Methods: 112 de novo lesions (61 EES and 51 biolimus-eluting stent (BES; Nobori, thick stainless platform)) treated by IVUS-guided PCI for stable angina pectoris were recruited. With pre-procedural IVUS, adequate stent size and length were determined and degree of calcification was also evaluated. After stenting, IVUS was repeated and stent diameter and cross-sectional area (CSA) were measured. If stent expansion was inadequate, post dilation was performed and again IVUS was performed. IVUS findings were then compared with estimated diameter and CSA calculated from each compliance chart (Measured/Estimated ratio).

Results: Immediately after stenting, only in moderate/severe calcified lesions, asymmetrical under-expansion of EES compared to BES was observed, and this trend was continued post-dilatation.

Conclusions: There is a significant difference of expansion between thin cobalt and thick stainless stents in calcified lesions. It may partly explain the suboptimal result of EES in diabetes.

P3036 | BENCH
Ex vivo assessment of plaque characteristics with optical frequency domain imaging; accuracy and pitfalls in diagnosis of lipid rich plaque
S. Tonii, G.N. Nakazawa, T. Ijichi, A. Yoshikawa, Y. Ikari. Tokai University School of Medicine, Isehara, Japan

Purpose: Although optical frequency domain imaging (OFDI) is one of the most useful devices for the detection of lipid-rich coronary plaques, the accuracy of its ability remains unclear. The purpose of this study was to detect the causations of misinterpretation in OFDI and evaluate whether these limitations can be overcome with intravascular ultrasound (IVUS).

Methods: The OFDI images and corresponding histology of 218 segments were evaluated (71.8±3.37%) and no coronary arteries. From OFDI images, signal-poor with diffuse borders were classified as lipid-rich plaque and segments with lipid-rich plaque were compared with histology and IVUS images.

Results: Eighty-two segments were classified as lipid-rich plaques in OFDI images. Among those, 62 segments (75.6%) showed necrotic core or lipid-pool in histology, however, remaining 20 segments (24.4%) showed no sign of lipid-rich plaques. Supercritical macrophage infiltration causing signal attenuation (13 segments, 65%) and tangential signal dropout of light because of acute angle between imaging catheter and vessel surface (7 segments, 35%) were the causations of misinterpretation in OFDI images and all of these 20 segments were revealed as fibrous plaques with IVUS.

Conclusions: OFDI occasionally overestimates the fibrous plaques to lipid-rich plaques because of superficial infiltration of macrophage and tangential signal dropout of light, however, this may possibly be overcome simultaneous usage of IVUS.

P3037 | BENCH
Six-month intravascular ultrasound analysis of the DESolve FIM Trial with a novel PLLA-based fully biodegradable drug-eluting Scaffold
J. Costa Jr 1,S. Verheye 2, J. Stewart 2, A. Abizaid 1, J. Yan 1, V. Bhat 4, L. Morrison 2, S. Toyaloy 4, J. Ormiston 5. Instituto Dante Pazzanese, Sao Paulo, Brazil; 2ZNA Middelheim, Antwerp, Belgium; 3Auckland City Hospital, Auckland, New Zealand; 4Elixir Medical, Sunnyvale, United States of America; 5Mercy Hospital, Mercy Angiography Unit, Auckland, New Zealand

Background: The DESolve Biodegradable Coronary Scaffold is a novel drug eluting device combining a PLLA-based scaffold coated with a biodegradable poly(lactide-based polymer and the drug Myolimus. Myolimus, a macrolide lactone mTOR inhibitor, has demonstrated potent anti-proliferative properties in two First-in-Man (FIM) trials using Elixir’s metallic coronary stents. The drug dose is 3 mcg per mm of scaffold length. We aimed to present the IVUS results of the first-in-man evaluation of this novel scaffold.

Methods: The DESolve FIM trial enrolled 15 patients, treated with a single 3.0×14 mm DESolve at 3 centers. IVUS was performed at the end of the procedure and repeated at six-month invasive follow-up. Complete and adequate IVUS images at baseline and follow-up were obtained for 11 cases. Serial changes in vessel volume, scaffold area and the degree of NIH formation were assessed. All analyses were performed by an independent core laboratory.

Results: From baseline to 6 months, IVUS showed a small increase in scaffold mean area (from 5.35±0.78 mm² to 5.61±0.81 mm²). Additionally, there was no significant change in vessel volume (from 148.0±37.0 mm³ to 150.0±35.38 mm³) or area, demonstrating the absence of constrictive or expansive remodeling. There was very low neointimal volume (5.6±2.2 mm³) and % scaffold obstruction (7.18±3.37%) and no cases of incomplete strut apposition. Also no scaffold discontinuity (e.g.: fracture) was observed in this sample.

Conclusions: The DESolve scaffold demonstrated a unique property of expansion and no chronic recoil from baseline to follow-up. Results at 6 months showed effective neointimal suppression and no late strut malapposition thus suggesting a very efficacious and novel biodegradable scaffold.

P3038 | BEDSIDE
Compared to strut-vessel distance of acute incomplete strut apposition between everolimus-eluting stent and 1st-generation drug-eluting stent: optical coherence tomography analysis
T. Inoue, T. Shinke, H. Otake, M. Nakagawa, H. Hanki, T. Osue, R. Nishio, M. Iwasaki, Y. Taniguchi, K. Hirata. Kobe University Graduate School of Medicine, Kobe, Japan

Purpose: We previously reported that the best cutoff value of strut-vessel wall