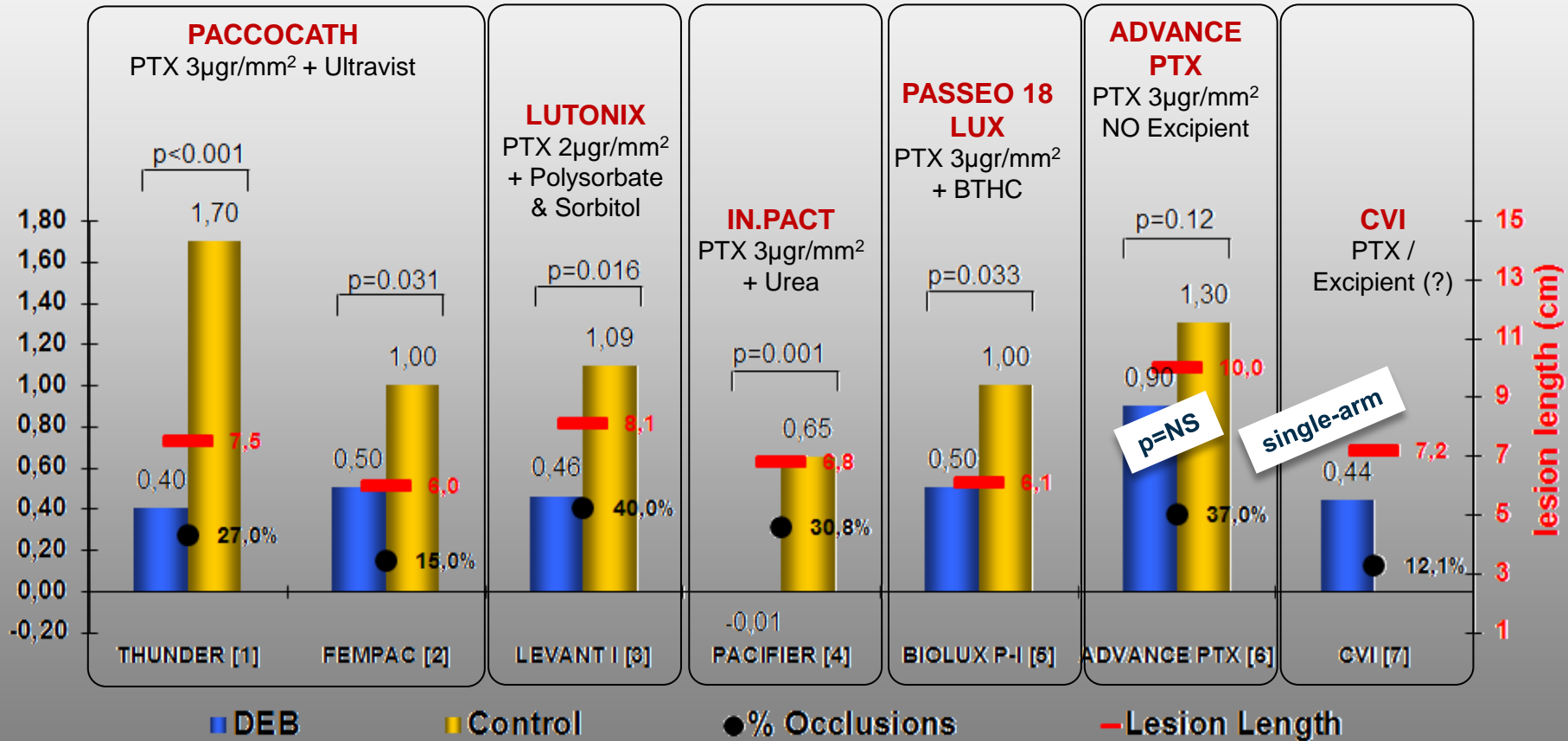
includes 3 Registries and 2 RCTs



[20] E.Stabile et al. IN.PACT ISR JACC 2012; [21] F.Liistro DEBATE ISR J EVT 2014; [22] JC Van Den Berg J Cardiovasc Surg 2012; [23] J.Lammer PACUBA preliminary results LINC 2012; [24] H.Krankenber FAIR LINC 2014

DCB Proof-of-Concept

7 Trials / 6 DCB Technologies; 6-month LLL (Primary Endpoint)



[1] G.Tepe et al. - NEJM 2008; [2] M.Werk et al. - Circulation 2008; [3] D.Scheinert - TCT 2012 oral presentation; [4] M.Werk et al. - Circulation CI 2012; [5] D.Scheinert - EuroPCR 2012 oral presentation; [6] D.Scheinert - LINC 2013 oral presentation; [7] S.Duda - EuroPCR 2013 oral presentation

DCB vs. PTA: Meta - analysis

Paclitaxel-Coated Versus Uncoated Balloon Angioplasty Reduces Target Lesion Revascularization in Patients With Femoropopliteal Arterial Disease A Meta-Analysis of Randomized Trials

Salvatore Cassese, MD*; Robert A. Byrne, MB, BCh, PhD*; Ilka Ott, MD; Gjin Ndrepepa, MD; Mateja Nerad, MD; Adnan Kastrati, MD; Massimiliano Fusaro, MD

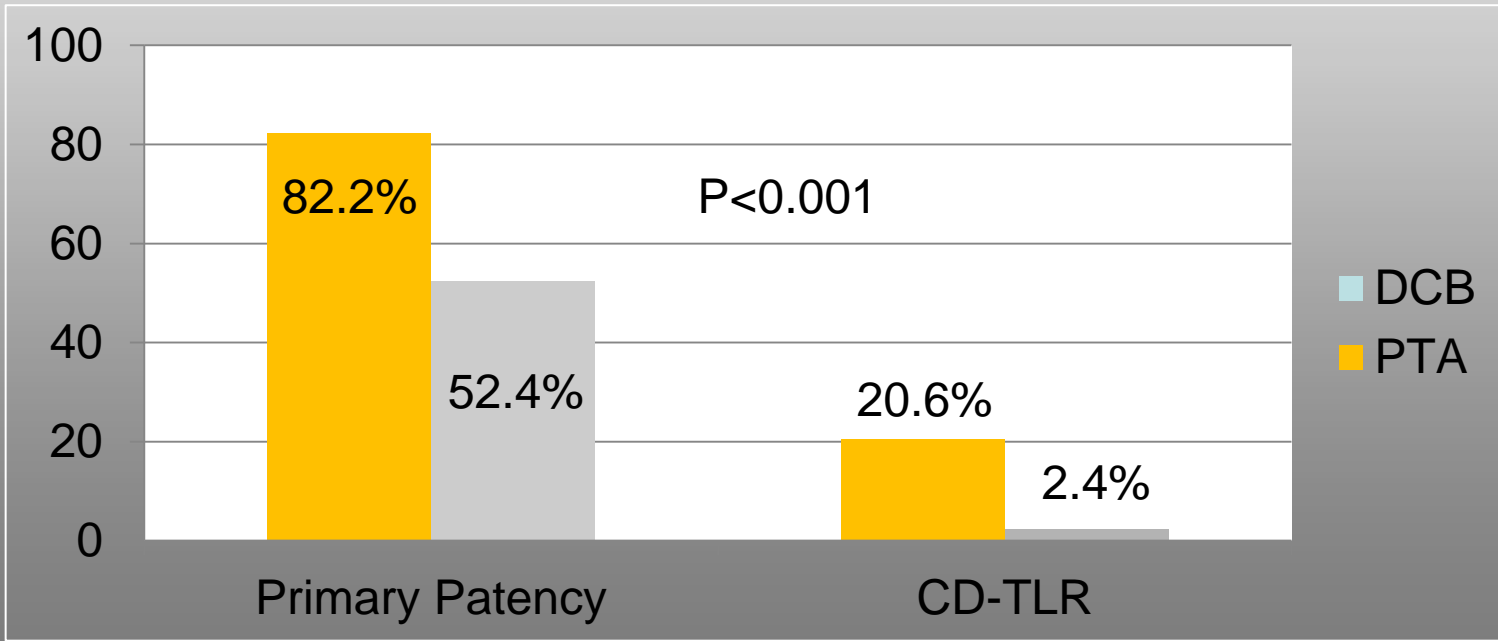
- **4 proof of concept RCTs, 433 Patients**
- **(median follow up: 10.3 months)**
- **DCB: superior angiographic and clinical restenosis with comparable safety profile**
 - DCB vs. PTA: Significantly reduces TLR, restenosis, and LLL
 - Comparable all cause mortality

IN.PACT SFA

- Prospective
- Multicenter
- Randomized
- Corelab
- Peer-rev. Published

Randomized, 331 Patients, DEB vs. PTA

- **DCB significantly improves Primary Patency rate at 1 year**
- **DCB significantly reduces CD-TLR**



(G. Tepe, Charing Cross 2014)

DEB for BTK Intervention

DEB for BTK : 5 Studies (2 published, 3 presented)

- 1 Single-center Registry DEB [1]**
- 1 Single-center RCT DEB vs. PTA – Two years data [2]**
- 2 Multi-center RCT DEB vs. PTA^[3,4]**
- 1 Single-center RCT DEB vs. DES [5]**

[1] Schmidt A, JACC 2011; [2] Liistro F, DEBATE-BTK Circulation 2013; [3] Brodmann M, BIOLUX-PII LINK 2014; [4] Zeller T, IN.PACT DEEP LINK 2014; [5] Kitrov PM, IDEAS-I LINK 2014

Mean length of treated lesions:

5% ATG

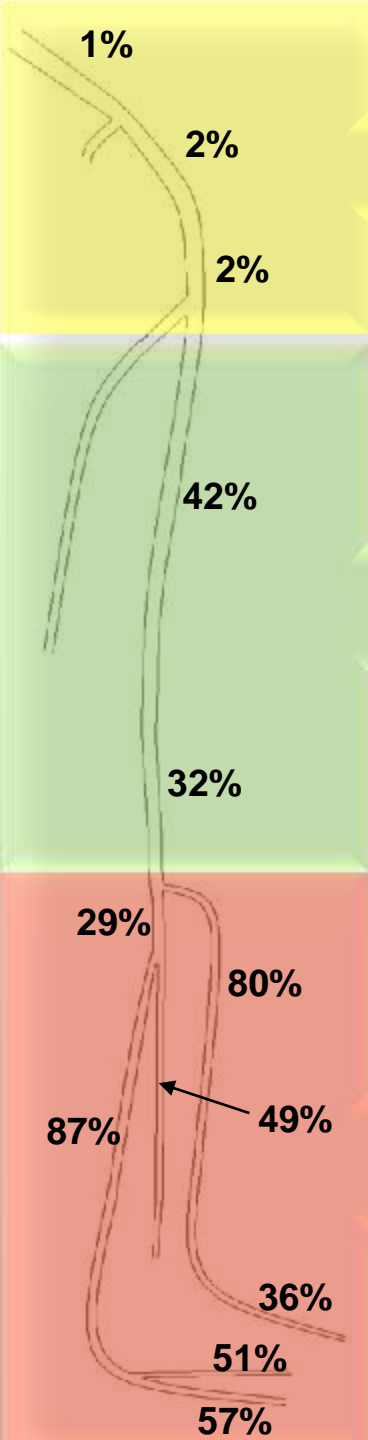
63 ± 61 mm

55% FEM-POP

116 ± 113 mm

96% BTK

185 ± 121 mm

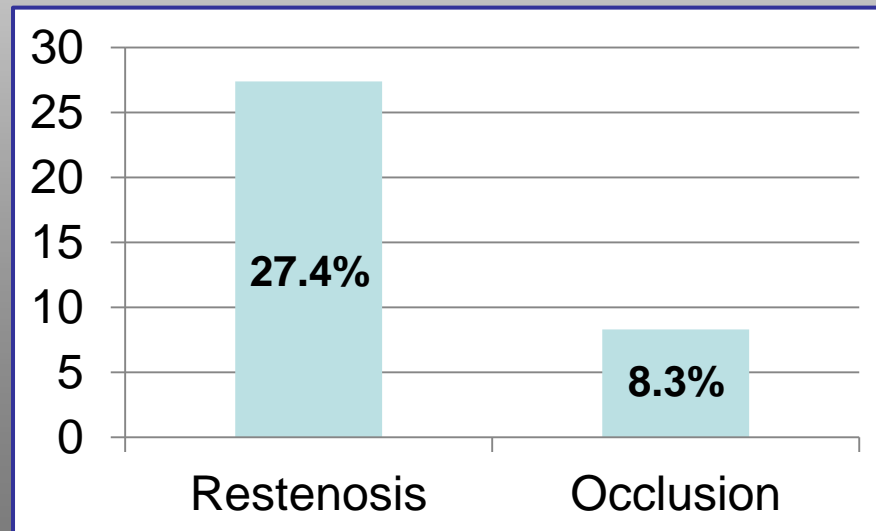


First Experience With Drug-Eluting Balloons in Infrapopliteal Arteries

Restenosis Rate and Clinical Outcome

Andrej Schmidt, MD,* Michael Piorkowski, MD,* Martin Werner, MD,* Matthias Ulrich, MD,*
Yvonne Bausback, MD,* Sven Bräunlich, MD,* Henrik Ick, MD,* Johannes Schuster, MD,*
Spiridon Botsios, MD,* Hans-Joachim Kruse, MD,† Ramon L. Varcoe, MD,‡ Dierk Scheinert, MD*
Leipzig and Zschopau, Germany; and Sydney, Australia

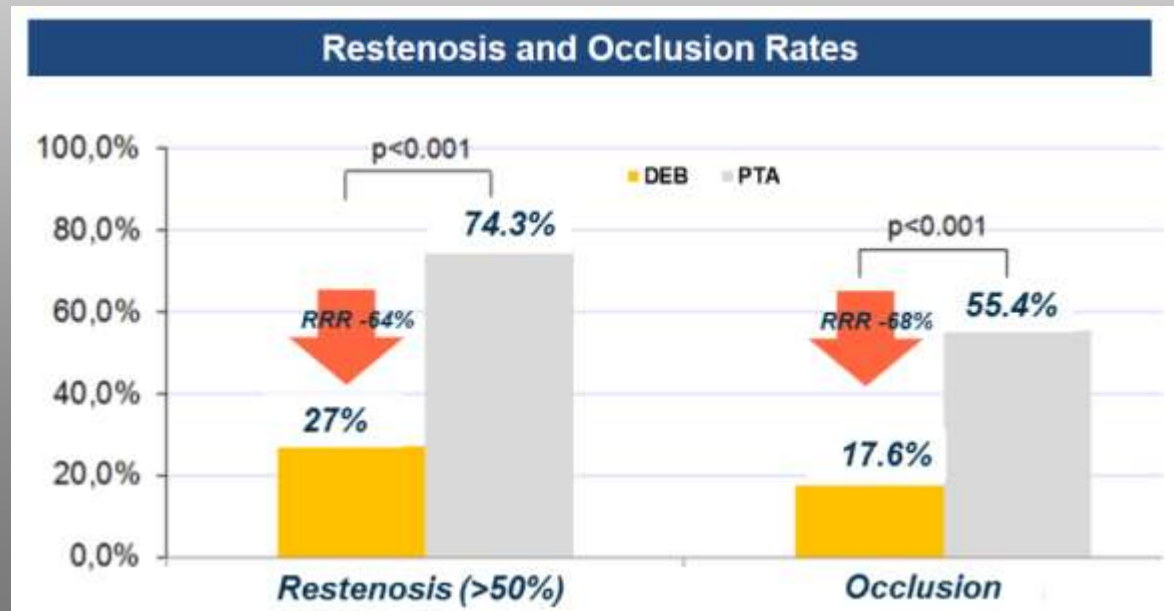
- . 104 diabetic patients with CLI (Rutherford class \geq 3)
- . Prospective registry
- . Primary end-point: binary restenosis at 3 months



Drug-Eluting Balloon in Peripheral Intervention for Below the Knee Angioplasty Evaluation (DEBATE-BTK): A Randomized Trial in Diabetic Patients With Critical Limb Ischemia

Francesco Liistro, Italo Porto, Paolo Angioli, Simone Grotti, Lucia Ricci, Kenneth Ducci, Giovanni Falsini, Giorgio Ventoruzzo, Filippo Turini, Guido Bellandi and Leonardo Bolognese

- . 156 diabetic patients with CLI (Rutherford class \geq 4)
- . RCT DEB vs. POBA
- . Randomization 1:1
- . Primary end-point: binary restenosis at 12 months
- . Secondary end-point: CD TLR, major amputation, TV occlusion



DEBATE BTK: 2-year follow-up

Clinical outcome

	DEB	PTA	<i>p</i>
N° Patients/Lesions	65/80	67/78	
Death (any cause)	12(18.5%)	11(16.5%)	0.8
Mean age of death	76.8±6	78.2±9	0.2
Major Amputation	1(1.4%)	2 (2.8%)	1
New TLR	2	3	
Cumulative TLR*	14/80 (17.5)	32/78 (41)	<0.001
All TLR*	17(21)	45(57)	<0.001
Lesion with >1 TLR	2(2)	9(11)	0.03
MAE	24(36)	37(52)	0.05

DEBATE BTK: 2-year follow-up

Patency

	DEB	PTA	<i>p</i>
N° of lesion baseline	80	78	
N° of lesion at 12 months	74	74	1
12-month Restenosis (>50%)	20 (27.0%)	55 (74%)	<0.001
N° of lesion available at 24 months	66	61	0.3
New Restenosis 12-24 months	4	6	
Cumulative restenosis	24/80(30)	61/78 (78)	<0.001
Secondary patency	61/66(92)	39/61(64)	<0.001

DEB for BTK Intervention

Annals of Internal Medicine

RESEARCH AND REPORTING METHODS

Single-Center Trials Show Larger Treatment Effects Than Multicenter Trials: Evidence From a Meta-epidemiologic Study

Agnes Dechartres, MD; Isabelle Boutron, MD, PhD; Ludovic Trinquart, MSc; Pierre Charles, MD; and Philippe Ravaud, MD, PhD



Adequate and Robust Trial Design are Essential

- Prospective, Multicenter, Randomized
- Independent Data Safety Monitoring Board (DSMB) ^[1]
- Independent Clinical Event Committee (CEC) ^[1]
- Independent Angiographic Corelab ^[2]
- Independent Wound Corelab ^[2]
- Wound Measurement through Electronic Reader ^[3]
- External Monitoring, 100% Source Data Verification ^[1]

1. Third-party safety monitoring, Clinical Event Committee and external data monitoring services provided by Genae Associates (Antwerp, Belgium)
2. Angiographic and Wound Corelab: SynvaCor (Springfield IL, US)
3. Electronic wound capturing through Sylouette Mobile (Aranz Medical, Auckland, New Zealand)

Trial Design

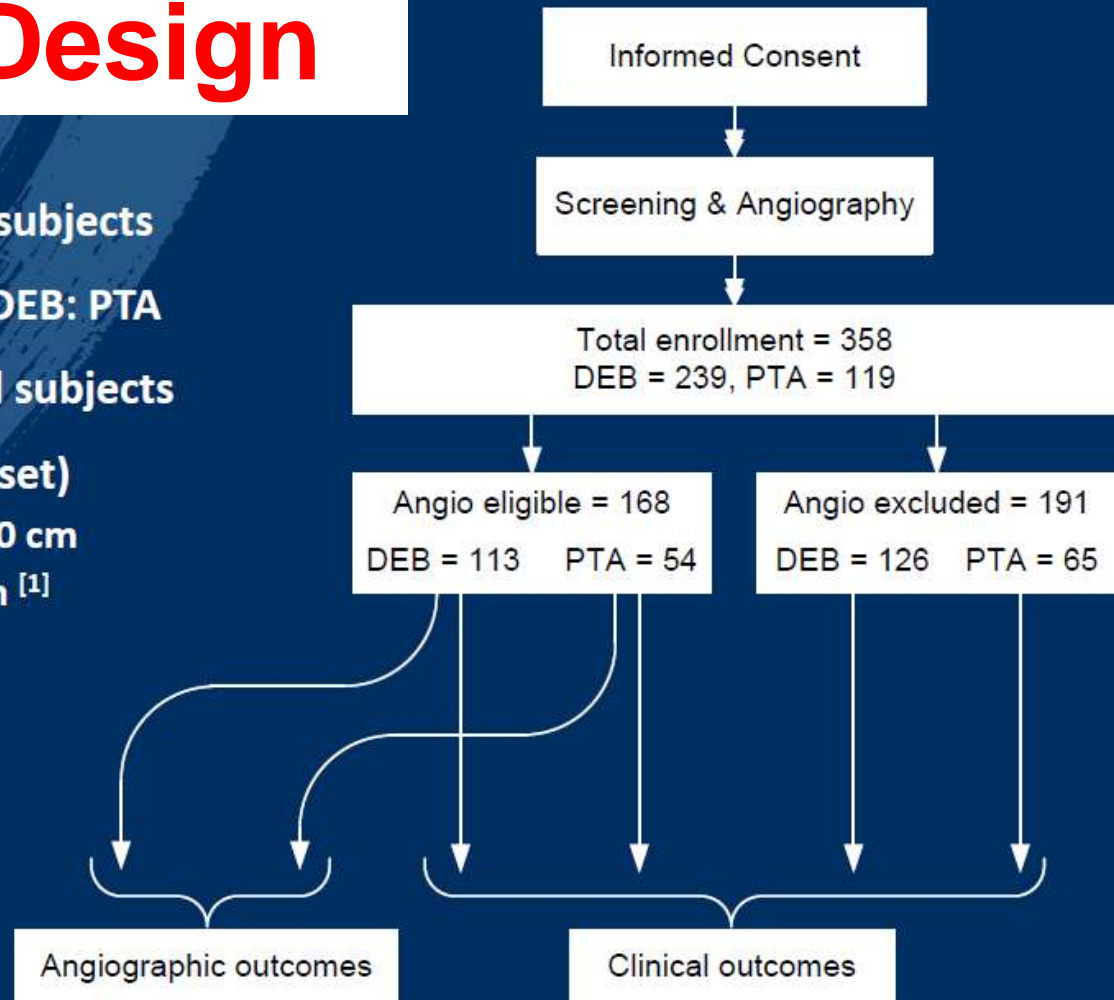
Enrollment = 358 subjects

Randomized 2:1 DEB: PTA

Clinical cohort: All subjects

Angio cohort (subset)

- Single lesion ≤ 10 cm
- GFR ≥ 30 ml/min ^[1]



Primary IN.PACT DEEP Outcomes

Primary Efficacy	DEB	PTA	<i>p</i>
12-month LLL (mm) ^[1]	0.61 ± 0.78	0.62 ± 0.78	<i>0.950</i>
12-month CD-TLR ^[2]	9.2% (18/196)	13.1% (14/107)	<i>0.291</i>
Primary Safety	DEB	PTA	<i>p</i>
6-month Death, Major Amputation or CD TLR	17.7% (41/232)	15.8% (18/114)	<i>0.021 (non-inferiority)</i> <i>0.662 (superiority)</i>

Conclusions

- IN.PACT DEEP was the first large, randomized, Level 1 evidence clinical trial of DEB for BTK CLI
- IN.PACT DEEP did not meet either 1^o efficacy endpoint
 - PTA outcomes were significantly better than expected
- IN.PACT DEEP Trial met the non-inferiority primary safety endpoint